

INTEGRATED WILDLIFE DAMAGE MANAGEMENT PROGRAM

SCH# 2018082076

DRAFT ENVIRONMENTAL IMPACT REPORT

PREPARED FOR



JUNE 2019

PREPARED BY



1501 SPORTS DRIVE, SUITE A, SACRAMENTO, CA 95834

Integrated Wildlife Damage Management Program Draft Environmental Impact Report

SCH# 2018082076

Lead Agency:

County of Mendocino Department of Planning and Building Services
860 North Bush Street
Ukiah, CA 95482

Prepared By:

Raney Planning and Management, Inc.
1501 Sports Drive, Suite A
Sacramento, CA 95834
(916) 372-6100

Contact:
Nick Pappani
Vice President

TABLE OF CONTENTS

TABLE OF CONTENTS

<u>CHAPTER</u>		<u>PAGE</u>
1.	INTRODUCTION.....	1-1
1.1	Project Background.....	1-1
1.2	Type and Purpose of the EIR	1-2
1.3	Project Summary.....	1-3
1.4	EIR Process.....	1-3
1.5	NOP and Scoping.....	1-4
1.6	Project Changes Since Publication of the NOP	1-5
1.7	Non-Lethal Program Alternative	1-5
1.8	Scope of the EIR	1-6
1.9	Definition of Baseline.....	1-14
1.10	Significance Criteria	1-16
1.11	Comments Received on the NOP	1-17
1.12	Summary of Comments Received on the NOP.....	1-18
1.13	Consultation with Experts.....	1-20
1.14	Wildlife Damage Management Background and Practices	1-20
1.15	Draft EIR and Public Review	1-33
1.16	Organization of the Draft EIR.....	1-33
2.	EXECUTIVE SUMMARY	2-1
2.1	Introduction.....	2-1
2.2	Project Location and Description.....	2-1
2.3	Mitigation Monitoring and Reporting Program	2-2
2.4	Environmental Impacts and Required Mitigation Measures	2-2
2.5	Alternatives to the Proposed Project.....	2-3
2.6	Environmentally Superior Alternative	2-6
2.7	Areas of Controversy to be Resolved	2-7
3.	PROJECT DESCRIPTION.....	3-1
3.1	Introduction.....	3-1
3.2	Background	3-1
3.3	Environmental Setting	3-3
3.4	Project Purpose	3-8
3.5	Project Objectives	3-13
3.6	Project Implementation and Operation	3-14
3.7	Permits and Approvals	3-39
3.8	Non-Lethal Program Alternative	3-40
3.9	Scope of Environmental Impact Analysis in this Draft EIR.....	3-43

4.0	INTRODUCTION TO THE ANALYSIS.....	4.0-1
4.0.1	Introduction.....	4.0-1
4.0.2	Determination of Significance	4.0-1
4.0.3	Environmental Issues Addressed in the EIR.....	4.0-1
4.0.4	Technical Chapter Format.....	4.0-1
4.1	AGRICULTURAL AND FOREST RESOURCES	4.1-1
4.1.1	Introduction.....	4.1-1
4.1.2	Existing Environmental Setting	4.1-1
4.1.3	Regulatory Context	4.1-8
4.1.4	Impacts and Mitigation Measures	4.1-15
4.2	BIOLOGICAL RESOURCES	4.2-1
4.2.1	Introduction.....	4.2-1
4.2.2	Existing Environmental Setting	4.2-1
4.2.3	Regulatory Context	4.2-45
4.2.4	Impacts and Mitigation Measures	4.2-61
4.3	HAZARDS AND HAZARDOUS MATERIALS	4.3-1
4.3.1	Introduction.....	4.3-1
4.3.2	Existing Environmental Condition	4.3-1
4.3.3	Regulatory Context	4.3-6
4.3.4	Impacts and Mitigation Measures	4.3-12
4.4	NOISE	4.4-1
4.4.1	Introduction.....	4.4-1
4.4.2	Existing Environmental Setting	4.4-1
4.4.3	Regulatory Context	4.4-8
4.4.4	Impacts and Mitigation Measures	4.4-19
4.5	PUBLIC SERVICES	4.5-1
4.5-1	Introduction.....	4.5-1
4.5.2	Existing Environmental Setting	4.5-1
4.5.3	Regulatory Context	4.5-4
4.5.4	Impacts and Mitigation Measures	4.5-9
5.	ALTERNATIVES ANALYSIS.....	5-1
5.1	Introduction.....	5-1
5.2	Purpose of Alternatives.....	5-1
5.3	Selection of Alternatives.....	5-6
5.4	Environmentally Superior Alternative	5-20

6. STATUTORILY REQUIRED SECTIONS 6-1

6.1 Introduction..... 6-1

6.2 Cumulative Impacts 6-1

6.3 Energy Conservation..... 6-2

6.4 Significant Irreversible Environmental Changes 6-5

6.5 Growth-Inducing Impacts of the Proposed Project..... 6-7

6.6 Significant Environmental Effects Which Cannot Be Avoided 6-9

7. EIR AUTHORS AND PERSONS CONSULTED..... 7-1

8. REFERENCES..... 8-1

APPENDICES

Appendix A Notice of Preparation (NOP)

Appendix B IWDM Program Initial Study

Appendix C NOP Comment Letters

Appendix D Wildlife Damage Summary Tables/Furbearer Depredation Logs

Appendix E Biological Evaluation for CEQA Compliance, Mendocino County WS-CA
IWDM Program Project

Appendix F Environmental Noise & Vibration Assessment. Integrated Wildlife Damage
Management Program EIR, Mendocino County, California

LIST OF FIGURES

<u>FIGURE</u>	<u>PAGE</u>
3. PROJECT DESCRIPTION	
3-1 Regional Location	3-4
3-2 Project Location	3-5
3-3 Land Ownership and Jurisdiction	3-6
3-4 Geographical Distribution of Major Habitat Types within Mendocino County	3-9
3-5 WS-CA Decision Model	3-18
4.1 AGRICULTURAL AND FOREST RESOURCES	
4.1-1 Mendocino County Important Farmland Map - North	4.1-6
4.1-2 Mendocino County Important Farmland Map - South	4.1-7
4.2 BIOLOGICAL RESOURCES	
4.2-1 Mendocino County Topographic Map	4.2-2
4.2-2 Habitats Map	4.2-4
4.2-3 Special-Status Plant Locations	4.2-12
4.2-4 Federal and State Threatened and Endangered Wildlife Species In Mendocino County	4.2-17
4.2-5 California Wildlife Species of Special Concern in Mendocino County	4.2-18
4.2-6 Designated Critical Habitat in Mendocino County	4.2-21
4.2-7 Waters of the U.S. in Mendocino County	4.2-22
4.2-8 Sensitive Natural Communities in Mendocino County	4.2-24
4.3 HAZARDS AND HAZARDOUS MATERIALS	
4.3-1 Fire Hazard Severity Zones in State Responsibility Areas – Mendocino County	4.3-3
4.3-2 Fire Hazard Severity Zones in Local Responsibility Areas – Mendocino County	4.3-4
4.3-3 Mendocino County Fire Cause/Burn Percentage: 2011 through 2017	4.3-5
4.4 NOISE	
4.1-1 Noise Measurement Locations	4.4-5
4.5 PUBLIC SERVICES	
4.5-1 Fire Protection Districts in Mendocino County	4.5-2

LIST OF TABLES

<u>TABLE</u>	<u>PAGE</u>
1. INTRODUCTION	
1-1 Summary of Contact Efforts	1-20
1-2 HREC Flock Data	1-28
1-3 Estimated Livestock Losses, Coyotes Taken, and Cost to County	1-32
2. EXECUTIVE SUMMARY	
2-1 Summary of Impact and Mitigation Measures.....	2-8
3. PROJECT DESCRIPTION	
3-1 Land Ownership in Mendocino County.....	3-7
3-2 Population of Incorporated Cities in Mendocino County	3-7
3-3 Wildlife Damage Summary	3-11
3-4 Feral Swine Damage to Natural Resources (Mendocino County).....	3-13
3-5 Livestock Losses and Damage Within Mendocino County (2007-2017)	3-47
3-6 Summary of Technical Assistance (2007-2017).....	3-53
3-7 Mendocino County Take Records (1997-2017)	3-54
4.1 AGRICULTURAL AND FOREST RESOURCES	
4.1-1 Mendocino County Livestock Production 2015 Through 2017	4.1-2
4.1-2 FMMP Classifications Within Mendocino County: 2016	4.1-5
4.2 BIOLOGICAL RESOURCES	
4.2-1 Habitat Types, Acreages, and Percentages of Mendocino County.....	4.2-5
4.2-2 Federal and State Listed Plant Species Potentially Occurring In Mendocino County	4.2-11
4.2-3 CNPS-Ranked Plant Species Potentially Occurring in Mendocino County.....	4.2-13
4.2-4 Federal and State Listed Animal Species Potentially Occurring in Mendocino County.....	4.2-15
4.2-5 Designated Critical Habitat in Mendocino County.....	4.2-20
4.2-6 Sensitive Natural Communities in Mendocino County	4.2-25
4.2-7 Mendocino County WS-CA Non-Target Unintentional Take (2007-2017).....	4.2-27
4.2-8 Mendocino County WS-CA Total Species Take	4.2-28
4.4 NOISE	
4.4-1 Typical Sound Levels of Common Noise Sources	4.4-2

4.4-2	Summary of Long-Term Noise Measurement Survey Results	4.4-6
4.4-3	Human Response to Transient Vibration	4.4-8
4.4-4	Exterior Noise Level Standards (Levels Not to Be Exceeded More Than 30 Minutes in Any Hour).....	4.4-14
4.4-5	Maximum Acceptable Interior Noise Levels Created By Exterior Noise Sources.....	4.4-15
4.4-6	Exterior Noise Level Limit Standards (Levels not to be exceeded more than 30 minutes in any hour) Mendocino County Inland and Coastal Zoning Code.....	4.4-17
4.4-7	Noise Level Performance Standards for New Projects Affected by or Including Non-Transportation Noise Sources	4.4-19
4.4-8	Adjusted Mendocino County Exterior Noise Limits Applied to Firearms, Electronic Distress Devices, Tracking Dogs, and Frightening Devices.....	4.4-21
4.4-9	Adjusted Mendocino County Exterior Noise Limits Applied to Livestock Protection Dogs	4.4-22
4.4-10	Firearms Model Noise Levels and Projected Noise Contours – Mendocino County.....	4.4-28
4.4-11	WS-CA Firearms Model Noise Levels and Projected Noise Contours – City of Fort Bragg	4.4-30
4.4-12	Electronic Distress Device Noise Levels and Projected Noise Contours – Mendocino County.....	4.4-37
4.4-13	Electronic Distress Device Noise Levels and Projected Noise Contours – City of Fort Bragg.....	4.4-38
4.4-14	Dog Bark Reference Noise Levels and Projected Noise Contours – Mendocino County.....	4.4-44
4.4-15	Dog Bark Reference Noise Levels and Projected Noise Contours – City of Fort Bragg.....	4.4-45
4.4-16	Frightening Device Reference Noise Levels and Projected Noise Contours – Mendocino County	4.4-51
4.4-17	Frightening Device Reference Noise Levels and Projected Noise Contours – City of Fort Bragg	4.4-52
4.4-18	Dog Bark Reference Noise Levels and Projected Noise Contours – Mendocino County.....	4.4-57
4.5	PUBLIC SERVICES	
4.5-1	Fire Protection Service Providers in Mendocino County	4.5-3
5.	ALTERNATIVES ANALYSIS	
5-1	Summary of Significant Noise Impacts/Effects.....	5-4
5-2	Control Methods to Be Used Under Project Alternatives.....	5-10
5-3	Comparison of Environmental Impacts for Project Alternatives.....	5-22

1. INTRODUCTION

1	INTRODUCTION
----------	---------------------

1.1 PROJECT BACKGROUND

The proposed project consists of approval of the Integrated Wildlife Damage Management (IWDM) Program to protect agricultural and livestock commodities, human health and safety, natural resources, and property from wildlife damage. The IWDM Program would include the approval of Mendocino County’s five-year Cooperative Services Agreement (CSA), including annual work plans (work and financial plans) required by the five-year CSA, with the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS) Wildlife Services California Office (WS-CA) for wildlife damage management assistance in the County. While the CSA would fund an initial five-year term during which WS-CA would implement the IWDM Program in the County, the IWDM Program being analyzed in the EIR is not limited to five-years. Rather, the proposed project would adopt and establish the IWDM Program for ongoing implementation in the County. Any future discretionary actions by the County necessary to implement the Program would need to be evaluated for consistency with the IWDM Program and conformance with this EIR.

Wildlife management services within the County have been provided by WS-CA since the initial adoption of a CSA in 1989. In December 2004, the County entered into a new CSA with a five-year term, and in March 2010, the second five-year agreement was approved. The CSA and Work Plan between WS-CA and Mendocino County were both renewed by the Board on June 3, 2014. The Work Plan expired on June 30, 2015. On June 16, 2015, the Mendocino County Board of Supervisors adopted Resolution 15-098, which authorized the execution of the CSA between Mendocino County and WS-CA for the period of July 1, 2015 through June 30, 2016. Additionally, the Board of Supervisors adopted Resolution 15-097, which found that approval of the WS-CA CSA was exempt from CEQA. Following adoption of Resolution 15-097, the Animal Legal Defense Fund (ALDF) and affiliated groups challenged the County’s finding that approval of the WS-CA CSA was exempt from CEQA. On May 17, 2016, in accordance with a settlement agreement reached between the County and ALDF and affiliated groups, the Board of Supervisors adopted Resolution 16-058, rescinding prior resolutions 15-097 and 15-098, and suspending the IWDM Program until the County prepares and certifies an EIR for the IWDM Program or a non-lethal alternative to the program.

Since April 2016, WS-CA has continued to implement the IWDM Program wholly independently from and without any oversight, direction, or funding from the County.

The County prepared an Initial Study (IS) to review the potential environmental effects associated with the approval and implementation of the IWDM Program. The IS prepared for the proposed project was circulated with a Notice of Preparation (NOP) and made available to the public for a 30-day review period beginning on August 31, 2018 and closing on October 1, 2018.

In accordance with the County's settlement agreement with ALDF and affiliated groups, the County's IS included review of the IWDM Program as well as a Non-Lethal Program Alternative. The Non-Lethal Program Alternative was evaluated at an equal weight throughout the IS. More information regarding the Non-Lethal Program Alternative is provided in Section 1.7 of this Chapter, and all technical chapters within this EIR include an equal weight analysis of the Non-Lethal Program Alternative.

1.2 TYPE AND PURPOSE OF THE EIR

The EIR has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970, Pub. Res. Code §§ 21000-21178, as amended and the Guidelines for Implementation of the California Environmental Quality Act, Cal. Code Regs. Title 14, §§ 15000-15387 (CEQA Guidelines). Mendocino County is the lead agency for the environmental review of the proposed project evaluated herein and has the principal responsibility for approving the project. As required by Section 15121 of the CEQA Guidelines, this EIR will (a) inform public agency decision-makers, and the public generally, of the significant environmental effects of the project, (b) identify possible ways to minimize the significant adverse environmental effects, and (c) describe reasonable and feasible project alternatives which reduce environmental effects. The public agency shall consider the information in the EIR along with other information that may be presented to the agency.

As provided in the CEQA Guidelines Section 15021, public agencies are charged with the duty to avoid or minimize environmental damage where feasible. The public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues. CEQA requires the preparation of an EIR prior to approving any project that may have a significant effect on the environment. For the purposes of CEQA, the term *project* refers to the whole of an action, which has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378[a]). With respect to the proposed project, the County has determined that the proposed approval of the IWDM Program, including the associated CSA and annual work plans, is a *project* within the definition of CEQA, which has the potential for resulting in significant environmental effects.

The CEQA Guidelines identify several types of EIRs, each applicable to different project circumstances. This EIR has been prepared as a *program-level EIR* pursuant to CEQA Guidelines Section 15168. According to CEQA Guidelines Section 15168(a), a program-level EIR is an EIR that may be prepared on a series of actions that could be characterized as one large project and are related either 1) geographically; 2) as logical parts in the chain of contemplated actions; 3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or 4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

A program-level analysis for the IWDM Program is appropriate in this EIR because:

- The IWDM Program would allow for WS-CA to operate throughout the entire County, but WS-CA would only operate on particular sites in response to requests for service. Consequently, the exact sites where WS-CA would operate within the County cannot be known at this time;
- A program-level analysis provides the County with the opportunity to consider “broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts” (CEQA Guidelines Section 15168(b)(4)).

While site-specific details are not available for the programmatic analysis, the types of impacts that could occur are generalized based on historical data from previous implementation of the IWDM Program within the County. Such historical data is discussed in further depth within Chapter 3, Project Description, of this EIR.

1.3 PROJECT SUMMARY

The IWDM Program includes several administrative and operational components. As noted previously, the IWDM Program would include the approval of a five-year CSA, which would include annual work plans and financial plans. Although the CSA would fund an initial five-year term, the IWDM Program analyzed within this EIR is not limited to five-years. Rather, the proposed project would adopt and establish the IWDM Program for ongoing implementation in the County.

As further discussed within Chapter 3, Project Description, of this EIR, implementation of the IWDM Program would generally include WS-CA personnel responding to requests for assistance to provide protection for agricultural and livestock commodities, human health and safety, natural resources, and property from wildlife damage. Depending on the type of resource being affected and the nature of the individual request for assistance, WS-CA personnel may respond through the provision of technical assistance and/or direct control assistance. Technical and direct control assistance, as defined below, may involve the use of either lethal or non-lethal methods, or a combination of the two. WS Directive 2.101 states that when responding to requests for assistance, “Preference is given to nonlethal methods when practical and effective.” A detailed discussion of the wildlife damage management methods employed by WS-CA is provided in Chapter 3, Project Description, of this EIR.

In addition, this EIR includes an equal weight analysis of a Non-Lethal Program Alternative to the IWDM Program. The Non-Lethal Program Alternative is discussed in-depth in Section 1.7 of this Chapter.

1.4 EIR PROCESS

The EIR process begins with the decision by the lead agency to prepare an EIR, typically during a preliminary review of a project or at the conclusion of an initial study. For the proposed project, as discussed above, the decision to prepare an EIR was made as a result of a settlement

agreement reached between the County and ALDF and affiliated groups. Once the decision is made to prepare an EIR, the lead agency sends a NOP to appropriate government agencies and, when required, to the State Clearinghouse (SCH) in the Office of Planning and Research (OPR), which will ensure that responsible and trustee State agencies reply within the required time. The SCH assigns an identification number to the project, which then becomes the identification number for all subsequent environmental documents on the project. Commenting agencies have 30 days to respond to the NOP and provide information regarding alternatives and mitigation measures they wish to have explored in the Draft EIR and to provide notification regarding whether the agency will be a responsible agency or a trustee agency for the project.

Upon completion of the Draft EIR and prior to circulation to State and local agencies and interested members of the public, a notice of completion is filed with the SCH and a public notice of availability is published to inform interested parties that a Draft EIR is available for agency and public review. In addition, the notice provides information regarding the location of copies of the Draft EIR available for public review and any public meetings or hearings that are scheduled. The Draft EIR is circulated for a minimum period of 45 days, during which time reviewers may submit comments on the document to the lead agency. The lead agency must respond to comments in writing.

A Final EIR will be prepared, containing public comments on the Draft EIR and written responses to those comments, as well as a list of changes to the Draft EIR text necessitated by public comments, as warranted. Before approving a project, the lead agency shall certify that the EIR (consisting of the Draft EIR and Final EIR) has been completed in compliance with CEQA, and that the EIR has been presented to the decision-making body of the lead agency, which has reviewed and considered the EIR. The lead agency shall also certify that the EIR reflects the lead agency's independent judgment and analysis.

The findings prepared by the lead agency must be based on substantial evidence in the administrative record and must include an explanation that bridges the gap between evidence in the record and the conclusions required by CEQA. If the decision-making body elects to proceed with a project that would have unavoidable significant impacts, then a Statement of Overriding Considerations explaining the decision to balance the benefits of the project against unavoidable environmental impacts must be prepared.

1.5 NOP AND SCOPING

In accordance with CEQA Guidelines Section 15082, a NOP (see Appendix A) for the proposed project, as well as a detailed IS (see Appendix B), was prepared and circulated to the public, local, State, and federal agencies, and other known interested parties from August 31, 2018 to October 1, 2018. The purpose of the NOP was to provide notification that an EIR for the proposed project was being prepared and to solicit public input on the scope and content of the document.

Pursuant to CEQA Guidelines Section 15082, Mendocino County held a NOP scoping meeting for the EIR during the 30-day review period, on September 18, 2018, for the purpose of receiving comments on the scope of the environmental analysis to be prepared for the proposed

project. Agencies and members of the public were invited to attend and provide input on the scope of the EIR. Several comment letters were received during the 30-day review period and are provided as Appendix C to this EIR. All comments were taken into consideration during the preparation of this EIR. See Section 1.11 below for a list of comment letters received on the NOP and Section 1.12 for a summary of all of the NOP comments received on the project.

1.6 PROJECT CHANGES SINCE PUBLICATION OF THE NOP

Since the NOP was published, the County of Mendocino has decided to consider including additional lethal methods of wildlife damage management as part of the IWDM Program. The IS prepared for the proposed project included analysis of the use of lethal trap devices and snares, as well as the use of gunshot as a method of euthanasia. Historical data from the past 10 years of WS-CA providing IWDM in Mendocino County shows that gunshot is the most common method of euthanizing trapped animals. However, under the proposed project, WS-CA could be called upon to respond to damage or human health and safety threats from a wide range of species in a variety of situations. Limitations on the method of euthanasia could curtail WS-CA's ability to respond to incidents of damage or human health and safety threats, and could prevent WS-CA from applying the method of euthanasia considered most humane for the particular species or age class. Considering the wide range of species and potential threats posed by wildlife to agricultural and livestock commodities, human health and safety, natural resources, and property, subsequent to the release of the NOP/IS for the proposed project, the County proposed the inclusion of additional methods of euthanasia that comply with state and federal regulations, American Veterinary Medical Association (AVMA) standards, WS Directive 2.430, or WS Directive 2.505.

The additional methods under consideration for use within the IWDM Program include the following: carbon dioxide (CO₂), euthanasia solution, and physical euthanasia methods. Details regarding each method are provided in Chapter 3, Project Description, of this EIR, and the potential environmental effects of these methods are evaluated throughout the technical chapters of this EIR.

1.7 NON-LETHAL PROGRAM ALTERNATIVE

In addition to the analysis provided within this EIR related to the IWDM Program, this EIR includes an equal weight analysis of a Non-Lethal Program Alternative.

The Non-Lethal Program Alternative would not use or recommend lethal methods to attempt to resolve wildlife damage. This Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to residents reporting wildlife damage. The University of California Cooperative Extension is one such agency that could provide educational technical assistance to landowners on behalf of the County, as well as operational assistance in the form of specialized equipment demonstrations (e.g., electrified fladry, propane cannons, lasers, pyrotechnics). This Alternative could also involve cost sharing with property owners for reimbursement of management methods, such as building of new fences or repair of fences; purchasing new livestock protection

animals; maintenance of livestock protection animals; and scare devices. Under the Non-Lethal Program Alternative analyzed in this EIR, technical assistance related to lethal methods would not be provided to land owners or other resource managers.

Variation to the Non-Lethal Program Alternative

In addition to the Non-Lethal Program Alternative discussed above, this EIR evaluates a variation to the Non-Lethal Program Alternative. For the variation to the Non-Lethal Program Alternative, lethal methods would only be used in exceptional cases where a risk to public health and safety is posed by wildlife. The available lethal method under this alternative would be limited to gunshot, not including aerial gunning.

1.8 SCOPE OF THE EIR

The CEQA Guidelines, Section 15126.2(a) states, in pertinent part:

An EIR shall identify and focus on the significant environmental effects of the proposed project. In assessing the impact of a proposed project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced.

In the case of the proposed project, the IS prepared for the proposed project (see Appendix B) that was attached to and distributed for public review with the NOP includes a detailed environmental checklist addressing a range of technical environmental issues related to implementation of either the proposed project or the aforementioned Non-Lethal Program Alternative, including the variation to the Non-Lethal Program Alternative. For each technical environmental issue, the IS identifies the level of impact for both the proposed project and the Non-Lethal Program Alternative. The IS identifies the environmental effects as either “no impact,” “less-than-significant,” “less-than-significant with mitigation incorporated,” or “potentially significant.” Impacts identified for the proposed project and the Non-Lethal Program Alternative in the IS as “no impact” or “less-than-significant” are summarized below and discussed further in Appendix B. All remaining issues identified in the IS as “potentially significant” are discussed in the subsequent technical chapters of this EIR.

- *Aesthetics (All Items)*: Official scenic vistas and State Scenic Highways have not been designated by Mendocino County. However, State Route (SR) 1 through the County, a portion of U.S. 101, and all of SR 20 are eligible for designation as State Scenic Highways, but have not yet been officially designated. The proposed project would involve the use of non-permanent control methods such as frightening devices or trapping. Such methods would not substantially contrast with the surrounding visual character of the County, and would represent only temporary and minor interruption of the existing visual conditions within properties where such methods are being implemented. Implementation of the IWDM Program would not directly result in the installation of new permanent sources of light and glare near existing receptors, and where direct control methods would represent a source of light, such as light from the

muzzle of a firearm when being discharged, such light would be momentary and localized. Consequently, the IS prepared for the IWDM Program concluded that a *less-than-significant* impact related to aesthetics would occur.

The majority of methods used under the Non-Lethal Program Alternative would involve non-permanent activities, or activities that do not involve physical changes to the environment; however, technical assistance to private parties may include recommendations regarding the provision of fencing, for which program reimbursement may be obtained. However, fencing constructed for the purpose of excluding wildlife would not be anticipated to significantly block near or distant views of agricultural land, pastureland, and rangeland that may represent scenic resources within the County. In addition to including potential reimbursement for the provision of fencing, the purchase of strobe light battery devices, such as Foxlights, may also be reimbursed under the Non-Lethal Program Alternative. Although such devices would create light to frighten wildlife, such devices would not be operated continuously. Furthermore, the majority of such devices are anticipated to be operated in more rural portions of the County, where agricultural activities are more likely to be located, and the wide dispersal of residences in rural areas would reduce the potential for such devices to affect other residences. Because the only difference between the variation to the Non-Lethal Program Alternative and the Non-Lethal Program Alternative is that the variation would allow for use of lethal gunshot as a control method in exceptional circumstances where a risk to public health and safety is posed by wildlife, the variation to the Non-Lethal Program Alternative would be anticipated to result in similar impacts as the Non-Lethal Program Alternative. Considering the analysis provided above, the IS concluded that implementation of the Non-Lethal Program Alternative would result in a *less-than-significant* impact related to aesthetics.

- *Air Quality (All Items)*: Implementation of the IWDM Program would result in limited emissions of air quality pollutants related to the use of fossil fueled vehicles to transport WS-CA personnel to field sites where technical assistance or direct control would be implemented. However, based on vehicle miles travelled by WS-CA personnel during previous iterations of the IWDM Program in Mendocino County, the IWDM Program was determined not to have the potential to result in the emissions of substantial quantities of air pollutants. Additionally, while the IWDM Program could result in animal carcasses, per WS Directive 2.515, such carcasses must be properly disposed whenever practicable. Proper disposal of animal carcasses would ensure that implementation of the IWDM Program would not result in the creation of substantial odors. Consequently, the IS prepared for the IWDM Program concluded that a *less-than-significant* impact related to air quality would occur.

The Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would not be anticipated to include any substantial sources of air pollution not previously considered under the IWDM Program. However, because the Non-Lethal Program Alternative would not include the use of lethal methods under any circumstances, and the variation to the Non-Lethal Program Alternative would use lethal methods under strictly limited circumstances, the Non-Lethal Program Alternative and

the variation to the Non-Lethal Program Alternative would not have the potential to result in the creation of substantial odors due to the creation of animal carcasses. Consequently, the IS prepared for the proposed project concluded that implementation of the Non-Lethal Program Alternative would result in a *less-than-significant* impact related to air quality.

- *Biological Resources (Item 8)*: The only adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) within Mendocino County is the Fisher Family HCP. The IS prepared for the proposed project erroneously identified the Mendocino Redwood Company (MRC) NCCP/HCP as the only adopted NCCP or HCP in the County; however, the MRC NCCP/HCP is not currently adopted and in draft form. Under the proposed project, WS-CA may provide technical assistance and direct control within lands under the Fisher Family HCP or within MRC managed lands, prior to or following adoption of the MRC NCCP/HCP. Due to the errors regarding existing and draft HCPs/NCCPs within the IS prepared for the proposed project, Section 4.2, Biological Resources, includes an analysis of potential impacts resulting from implementation of the proposed project, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative on HCPs/NCCPs within the County.
- *Cultural Resources (All Items)*: The only management method employed under the IWDM Program that could result in ground disturbance is the use of physical traps. However, setting of such traps does not result in substantial amounts of ground disturbance. Consequently, implementation of the IWDM Program would not involve any activities that would result in substantial amounts of ground-disturbing activity. Because the IWDM Program would not involve ground-disturbing activity, the proposed project would not have the potential to result in adverse changes to cultural resources. Consequently, the IS prepared for the IWDM Program concluded that a *less-than-significant* impact related to cultural resources would occur.

The Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative may include program reimbursement to private parties for non-lethal methods including the installation of fencing. Although the Non-Lethal Program Alternative could involve the reimbursement of private parties for the installation of fencing, the placement of fencing would require minor ground disturbance, and would be unlikely to result in adverse changes to cultural resources. As such, the IS prepared for the proposed project concluded that implementation of the Non-Lethal Program Alternative would result in a *less-than-significant* impact related to cultural resources.

- *Geology and Soils (All Items)*: Implementation of the IWDM Program would not involve the construction of any structures that would have the potential to expose people or structures to seismic or geologic hazards or require the use of septic systems. Select control methods, such as traps or snares, that could be used under the proposed project could require minor ground disturbance during installation. However, such ground disturbance would be spatially limited and would not be anticipated to result in substantial amounts of top soil loss or erosion. Therefore, the IS prepared for the IWDM Program concluded that a *less-than-significant* impact related to geology and soils would occur.

Similar to the IWDM Program, the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would not involve the construction of any structures that would have the potential to expose people or structures to seismic or geologic hazards or require the use of septic systems. The Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative could involve reimbursement to private parties for materials related to non-lethal methods, including fencing. The placement of fencing would require limited ground-disturbance; however, such ground disturbance would occur over relatively small areas where fencing is being placed, and would not be anticipated to result in substantial top soil loss or erosion. Thus, the IS prepared for the IWDM Program concluded that implementation of the Non-Lethal Program Alternative would result in a *less-than-significant* impact related to Geology and Soils.

- *Greenhouse Gas Emissions (All Items)*: Implementation of the IWDM Program would result in greenhouse gas (GHG) emissions from a limited number of sources. Principally, GHG emissions would result from the use of fossil fueled vehicles to transport WS-CA personnel to field sites. Based on vehicle miles travelled by WS-CA personnel during previous iterations of the IWDM Program in Mendocino County, the IWDM Program was determined not to have the potential to result in significant GHG emissions from fossil fueled vehicles. Therefore, the IS prepared for the IWDM Program concluded that a *less-than-significant* impact related to GHG emissions would occur.

The Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would be anticipated to include a similar degree of vehicle sourced GHG emissions as the IWDM Program. In addition to emissions from vehicle use, the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative may include reimbursement for certain types of non-lethal control devices such as strobe light battery devices and electric fences. Such non-lethal control devices would involve the consumption of energy, which could result in the emission of GHGs. However, the amount of electricity consumed would likely be relatively limited and the resulting GHG emissions would also be limited. Thus, the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would not be anticipated to result in emissions of substantial amounts of GHG. Thus, the IS prepared for the proposed project concluded that implementation of the Non-Lethal Program Alternative would result in a *less-than-significant* impact related to GHG emissions.

- *Hazards and Hazardous Materials (Items 4 through 7)*: Implementation of the IWDM Program would not involve ground disturbance or other earth moving activity within sites known to contain contaminated soils. Furthermore, the IWDM Program would not have the potential to conflict with airport land use plans or existing airport operations, nor would the IWDM Program have the potential to conflict with emergency response or evacuation plans. Consequently, the IS prepared for the IWDM Program concluded that a *less-than-significant* impact related to hazardous material sites, airport safety, and emergency plans would occur.

Since the release of the NOP/IS the County has determined that the IWDM Program could involve the use of certain immobilization and euthanasia chemicals specifically

approved for such uses by the AVMA and/or WS. Due to the potential hazard posed by chemicals used to immobilize or euthanize wildlife, the use of such chemicals is analyzed in Section 4.3, Hazards and Hazardous Materials, of this EIR.

The Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would not involve substantial ground-disturbing activities. However, the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative could include cost reimbursement for the installation of fencing by private parties. Although the installation of fencing would involve limited amounts of ground-disturbance, such fencing would not be anticipated to be constructed where hazardous material contamination exists. Furthermore, fencing would be intended to provide wildlife exclusion, but would not be anticipated to result in incompatibilities with any emergency response plans or airport land use plans. Accordingly, the IS prepared for the proposed project concluded that implementation of the Non-Lethal Program Alternative would result in a *less-than-significant* impact related to hazardous material sites, airport safety, and emergency plans.

- *Hydrology and Water Quality (All Items)*: Implementation of the IWDM Program would not result in any direct development or ground-disturbing activity that could result in the depletion of groundwater, alteration of drainage patterns, creation of increased stormwater runoff, placement of structures within a 100-year flood hazard area, or exposure of people to inundation due to levee or dam failure, seiche, tsunami, or mudflow.

With regard to water quality, lethal control measures would result in animal carcasses. However, WS Directive 2.515 requires that WS personnel make a reasonable effort to retrieve and dispose of wildlife carcasses that result from WS-CA wildlife damage management activities.

As discussed above, since the release of the NOP/IS the County has determined that the IWDM Program could involve the use of certain immobilization and euthanasia chemicals specifically approved for such uses by the AVMA and/or WS-CA. Due to the potential hazard posed by chemicals used to immobilize or euthanize wildlife, including hazards related to stormwater quality, most such chemicals are regulated by State and Federal law. In addition to the State and Federal laws concerning such chemicals, there are several factors that reduce the likelihood of any water quality impacts related to the use of immobilization or euthanasia chemicals: 1) the chemical registration process includes protocols to safeguard registered chemicals; 2) training and certification requirements (per WS Directive 2.430) for WS-CA personnel prior to approval for use of immobilization and euthanasia chemicals; 3) the low volume of use of such chemicals; 4) the limited area of use; 5) specificity in the application and action of such chemicals; and 6) the targeting of chemicals used for specific animals in specific situations. Prior to use of any immobilization or euthanasia chemicals, such chemicals must be registered with the U.S. Environmental Protection Agency (EPA), and WS-CA personnel applying such chemicals must adhere to any training and certification requirements imposed by the U.S.

EPA and the State. Additionally, WS-CA personnel must comply with WS policy related to the use, storage, transport, and accountability of such chemicals. The highly regulated nature of such chemicals ensures that such chemicals are properly used, and, once used, such chemicals are not allowed to enter stormwater or surface water and degrade water quality. Therefore, the use of such chemicals would not result in any adverse impacts, and a *less-than-significant* impact related hydrology and water quality would result.

The Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would not involve substantial ground-disturbing activities. However, the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative could include cost reimbursement for the installation of fencing by private parties. Although the installation of fencing would involve limited amounts of ground-disturbance, such fencing would not be anticipated to result in substantial top soil loss leading to degradation of water quality. Furthermore, the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would not result in any direct development or ground-disturbing activity that could result in the depletion of groundwater, alteration of drainage patterns, creation of increased stormwater runoff, placement of structures within a 100-year flood hazard area, or exposure of people to inundation due to levee or dam failure, seiche, tsunami, or mudflow.

It should be noted that the variation to the Non-Lethal Program Alternative would involve the use of firearms for the lethal control of wildlife on a strictly limited basis. Because the use of lethal methods would be strictly limited, the variation to the Non-Lethal Program Alternative would not be anticipated to result in a substantial number of animal carcasses. Furthermore, the organization implementing the variation to the Non-Lethal Program Alternative would be responsible for the proper disposal of animal carcasses and animal carcasses would not be anticipated to result in impacts related to water quality. Consequently, the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative would result in a *less-than-significant* impact related to hydrology and water quality.

- *Land Use and Planning (All Items)*: Implementation of the IWDM Program would not have the potential to physically divide established communities, or result in development that could conflict with applicable land use plans. Therefore, the IS concluded that a *less-than-significant* impact would occur with implementation of the IWDM Program. Implementation of the IWDM Program in areas of the County covered by the Fisher Family HCP is discussed in further depth in Section 4.2 Biological Resources, of this EIR.

The Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative could include cost reimbursement for the installation of fencing by private parties. Such fencing would be designed to exclude wildlife, but would not be anticipated to result in the physical separation of existing communities. Accordingly, the IS concluded that a *less-than-significant* impact would occur with implementation of the

Non-Lethal Program Alternative or the variation to the Non-Lethal Program Alternative. Implementation of the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative in areas of the County covered by the Fisher Family HCP is discussed in further depth in Section 4.2 Biological Resources, of this EIR.

- *Mineral Resources (All Items)*: The IS prepared for the IWDM Program determined that neither the proposed project nor the Non-Lethal Program Alternative would result in impacts related to known mineral resources or of a locally important mineral resource recovery site. Consequently, the IS determined that a *less-than-significant* impact related to mineral resources would occur with implementation of either the IWDM Program or the Non-Lethal Program Alternative. The same conclusion would apply to the variation to the Non-Lethal Program Alternative.
- *Population and Housing (All Items)*: The IS prepared for the IWDM Program determined that neither the proposed project nor the Non-Lethal Program Alternative would result in impacts related to Population and Housing. Therefore, the IS determined that a *less-than-significant* impact related to Population and Housing would occur with implementation of either the IWDM Program or the Non-Lethal Program Alternative. The same conclusion would apply to the variation to the Non-Lethal Program Alternative.
- *Public Services (Items 3, 4, and 5)*: The IS prepared for the IWDM Program determined that neither the proposed project nor the Non-Lethal Program Alternative would increase the demand for schools, parks, or other public facilities within the County. Therefore, the IS determined that a *less-than-significant* impact related to schools, parks, or other public facilities would occur with implementation of either the IWDM Program or the Non-Lethal Program Alternative. The same conclusion would apply to the variation to the Non-Lethal Program Alternative.
- *Recreation (All Items)*: The IS prepared for the IWDM Program determined that neither the proposed project nor the Non-Lethal Program Alternative would increase the demand for recreational facilities within the County. Therefore, the IS determined that a *less-than-significant* impact related to recreation would occur with implementation of either the IWDM Program or the Non-Lethal Program Alternative. The same conclusion would apply to the variation to the Non-Lethal Program Alternative.
- *Transportation and Circulation (All Items)*: Implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative would involve vehicle trips related to site visits. Site visits would be made on an as-needed-basis, with implementing staff responding to individual requests. Such requests would originate from diverse locations within the County, but would not be anticipated to be of sufficient frequency or volume to result in changes in vehicle or air traffic patterns within the County. Therefore, the IS determined that a *less-than-significant* impact related to transportation and circulation would occur with implementation of either the IWDM Program or the Non-Lethal Program Alternative. The same conclusion would apply to the variation to the Non-Lethal Program Alternative.

- *Tribal Cultural Resources (All Items)*: Implementation of the IWDM Program would not involve any activities that would involve substantial amounts of ground-disturbing activity. Because ground disturbance related to implementation of the IWDM Program would be limited to minor disturbance related to placement of physical traps, the IWDM Program, the proposed project would not have the potential to result in adverse changes to tribal cultural resources. Consequently, the IS prepared for the IWDM Program concluded that a *less-than-significant* impact related to tribal cultural resources would occur.

The Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative may include program reimbursement to private parties for non-lethal methods including the installation of fencing. Although the Non-Lethal Program Alternative could involve the reimbursement of private parties for the installation of fencing, the placement of fencing would require minor ground disturbance, and would be unlikely to result in adverse changes to tribal cultural resources. As such, the IS prepared for the proposed project concluded that implementation of the Non-Lethal Program Alternative would result in a *less-than-significant* impact related to tribal cultural resources.

- *Utilities and Service Systems (All Items)*: The IS prepared for the IWDM Program determined that neither the proposed project nor the Non-Lethal Program Alternative would increase the demand for utility service within the County. Therefore, the IS determined that a *less-than-significant* impact related to utilities and public service systems would occur with implementation of either the IWDM Program or the Non-Lethal Program Alternative. The same conclusion would apply to the variation to the Non-Lethal Program Alternative.

Pursuant to the CEQA Guidelines, the scope of this EIR addresses specific issues and concerns identified as potentially significant in the IS prepared for the IWDM Program. The sections of the CEQA Checklist identified for study in this EIR include:

- Agricultural Resources;
- Biological Resources;
- Hazards and Hazardous Materials;
- Noise; and
- Public Services.

The evaluation of effects is presented on a resource-by-resource basis in Chapter 4, Sections 4.1 through 4.5, of the EIR. Each chapter is divided into the following three sections: Existing Environmental Setting, Regulatory Context, and Impacts and Mitigation Measures. Impacts that are determined to be significant in Chapter 4, and for which feasible mitigation measures are not available to reduce those impacts to a less-than-significant level, are identified as *significant and unavoidable*. Chapter 6 of the EIR presents a list of significant and unavoidable impacts identified in Sections 4.1 through 4.5 of Chapter 4 of this EIR.

1.9 DEFINITION OF BASELINE

According to CEQA Guidelines Section 15125, an EIR must include a description of the existing physical environmental conditions in the vicinity of the project to provide the “baseline physical conditions” against which project-related changes could be compared. Normally under CEQA, the baseline condition is the physical condition that exists when the NOP is published. The NOP for the proposed project was published on August 31, 2018. Therefore, conditions existing at that time could be considered to be the baseline against which the proposed project’s effects to the physical environment are evaluated. However, the County has maintained previous agreements with WS-CA since 1989, and the provision of the IWDM Program throughout that time has resulted in the conditions that are present today. Furthermore, while the County’s CSA with WS-CA expired in 2015, WS-CA continued to independently implement the program within Mendocino County. Therefore, at the time of publication of the NOP, WS-CA was implementing an IWDM Program within Mendocino County, albeit without County funding; and the on-going implementation of an IWDM Program would be considered a feature of the environmental baseline.

The CEQA baseline for the environmental analysis in this EIR, pursuant to Guidelines Section 15125, thus, appropriately includes wildlife damage management operations. The IWDM Program does not represent a net change in proposed operations (i.e., methods), as the proposed project being evaluated in this EIR would not differ from the IWDM Program historically implemented by WS-CA within the County. An EIR is not required to assess the effects of actions already occurring as part of the baseline setting.

Notwithstanding this, given the public interest and concern regarding the proposed project, the County has opted to include a second baseline for informational purposes. This second baseline treats the IWDM Program as a new program and, thus, does not account for the fact that such a program is part of the baseline. Doing so enables the EIR to disclose the proposed project’s potential effects to the physical environment. The two environmental baseline conditions evaluated in this analysis can be summarized as follows:

1. CEQA Baseline: This baseline scenario recognizes the fact that the County has had a wildlife damage management program since 1989, and as such, a wildlife damage management program in the County is part of the environmental baseline pursuant to CEQA Guidelines Section 15125. As noted previously, while the County’s most recent Work Plan with WS-CA expired in June of 2015, WS-CA has continued to implement the IWDM Program in Mendocino County without funding from the County.
2. No Program Baseline: The No Program Baseline treats the IWDM Program as a new program and, thus, does not account for the fact that such a program is part of the baseline. This approach enables the County to provide an informational analysis as to the potential environmental effects of the IWDM Program.

Given the inclusion of an equal-level analysis of a Non-Lethal Program Alternative and a variation to this alternative, additional consideration is needed regarding the assumptions of each baseline scenario below.

CEQA Baseline

IWDM Program

Under the CEQA Baseline, the IWDM Program would be equivalent to the past IWDM Program, which WS-CA has historically implemented in Mendocino County. Thus, the IWDM Program is part of the baseline, and no net new impacts would occur.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative could involve the use of all wildlife control methods that would be implemented under the IWDM Program, with the exception of the lethal control methods and those methods typically associated with lethal disposition of animals, such as live capture devices, including cage and corral traps, snares, nets, tracking dogs, and chemical immobilization. Thus, in general, the Non-Lethal Program can be considered part of the baseline, and no net new impacts would occur. However, because this Alternative enables property owners to seek reimbursement for the purchase of certain non-lethal equipment (electric/non-electric fences and fladry) and livestock protection animals, this is considered a net change from the CEQA Baseline, as there has never been a mechanism for reimbursement in the County and WS-CA has not provided such resources in the past in Mendocino County. Thus, under the CEQA Baseline, this EIR will evaluate any potential physical environmental effects associated with the use of fencing, fladry, and livestock protection animals.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative, with the exception that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife posing a threat to public safety or health. The use of lethal control methods, including firearms, to control wildlife posing a threat to public safety or health has been allowed under previous iterations of the IWDM Program in Mendocino. Therefore, the use of lethal methods under the variation to the Non-Lethal Program Alternative would not be considered a net change from the CEQA Baseline. However, similar to the Non-Lethal Program Alternative, the variation to the Non-Lethal Program Alternative would also provide a mechanism for reimbursement of costs related to the purchase of certain non-lethal equipment (electric/non-electric fences and fladry) and livestock protection animals, which is considered a net change from the CEQA Baseline.

No Program Baseline

IWDM Program

The No Program Baseline includes analysis of implementation of the same IWDM Program that has historically been implemented by WS-CA in the County, but does not account for the fact that the program is part of the environmental baseline. Thus, under the No Program Baseline, the IWDM Program is considered a new program, and all potential effects of the IWDM Program are considered a change from the baseline setting.

Non-Lethal Program Alternative

Analysis of the Non-Lethal Program Alternative under the No Program Baseline assumes that the Non-Lethal Program Alternative is a new program within the County. Thus, any potential effects of the Non-Lethal Program Alternative, including those resulting from reimbursement or the use of non-lethal wildlife damage control methods, are analyzed as a change from the baseline setting.

Variation to the Non-Lethal Program Alternative

Under the No Program Baseline, potential effects of the variation to the Non-Lethal Program Alternative will be analyzed with the assumption that the variation to the Non-Lethal Program Alternative is a new program within the County. The analysis will consider potential effects related to reimbursement for the use of non-lethal wildlife damage control methods, as discussed under the Non-Lethal Program Alternative above, as well as effects related to the use of firearms for lethal control of wildlife posing a threat to public safety or human health. All effects resulting from activities under the variation to the Non-Lethal Program Alternative will be considered as a change from the baseline setting.

Use of Historic Data

In assessing the effects of the IWDM Program as if it were new, it was necessary to consider take data associated with the historic implementation of the IWDM Program in the County, as this data would serve as the best proxy for assessing the future effects of such a program. In this effort, it was recognized that the selection of only one year of baseline data may not capture the true conditions within the County. Using a single year as the baseline period does not account for the fact that actions taken under the IWDM Program varied each year, as did the type and number of target species. CEQA Guidelines Section 15125 (1) states “where existing conditions change or fluctuate over time, and where necessary to provide the most accurate picture practically possible of the project’s impacts, a lead agency may define existing conditions by referencing historic conditions.” Given the influence that the IWDM Program has had on the existing setting of the County, and the variability in wildlife populations from year to year, the County has concluded that selecting a baseline of a single-year for program analysis in this EIR would not present the most accurate picture of the existing environmental setting within the County.

Although the IWDM Program has existed within the County since 1989, complete data for the IWDM Program is only available from the years 1997 to 2017 (with 2017 being the most recent full year of data available at the time the NOP was published). Thus, data from the 20-year period from 1997 to 2017 is averaged to serve as a proxy for assessing the anticipated level of take for future implementation of the IWDM Program.

1.10 SIGNIFICANCE CRITERIA

The CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial adverse change in any of the physical conditions within the area affected

by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance.” In addition, the Guidelines state, “An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.” (CEQA Guidelines Section 15382).

Pursuant to the CEQA Guidelines, this EIR relies on the following three levels of impact significance: 1) Less-than-significant impact; 2) Less-than-significant impact with implementation of mitigation; and 3) Significant impact that cannot be mitigated to a level that is less than significant.

Each environmental area of analysis uses a distinct set of significance criteria. Where measurable and explicit quantification of significance is identified, such as violation of a noise standard, this measurement is used to assess the level of significance of a particular impact in this EIR. CEQA Guidelines Section 15064.7 specifies that lead agencies have the discretion to determine appropriate thresholds of significance. Lead agency specified thresholds of significance may be established for general use through the adoption of ordinances, rules, or regulations. In addition, according to CEQA Guidelines Section 15064.7(b), lead agencies may use thresholds of significance on a case-by-case basis. Considering the foregoing regulation provided by the CEQA Guidelines, if criteria for determining significance relative to a specific environmental resource impact are not identified in the CEQA Guidelines, criteria were developed for this Draft EIR.

The significance criteria are identified at the beginning of the Impacts and Mitigation Measures section in each of the technical chapters of this EIR. Although significance criteria are necessarily different for each resource considered, the provided significance levels ensure consistent evaluation of impacts for all alternatives considered.

1.11 COMMENTS RECEIVED ON THE NOP

During the NOP public review period from August 31, 2018 to October 1, 2018, Mendocino County received nine comment letters. A copy of each letter is provided in Appendix C of this EIR. In addition, a public scoping meeting was held on September 18, 2018, and written comments submitted during the public scoping meeting are included in Appendix C. The comment letters were authored by the following representatives of State and local agencies, as well as other interested parties.

Agencies

- United States Department of Agriculture, APHIS, WS-CA – Dennis Orthmeyer

Organizations

- Animal Legal Defense Fund – Alexandra Monson, Cristina Stella
- California Farm Bureau Federation – Kari Fisher

- Mendocino County Farm Bureau & Mendocino County Cattlemen’s Association – Frost Pauli, Jennifer Smith-Reed
- Mendocino Wildlife Association – Traci Pellar
- Project Coyote – Camilla Fox, David Parsons
- University of California, Agriculture and Natural Resources, Hopland Research and Extension Center – John Bailey, James Lewers, Alison Smith

Individuals

- Stornetta Brothers
- Devon Jones

1.12 SUMMARY OF COMMENTS RECEIVED ON THE NOP

The following list is a summary of concerns taken from written comments made at the NOP scoping meeting and comment letters received prior to the close of the 30-day NOP comment period.

<p><u>Introduction</u> (c.f. Chapter 1)</p>	<p>Comments/concerns related to:</p> <ul style="list-style-type: none"> • Environmental baseline for proposed project and Non-Lethal Program Alternative should be based on existence of the IWDM Program. • Efficacy of lethal and non-lethal methods in controlling damage from wildlife.
<p><u>Project Description</u> (c.f. Chapter 3)</p>	<p>Comments/concerns related to:</p> <ul style="list-style-type: none"> • Scope of resources protected under the IWDM Program and the Non-Lethal Program Alternative. • Concern regarding when the use of lethal control methods would be applied in the variation to the Non-Lethal Program Alternative. • Agencies potentially implementing a Non-Lethal Program Alternative or variation thereof should be identified. • The exact methods of lethal control should be clearly defined for the IWDM Program. • The lethal methods employed under the variation to the Non-Lethal Program Alternative should be specified and limited to gunshot. • The non-lethal methods employed under the IWDM Program and Non-Lethal Program Alternative should be specified. • Identification of key procedures used to determine method of wildlife damage management chosen. • Frequency of the use of lethal and non-lethal methods. • Specify that Livestock Protection Dogs (LPDs) regularly kill wildlife. • Consider distribution of public funds through cost-sharing to select group of private individuals requesting assistance. • Outdated information in the IS related to lethal and non-lethal

	<p>control methods should be updated with more recent studies.</p> <ul style="list-style-type: none"> • Analysis should not be limited to predators, but should instead consider all species that cause damage to livestock, crops, human health and safety, and property within the County. • Methods analyzed should be relevant to those methods used in Mendocino County historically. • Categorization of lethal and non-lethal control methods. • General history, data, mission, and regulatory setting regarding implementation of IWDM Program.
<p><u>Agricultural Resources</u> (c.f. Chapter 4.1)</p>	<p>Comments/concerns related to:</p> <ul style="list-style-type: none"> • Potential loss of agricultural productivity. • Include consideration of other agricultural activities, such as row crops, tree crops, field crops, and timber operations in addition to livestock production.
<p><u>Biological Resources</u> (c.f. Chapter 4.2)</p>	<p>Comments/concerns related to:</p> <ul style="list-style-type: none"> • Impacts to non-target wildlife populations resulting from the use of lethal methods on target wildlife. • Impacts of the use of lethal methods on coyote populations. • Impacts of lethal methods on special-status species. • Selection of lethal control methods. • Compliance of IWDM Program with the California Endangered Species Act. • Recommended use of peer-reviewed literature and studies. • Evaluate short and long-term effects of lethal control on target species. • Potential impacts to wildlife populations resulting from the use of lethal methods by private citizens. • Impacts from wildlife losses due to LPDs.
<p><u>Hazards and Hazardous Materials</u> (c.f. Chapter 4.3)</p>	<p>Comments/concerns related to:</p> <ul style="list-style-type: none"> • Potential for private citizens to use lethal methods under the Non-Lethal Program Alternative and potential for such methods to result in impacts related to potential use of poisons, hazards, and firearms by private citizens.
<p><u>Public Services</u> (c.f. Chapter 4.5)</p>	<p>Comments/concerns related to:</p> <ul style="list-style-type: none"> • Propane cannons and pyrotechnics have not been used in the past 10 years within Mendocino County. Given the limited use of such techniques in the past, the IS overly emphasized potential impacts related to the use of propane cannons and pyrotechnics.
<p><u>Alternatives Analysis</u> (c.f. Chapter 5)</p>	<p>Comments/concerns related to:</p> <ul style="list-style-type: none"> • Analysis of a range of alternatives to the project. • Conversion of existing agricultural land due to predation losses in the absence of an adopted wildlife management plan. • Alternative should be analyzed at an equal level as the proposed

	project.
Initial Study (see Appendix B)	Comments/concerns related to: <ul style="list-style-type: none"> • Concerns regarding feral/wild swine impacts to erosion.

All of these issues are addressed in this EIR, in the relevant sections identified in the first column.

1.13 CONSULTATION WITH EXPERTS

Based on feedback received during the NOP scoping process, outreach efforts have been conducted to obtain relevant information from experts within the field of wildlife damage management. A summary of the efforts made to contact relevant experts is presented in Table 1-1 below.

Expert Contacted/Organization/Title	Result of Contact
John Bailey – Interim Director, University of California, Agriculture and Natural Resources, Hopland Research & Extension Center	Provided information related to ongoing research efforts focused on lethal and non-lethal methods of wildlife damage management.
Kim Rodrigues – Former Director, University of California, Agriculture and Natural Resources, Hopland Research & Extension Center	Provided information related to the status of ongoing research efforts and directed contact to John Bailey, Interim Director.
Dr. Adrian Treves – Professor, Nelson Institute for Environmental Studies, University of Wisconsin—Madison	Provided several scientific articles related to Foxlights, consequences of the use of lethal methods, and information related to the state of knowledge on predation prevention on domestic animals.
Randy and Pam Comeleo – Assisted with development of the Benton County Agriculture and Wildlife Protection Program	Provided information related to the objectives of the Benton County Agriculture and Wildlife Protection Program, as well as general information related to the implementation of the program.
Stacey Carlson – Director, Marin County Program	No response received following multiple information requests.

1.14 WILDLIFE DAMAGE MANAGEMENT BACKGROUND AND PRACTICES

Based on comments received during the NOP scoping process for this EIR, this section provides a summary of the information obtained from the consultation efforts described in Section 1.13 above, including information related to the efficacy of certain wildlife management measures. In addition, this section also provides a summary of other existing non-lethal wildlife damage management programs within California and elsewhere in the U.S.

Scientific Studies of Wildlife Control Methods

It should be noted that this document does not seek to recommend any of the management methods discussed below or in Chapter 3.0; rather, the Draft EIR is focused on analyzing the potential impacts that would result from the management methods included in the IWDM Program, the Non-Lethal Program Alternative, or variation to the Non-Lethal Program Alternative. Furthermore, while the following section will discuss the efficacy of certain management methods, the efficacy of each method is not necessarily the focus of the analysis included in the Draft EIR, because the efficacy of management methods does not necessarily determine potential environmental impacts resulting from use of the method. As discussed further in the technical chapters of the Draft EIR, environmental impacts analyzed in the Draft EIR may be driven by numerous factors not limited or related to the efficacy of the management method proposed for inclusion in the IWDM Program, Non-Lethal Program Alternative, or variation to the Non-Lethal Program Alternative. Thus, the purpose of the Draft EIR is not to determine whether any particular management method or program is efficacious, instead the purpose of the Draft EIR is to analyze whether application of the methods proposed for inclusion in the IWDM Program, Non-Lethal Program Alternative, or variation to the Non-Lethal Program Alternative would result in environmental impacts directly or indirectly. Nevertheless, based on feedback received during the NOP scoping process, the following discussion is provided for informational purposes and as background for the reader and decisionmakers.

The information below focuses on the efficacy of wildlife damage management measures that have been subject to rigorous scientific scrutiny, meeting what van Eeden, et al. refer to as the “gold standard.”¹

Experiments that achieve the gold standard are conducted using “random assignment to control and treatment groups without bias (systematic error) in sampling, treatment, measurement or reporting.”² In the context of wildlife management, experiments meeting the gold standard would involve a treatment herd or site, where a particular management measure is employed, and a control herd or site, where the management measure is not employed or a placebo measure is employed. The treatment and control herd or site should then be replicated and spatially distributed through a randomized treatment process. Below the gold standard design level is a silver standard design level, which involves slightly less rigorous standards. Principal differences between the gold and silver standard design levels include nonrandom treatment assignment and a reliance on result measures at two or more time points.³

¹ van Eeden LM, Eklund A, Miller JRB, López-Bao JV, Chapron G, Cejtin MR, et al. 2018. *Carnivore conservation needs evidence-based livestock protection*. PLoS Biol 16(9): e2005577. Available at: <https://doi.org/10.1371/journal.pbio.2005577>.

² Treves A, Krofel M, McManus J. 2016. *Predator control should not be a shot in the dark*. *Frontiers in Ecology and the Environment*. 14(7):1±9. Available at: <https://doi.org/10.002/fee.1312>.

³ van Eeden LM, et al. 2018. *Carnivore conservation needs evidence-based livestock protection*.

Although studies of wildlife management have been conducted for over 40 years, few of the most commonly implemented management techniques have been subject to rigorous study meeting the gold standard, as defined by Treves, et al.⁴ The following discussions focus on those management methods that have been subject to study meeting rigorous scientific standards. The primary sources of such studies are van Eden et al.⁵ and Treves, et al.⁶ Although the IWDM Program would include assistance to protect agricultural and livestock commodities, human health and safety, natural resources, and property from wildlife damage, the main body of scientific study has focused on the implementation of wildlife damage management methods to reduce losses to livestock commodities. Further discussion of individual management methods is provided in Chapter 3.0, Project Description of the Draft EIR.

Finally, wildlife management is a global concern that is affected by region-specific factors such as the types of livestock or agricultural commodities present, the type of wildlife present and the cultural practices of the region. As a result of the diverse concerns related to wildlife management, studies of wildlife management have been conducted throughout the world and focus on a host of issues. The following research selections are limited to those studies that include management methods relevant to the IWDM Program, Non-Lethal Program Alternative, or variation to the Non-Lethal Program Alternative, wildlife species relevant to Mendocino County, or studies relevant to the geographic context of Mendocino County.

Light Frightening Devices

The light frightening device known as Foxlights was recently assessed by Ohrens et al., for efficacy in defending livestock from puma and fox predation in Chile.⁷ The study completed by Ohrens et al. relied on methodology meeting the gold standard design, including randomized application of Foxlight treatments and control (placebo) treatments on 11 herds, which were spatially separated from each other. The trial was conducted during the calving season of the camelids (alpacas and llamas) being protected. Herds experiencing the Foxlight treatment experienced zero losses to pumas, while herds under the control (placebo) treatment experienced seven losses attributed to pumas. Ohrens et al. concluded that the presence of Foxlights in the treatment herds was responsible for the decline in predation, and, that Foxlights represented effective deterrents against predation by pumas. Concurrently, the study determined that the Foxlights did not have a significant effect on livestock predation by foxes. Ohrens et al. recommended that further study may be needed to assess whether the light devices attracted

⁴ van Eeden LM, et al. 2018. *Carnivore conservation needs evidence-based livestock protection*. Eklund A, Vicente López-Bao J, Tourani M, Chapron G, Frank J. May 18, 2017. *Limited evidence on the effectiveness of interventions to reduce livestock predation by large carnivores*. Scientific Reports 7: 2097. [https://DOI:10.1038/s41598-017-02323-w](https://doi.org/10.1038/s41598-017-02323-w).

⁵ van Eeden LM, et al. 2018. *Carnivore conservation needs evidence-based livestock protection*.

⁶ Treves A, Krofel M, McManus J. 2016. *Predator control should not be a shot in the dark*.

⁷ Ohrens O, Bonacic C, Treves A. 2019. *Non-lethal defense of livestock against predators: flashing lights deter puma attacks in Chile*. *Frontiers in Ecology and the Environment*, 17(1): 32–38. Available at: <https://doi.org/10.1002/fee.1952>.

foxes rather than deterring them, or whether deterrence of pumas allowed for continued fox predation in the absence of the larger predator.⁸

Fladry

Fladry is a non-lethal wildlife management tool that includes the use of flags hung from a rope line along the perimeter of the area under protection. Davidson-Nelson and Gehring assessed the efficacy of the use of fladry in managing wolf predation in the eastern Upper Peninsula of Michigan.⁹ The study included eight total farms, four of which included sheep and four of which included cattle. Through tracking radio collared wolf packs and verification from field track surveys all farms were confirmed to experience coyote and wolf activity. All of the study sites included electrified livestock fencing, with differences in fencing design between sheep and cattle farms generally, as well as some differences within cattle farms. It should be noted that the existing electrified fencing within study sites was not considered to provide protection from predators. With consideration given to the type of livestock within each farm, treatment (fladry) and control sites were randomly assigned to two sheep and two cattle farms. To allow wolves and coyotes to access both treatment and control sites, treatment and control sites were located within 1.8 miles of each other (three kilometers).¹⁰

Non-electrified fladry was placed from May to August in the treatment sites. The fladry was comprised of 18-inch long red flags placed approximately 18-inches apart along the existing fence lines. The study was conducted over two years.¹¹

Based on the data collected during the study, Davidson-Nelson and Gehring concluded that wolf visitation was reduced on fladry-protected farms, which was likely due to the presence of the fladry. Moreover, fladry reduced the use of livestock areas by wolves, and fladry represents “a temporarily effective, non-lethal management tool for reducing wolf-caused depredation of livestock; however, labor and equipment costs can be substantial”.¹² The results of the study did not show that fladry deterred coyote visitation to treatment sites.¹³ Although wolf predation is not currently a wildlife management issue in Mendocino County, gray wolves are native to California and have begun to disperse into California from neighboring states.¹⁴ Considering the

⁸ Ohrens O, Bonacic C, Treves A. 2019. *Non-lethal defense of livestock against predators: flashing lights deter puma attacks in Chile.*

⁹ Davidson-Nelson, Sarah J. and Gehring, Thomas M. (2010). *Testing Fladry as a Nonlethal Management Tool for Wolves and Coyotes in Michigan.* Human–Wildlife Interactions: Vol. 4: Iss. 1, Article 11. Available at: <https://digitalcommons.usu.edu/hwi/vol4/iss1/11>.

¹⁰ Davidson-Nelson, Sarah J. and Gehring, Thomas M. 2010. *Testing Fladry as a Nonlethal Management Tool for Wolves and Coyotes in Michigan.*

¹¹ Davidson-Nelson, Sarah J. and Gehring, Thomas M. 2010. *Testing Fladry as a Nonlethal Management Tool for Wolves and Coyotes in Michigan.*

¹² Davidson-Nelson, Sarah J. and Gehring, Thomas M. 2010. *Testing Fladry as a Nonlethal Management Tool for Wolves and Coyotes in Michigan.*

¹³ Davidson-Nelson, Sarah J. and Gehring, Thomas M. 2010. *Testing Fladry as a Nonlethal Management Tool for Wolves and Coyotes in Michigan.*

¹⁴ California Department of Fish and Wildlife. *Gray Wolf.* Available at: <https://www.wildlife.ca.gov/conservation/mammals/gray-wolf>. Accessed February 2019.

target species currently of concern in Mendocino County, the applicability of the results of the study discussed above are not known, with the potential exception of a lack of efficacy of fladry to deter coyote.

Livestock Protection Dogs

Depredation is not the only source of livestock loss, in fact, the transmission of disease between wildlife and livestock can also lead to livestock loss. Gehring et al. studied the efficacy of LPDs at reducing wildlife presence within cattle farms as a means of minimizing losses due to both depredation and disease transmission.¹⁵

To assess the efficacy of LPDs, Gehring et al. studied nine beef-cattle farms during the years 2005-2008. The study sites were all located in western Upper Peninsula of Michigan and all study sites included existing electrified livestock fencing at the initiation of the study. It should be noted that the electrified fencing was not designed to deter predators or deer. Deer were identified as the main vectors for the transmission of disease to livestock. Radio-telemetry as well as field track surveys were used to confirm the presence of wolves within the study areas. In particular, track surveys confirmed the use of all study sites by wolves, coyotes, deer, opossums, red fox, and striped skunks. Six of the study sites were randomly assigned to serve as the treatment sites (sites with an LPD present), while the remaining three sites were randomly assigned to the control treatment (no LPDs present). One of the treatment farms was dropped from the study in 2007 when livestock production ceased. Treatment and control sites were located within approximately six miles (10 kilometers) of each other.¹⁶

Gehring et al. concluded that LPDs represent an effective method of deterring pasture use by wolves, coyotes, and deer. Additionally, LPDs have the potential to reduce the use of pastures by a wide range of wildlife species. Using LPDs to reduce pasture use by various wildlife species may also allow for application of LPDs in other conservation settings, such as the exclusion of mesopredators from areas where ground-nesting birds are present. However, Gehring et al. caution that further study of such uses of LPDs should be conducted prior to use of LPDs for conservation efforts.¹⁷

Increasing LPD Efficacy Through Improved Husbandry

Based on data related to wolf predations on livestock in the French Alps, Espuno et al. determined the efficacy of LPDs and the husbandry practices of gathering livestock or confining livestock at night to reduce livestock losses. Management practices within 45 study pastures included the use of LPDs alone, gathering or confining herds at night without LPDs, and the combined use of LPDs with the husbandry practice of gathering or confining herds at night. The study demonstrated that confining herds at night with three to four LPDs led to a 95 percent

¹⁵ Gehring, Thomas M.; Vercauteren, Kurt C.; Provost, Megan L.; and Cellar, Anna C. 2010. *Utility of livestock-protection dogs for deterring wildlife from cattle farms*. USDA National Wildlife Research Center - Staff Publications. 1344. https://digitalcommons.unl.edu/icwdm_usdanwrc/1344

¹⁶ Gehring, et al. 2010. *Utility of livestock-protection dogs for deterring wildlife from cattle farms*.

¹⁷ Gehring, et al. 2010. *Utility of livestock-protection dogs for deterring wildlife from cattle farms*.

reduction in livestock kills on 81 percent of the sites studied, while the remaining 19 percent of sites did not show any effect from the treatment. The use of five LPDs when livestock had been confined or simply gathered together at night resulted in a 79 to 94 percent reduction in kills. Both methods were far less efficacious when implemented independently as compared to the combined implementation presented above.¹⁸ The results summarized above point to the increased efficacy that can be attained through the combination of complementary non-lethal wildlife management practices.

Review of Lethal Methods

Reviews of the use of lethal methods have tended to focus less on the individual methods being employed, and more on the effect that the use of lethal wildlife management has on population dynamics and livestock losses. Notable studies meeting the gold- or silver-standard related to cougars, wolves, and bears are summarized below.

Lethal Control of Cougars

Using data collected related to cougar hunting in Washington state, Peebles et al. considered the effect that remedial sport hunting of cougars, in response to complaints and livestock depredation, had on the cougar populations within the study area. In general, Peebles et al. noted that complaints of cougar activity and reports of depredation in a given area were positively associated with human population, livestock population, and cougar populations of the given area (i.e. the higher the human population the more likely complaints would be made or the lower the livestock population the lower the likelihood of livestock depredation being reported). The results of Peebles et al. data comparison showed that areas where cougars had been remedially hunted and removed in the previous year were more likely to experience an increase in complaints and livestock depredation the year following cougar harvest. In fact, areas where cougars had been harvested the previous year demonstrated a 36 to 240 percent increase in cougar complaints and livestock depredation the year following cougar harvest. Peebles et al. suggest that a potential explanation for the increase in cougar complaints and livestock depredations in areas where cougars have been remedially hunted could be linked to a social disruption in the cougar population of hunted areas. Hunting is postulated to result in increases in young male immigration to the area where cougars were recently removed and changes in the areas used by the immigrating young males. The immigration of new young males and changes to the areas in use by the cougars could result in increased conflict with humans.¹⁹

The reasoning for increased cougar complaints and livestock depredations the year following cougar removal suggested by Peebles et al. may be supported by studies of cougar population dynamics conducted by Cooley et al. Cooley et al. found that hunting can have a demonstrable effect on cougar population, and the degree to which hunting occurs can alter the population

¹⁸ Espuno N, Lequette B, Pouille ML, et al. 2004. *Heterogeneous response to preventive sheep husbandry during wolf recolonization of the French Alps*. Wildlife Soc B 32: 1195–208. [https://doi.org/10.2193/0091-7648\(2004\)032\[1195:HRTPSH\]2.0.CO;2](https://doi.org/10.2193/0091-7648(2004)032[1195:HRTPSH]2.0.CO;2).

¹⁹ Peebles KA, Wielgus RB, Maletzke BT, Swanson ME. 2013. *Effects of Remedial Sport Hunting on Cougar Complaints and Livestock Depredations*. PLoS ONE 8(11): e79713. doi:10.1371/journal.pone.0079713.

structure of cougar populations. By comparing a lightly hunted cougar population to a more heavily hunted cougar population in Washington state, Cooley et al. estimated population growth, density, survival, and reproduction rates in each population separately. Both populations were seen to have similar maternity and natural mortality rates. However, the heavily harvested population demonstrated trends towards increased immigration, reduced kitten survival, reduced female population growth, and a younger overall age structure. The lightly harvested population differed in experiencing increased emigration, higher kitten survival, increased female population growth, and an older overall age structure.²⁰ Cooley et al.'s results provide a challenge to the compensatory mortality hypothesis, which stipulates that removal of individuals from a population relieves competition, leading to increased population growth that can compensate for the removal of individuals.

Lethal Control of Wolves

Using a dataset including depredation and response from the years 1989 to 2008 in Montana, Idaho, and Wyoming, Bradley et al. assessed the efficacy of three management methods for wolf populations. The three management methods implemented following livestock depredation included a partial removal of the wolf pack, a full removal of the wolf pack, or no removal of the wolf pack. Following the depredation event and the implementation of one of the above management methods, the median time between recurring depredation events was analyzed to determine whether each management method would result in an increase in time between depredation occurrences. Bradley et al. concluded that the median time between recurrent depredation events was 19 days where wolves were not removed using lethal methods, 64 days following partial pack removal using lethal methods, and 730 days following full pack removal using lethal methods. The success of partial pack removal was highly dependent on the time between the predation event and pack removal, with the greatest effect being within the first seven days following a depredation and predation recurrence remaining unchanged when removal was conducted after 14 days. The results of the Bradley et al. study suggest that removal of wolves using lethal methods following a depredation event may delay the recurrence of depredation in the area.²¹

Lethal Control of American Black Bears

Obbard et al. conducted an analysis of the relationship between food availability, lethal bear management, and human-bear conflicts in Ontario, Canada. Through the review of data collected during the years between 2004-2011, Obbard et al. concluded that human-bear conflicts were negatively associated with food availability (i.e. with a decrease in the availability of natural food sources human-bear conflicts increased, while an increase in natural food sources resulted in a decrease of human-bear conflicts). Although Obbard et al. observed a negative link between food availability and human-bear conflicts, human-bear conflicts did not show a clear correlation

²⁰ Cooley HS, Wielgus RB, Robinson HS, et al. 2009. *Does hunting regulate cougar populations? A test of the compensatory mortality hypothesis*. Ecology 90: 2913–21. <https://www.ncbi.nlm.nih.gov/pubmed/19886499>.

²¹ Bradley, Elizabeth H. et al. 2016. *Effects of Wolf Removal on Livestock Depredation Recurrence and Wolf Recovery in Montana, Idaho and Wyoming*. Intermountain Journal of Sciences, [S.I.], v. 22, n. 4, p. 96-97. ISSN 1081-3519. Available at: <https://arc.lib.montana.edu/ojs/index.php/IJS/article/view/645>.

with prior bear harvests through lethal control methods. In other words, the use of lethal methods to resolve human-bear conflicts did not result in future reductions in human-bear conflicts. The results of the Obbard et al. data review suggest that lethal management of bear populations would not result in decreased human-bear conflicts, as such conflicts were primarily controlled by food availability, and would occur regardless of the history of lethal management in a given area.²²

Spillover Effects of Control Methods

The efficacy of lethal control methods to reduce wildlife conflicts has not been conclusively proven through scientific studies meeting the gold standards discussed above. However, a recent study conducted by Santiago-Avila, Cornman, and Treves applied high scientific rigor to the assessment of the efficacy of lethal control methods for protecting livestock through the consideration of impacts on three spatial scales.²³ Santiago-Avila, Cornman, and Treves analyzed retrospective data from 1998-2014 related to the implementation of lethal and non-lethal methods. The use of retrospective data presented several issues for the analysis that rigorous scientific methodology would otherwise avoid, and prohibits the study from achieving the gold-standard. For instance, the application of lethal and non-lethal methods was based on the professional judgements of field agents, which may vary from agent to agent, and the method of implementation of non-lethal methods may have varied over time. Furthermore, the authors considered that the data analyzed may include systematic measurement errors related to underreported wolf-killing and depredations. Due to the foregoing issues, and other issues discussed in-depth by the authors, the study's findings were considered preliminary.²⁴

In general, the study did not find any significant difference in the frequency of livestock losses following the application of lethal measures at any spatial scale. Although a small reduction in the risk of depredation at the section scale (roughly one square mile) was observed following application of lethal measures, a similar increase in depredation was noted at the slightly larger township scale (36 square miles). However, neither change was determined to be statistically significant. Although the results of the study do not show any clear changes in depredation, the study authors indicate that further study should be conducted to assess potential links between spatially limited reductions in depredation due to the use of lethal control methods being off-set by increases in depredation over a larger spatial scale.²⁵ Similar arguments could potentially be made regarding off-setting spatial impacts resulting from non-lethal methods, which underscores the need for further study meeting the gold standard within the field.

²² Martyn E. Obbard, Eric J. Howe, Linda L. Wall, Brad Allison, Ron Black, Peter Davis, Linda Dix-Gibson, Michael Gatt, Michael N. Hall. 1 October 2014. *Relationships among food availability, harvest, and human-bear conflict at landscape scales in Ontario, Canada*. *Ursus*, 25(2), pgs. 98-110. <https://doi.org/10.2192/URSUS-D-13-00018.1>.

²³ Santiago-Avila FJ, Cornman AM, Treves A. 2018. *Killing wolves to prevent predation on livestock may protect one farm but harm neighbors*. *PLoS ONE* 13(1): e0189729. Available at: <https://doi.org/10.1371/journal.pone.0189729>.

²⁴ Santiago-Avila FJ, Cornman AM, Treves A. 2018. *Killing wolves to prevent predation on livestock may protect one farm but harm neighbors*.

²⁵ Santiago-Avila FJ, Cornman AM, Treves A. 2018. *Killing wolves to prevent predation on livestock may protect one farm but harm neighbors*.

Review of Existing Wildlife Damage Management Programs

Several wildlife management programs exist within the Country that focus on the use of non-lethal wildlife management measures exclusively, or the use of both lethal and non-lethal methods with an emphasis on non-lethal methods. Although Mendocino County represents a unique environment with area-specific wildlife management challenges, information from existing wildlife management programs can provide helpful background when analyzing potential impacts related to the potential implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative.

University of California Hopland Research & Extension Center Wildlife Management Effort

The University of California Hopland Research & Extension Center (HREC) is an educational facility located within Mendocino County that includes 5,300 acres of varied habitat. The HREC supports ecosystem management and working landscapes through adaptive management and research. Since 2015, managers at the HREC have implemented a combination of lethal and non-lethal methods to manage predators and study the efficacy of non-lethal predator controls. John Bailey, the Interim Director of the HREC, provided the County with data and information related to the wildlife management regime at the HREC. Relevant data related to the HREC flock is presented in Table 1-2 below.

	2013-14	2014-15	2015-16	2016-17	2017-18
Ewe Inventory May to May	540	464	397	434	486
Lambs Born	382	576	515	599	715
Lambs Confirmed Killed by Coyotes	43	10	1	12	15
Lambs Suspected Killed Coyotes	6	6	4	3	3
Ewes Confirmed Killed by Coyotes	-	8	9	8	5
Ewes Suspected Killed Coyotes	-	3	4	4	2
Ewe Suspected Killed By Lion	-	0	1	1	0
Total Losses	49	27	19	28	25

Source: Bailey, John, Interim Director, HREC. Personal communication [email] with Nick Pappani, Raney Planning and Management, Inc. January 10, 2019.

As shown in Table 1-2, the HREC flock experienced the highest losses in the fiscal year 2013-2014. Concurrent with the implementation of a wildlife management program in 2014-2015, annual losses over the period between 2014 and 2018 were lower than that experienced during the 2013-2014 period. The methods implemented in the HREC’s wildlife management regime include the following:

- Maintaining the flock in tighter groups within specific pastures, as opposed to allowing the flock to roam more broadly across the range, and switching pastures;
- Introducing additional guard dogs;
- Use of e-collars and Foxlights;

- Increasing fence height from 39 inches to 47 inches and increasing patrol of fencing for breaks or digs;
- Conducting predator patrols following losses; and
- Using WS-CA as a back-up when all other methods failed to ameliorate losses.

Predator patrols were implemented when losses occurred at a particular pasture. Patrols would be limited to the pasture where losses were suffered, and lethal force was used upon sighting a predator in the target pasture or adjacent pasture. Pro-active lethal methods were not used at any time following the implementation of the management program. WS-CA were used as a back-up, and WS-CA services provided were limited to the pasture where losses were being experienced. In some cases, WS-CA performed lethal control; however, in other cases WS-CA expertise was used to track down problem areas and provide advice on coyote behavior.²⁶

The implementation of the wildlife damage management methods discussed above effectively held losses to approximately two percent of the total flock each year, which is considered an acceptable range for livestock losses according to by the HREC Interim Director. Implementation of the suite of non-lethal methods allowed for a reduction in the number of coyotes being lethally taken, while maintaining limited flock losses.²⁷

Of particular interest in the HREC program was the use of Foxlights as a non-lethal management method. In the context of coyote predation, the efficacy of Foxlights anecdotally appears limited. The HREC reported that, based on their experience, coyotes become habituated to Foxlights rapidly, and coyote predation may continue to occur even in pastures where Foxlights are being implemented. The efficacy of Foxlights may be increased if the Foxlights are moved frequently to new locations within the pastures, and are combined with other non-lethal methods of protection. Further factors that affect the line-of-sight of Foxlights, such as the presence of visibility limiting rain or fog, or changes in topography or vegetation, can diminish the range of efficacy of Foxlights.²⁸

Marin County

The Marin County Department of Agriculture, Weights & Measures, implements a livestock protection program, which is supported and funded by the Marin County Board of Supervisors. The program was implemented in 2001 after an expansive public input process.²⁹

²⁶ Bailey, John, Interim Director, HREC. Personal communication [email] with Nick Pappani, Raney Planning and Management, Inc. January 10, 2019.

²⁷ Bailey, John, Interim Director, HREC. Personal communication [email] with Nick Pappani, Raney Planning and Management, Inc. January 10, 2019.

²⁸ Bailey, John, Interim Director, HREC. Personal communication [email] with Nick Pappani, Raney Planning and Management, Inc. January 10, 2019.

²⁹ County of Marin. *Livestock Protection*. Available at: <https://www.marincounty.org/depts/ag/livestock-protection>. Accessed January 2019.

Several requests for further information related to the Marin County program were submitted to the Marin County Agricultural Commissioner. Responses to the information requests were not received prior to publication of this EIR.

Under the Marin County program, ranchers may implement management measures from any of the following wildlife management measures categories: new fence construction or existing fence improvement; guard animals (dogs or llamas); scare devices; and/or changes in animal husbandry such as shed lambing or the use of herders. Managers participating in the program may receive cost-sharing payments of up to \$500 per non-lethal method implemented, with a maximum of \$2,000 annually. Following implementation of methods from at least two of the foregoing categories, ranchers qualify for indemnification payments to compensate for any further predator losses. Ranchers may apply for sheep and lamb loss compensation for losses up to five percent of the rancher's total heard. Compensation rates are based on a three-year average of market values at a weight of 100 pounds per lamb.³⁰

The Marin County Program currently covers 6,700 adult sheep, which represents approximately 89 percent of Marin County's total population of sheep.³¹

Marin County Program Review

When assessing the Marin County program, several factors affect the comparison of data related to the last five years of the WS-CA IWDM Program within Marin County and data related to the first five years of the Marin County program. Because wildlife management within the County was implemented by different parties and with differing degrees of rancher enrollment, the data reported under the WS-CA and the Marin County program does not represent equivalent data sets. For instance, the area covered during the last five years of the WS-CA program within the County was approximately 73,000 acres, which equated to approximately two-thirds of all sheep ranchers in Marin at that time. On the other hand, the current Marin County program has not exceeded an enrollment beyond 10,275 acres. Analyzing the disparity in land area coverage is made more complex by the continued decline in the total number of sheep within Marin County. Despite the decrease in participating land area, the current enrollment in the Marin County program is considered to represent 89 percent of the County's total sheep population. A general trend toward a decline in ranching within Marin County may affect predator loss and behavior in unknown ways.³²

During WS-CA's implementation of a wildlife damage management program within Marin County, the WS-CA would enter into formal cooperation agreements with ranchers to ensure that the ranchers would not implement lethal control methods independently. By requiring that only WS-CA personnel implement lethal methods, the WS-CA was able to account for virtually all target and non-target wildlife taken at participating ranches. Because participating ranches encompassed approximately two-thirds of all operating ranches within the County, the reporting of take by WS-CA personnel is considered to be an accurate record of the majority of lethal wildlife control within the County.³³

³⁰ Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry*. Approved for Print.

³¹ Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry*.

³² Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry*.

³³ Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry*.

Although the Marin County program does not include the use of lethal control methods, individual ranchers may independently implement any legal lethal control method. Considering that lethal methods used within the County are implemented by private citizens, methods may not be implemented correctly for the target animal, resulting in less selective take of wildlife. The lethal control methods implemented independently by ranchers are not reported to Marin County, and, consequently, an authoritative record of the number of animals taken by lethal control methods following implementation of the Marin County program is not available. Therefore, the only source of data related to wildlife take within Marin County under the current program is a survey of participating ranchers or anecdotal information provided by ranchers. Compared to reporting by WS-CA personnel, reliance on rancher self-reporting of lethal methods for the number of animals taken and the species of animals taken is considered a less reliable and less comprehensive source of data.³⁴

Although data related to the total number of animals taken is not considered authoritative, in the years following implementation of the Marin County program, ranchers have begun to rely on a program member to provide expertise related to the lethal control of wildlife. This individual alone anecdotally reports taking 40 to 50 coyotes annually. However, over 100 coyote carcasses were deposited within a single year at one location in the County. Comparatively, over the five-year period from 1995 to 1999 a total of 111 coyotes were taken by WS-CA, with a maximum annual take per year of 32 coyotes. Such evidence suggests, but does not conclusively prove, that private implementation of lethal control activities is resulting in greater coyote take than the level of take that occurred during WS-CA provision of wildlife management in the County.³⁵

Sheep and lamb losses under the Marin County program are reported to the University of California Cooperative Extension, which provides a reliable source of data for such losses as the total head of livestock lost. Data related to the estimated number of livestock killed each year is presented in Table 1-3 below. Sheep and lamb losses under the first year of the Marin County program reached a low of 97 lost, which was below the annual losses recorded in the previous five years. However, subsequent years of the program showed an increase in livestock losses relative to the initial program year. Since 2001, individual producers have suffered predation losses between zero and 18.6 percent. Total losses as a percentage of the entire flock of participating ranchers within Marin County has fluctuated between 2.21 and 4.15 percent.³⁶

Because of the differences in available data, changes to the livestock industry within Marin County, and changes to the population dynamics of coyotes within Marin County, direct comparisons of previous WS-CA IWDM Program within Marin County and the existing Marin County program are difficult. However, in general, the implementation of the Marin County program appears to have reduced the amount of publicly available data, and may be contributing to an increase in private use of lethal control, as supported by the self-reported coyote take numbers.³⁷

³⁴ Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry.*

³⁵ Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry.*

³⁶ Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry.*

³⁷ Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry.*

**Table 1-3
Estimated Livestock Losses, Coyotes Taken, and Cost to County**

Fiscal Year	Total Livestock Lost (Sheep and/or Lambs)	Coyotes Taken	Cost to County (\$)
1995/96 ¹	139	27	12,420
1996/97 ¹	111	32	13,518
1997/98 ¹	186	21	13,128
1998/99 ¹	333	17	38,526
1999/00 ¹	180	14	28,560
2000/01 ²	658 ³	2	-
2001/02 ²	97	~40 ⁴	43,181
2002/03 ²	236	~50 ⁴	57,598
2003/04 ²	158	~50 ⁴	44,132
2004/05 ²	149	~70 ⁴	39,800
2005/06 ²	165	~100 ⁴	39,797
¹ Federal Fiscal Year Oct. 1 to Sept. 30 ² County Fiscal Year Jul. 1 to Jun. 30 ³ Author posits that public discourse surrounding wildlife damage management within the County may have led to an increase in reported livestock losses. ⁴ Estimated based on author's research and communications with ranchers.			
<i>Source: Larson, Stephanie. 2006. The Marin County Predator Management Program: Will It Save the Sheep Industry. Approved for Print.</i>			

Benton County Agriculture & Wildlife Protection Program

Within the State of Oregon, the Benton County Agriculture & Wildlife Protection Program was approved for implementation as a two-year pilot program for the management of wildlife through the use of non-lethal management methods. Program funds may be used for educational outreach, expert consultation, a merit-based cost-share, reimbursement grants. Cost-share grants may be granted for sums up to \$5,000. Such funds may be paid as reimbursement for the purchase of proactive non-lethal wildlife deterrents to protect livestock and crops. The program is managed by county officials in partnership with an advisory committee comprised of citizen volunteers and representatives from Oregon State University Extension Service and Chintimini Wildlife Center.

The Benton County Program encourages local residents to self-educate and participate in the determination of wildlife responsible for damage. In addition to information and reimbursement for damage caused by predators, the Benton County Program includes information and potential reimbursement for damage caused by non-predatory wildlife such as beavers, rabbits, waterfowl, woodpeckers, and other animals.

Wood River Wolf Project

The Wood River Wolf Project helps manage wolf predation on livestock within Blaine County, Idaho. Management measures are limited to non-lethal methods, with a focus on proactive predator management to reduce predation on sheep within the Wood River Wolf Project area. Since initiation of the program, the project area has been expanded to include additional areas

within Blaine County. The project is funded by government and non-government sources and is implemented by an independent team of staff as well as volunteers.

1.15 DRAFT EIR AND PUBLIC REVIEW

This Draft EIR is being circulated for public review and comment for a period of 60 days, as required by the settlement agreement. During this period, the general public, organizations, and agencies can submit comments to the Lead Agency on the Draft EIR's accuracy and completeness. Release of the Draft EIR marks the beginning of a 60-day public review period pursuant to CEQA Guidelines Section 15105. The public can review the Draft EIR at the County's website at:

<https://www.mendocinocounty.org/government/planning-building-services/public-notice>

or at the following address during normal business hours:

Mendocino County Department of Planning and Building Services
860 North Bush Street,
Ukiah, CA 95482

Comments may be submitted both in written form and/or orally at the public hearing on the Draft EIR. Notice of the time and location of the meeting will be provided in the Notice of Availability (NOA) released for the Draft EIR.

All comments or questions regarding the Draft EIR should be addressed to:

Ignacio "Nash" Gonzalez, AICP
Recovery Director (formerly Interim Planning Director, Mendocino County Department
of Planning and Building Services),³⁸
501 Low Gap Road, Room 1010
Ukiah, CA 95482
(707) 463-4441
gonzalezn@mendocinocounty.org

1.16 ORGANIZATION OF THE DRAFT EIR

The EIR is organized into the following sections:

Chapter 1 – Introduction

Provides an introduction and overview describing the intended use of the Draft EIR and the review and certification process, as well as summaries of the chapters included in the Draft EIR

³⁸ While Mr. Gonzalez is no longer the Interim Director of the Mendocino County Department of Planning and Building Services, he remains the lead staff contact for CEQA comments.

and summaries of the issues and concerns received from the public and public agencies during the NOP review period.

Chapter 2 – Executive Summary

Summarizes the elements of the project and the environmental impacts that would result from implementation of the proposed project, describes proposed mitigation measures, and indicates the level of significance of impacts after mitigation.

Chapter 3 – Project Description

Provides a detailed description of the IWDM Program, as well as the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative. The description includes information related to Mendocino County, background information, major project objectives, and technical characteristics of the project and alternatives.

Chapter 4 – Introduction to the Analysis

Summarizes the approach to analysis presented in the subsequent sections of the EIR.

Chapter 4.1 – Agricultural Resources

The Agricultural Resources chapter of the EIR will focus on potential conflicts with agricultural or timberland operations that result from implementation of technical assistance and/or operational management procedures under the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative.

Chapter 4.2 – Biological Resources

The Biological Resources chapter of the EIR will summarize past records and scientific papers related to wildlife damage management and populations of target species within Mendocino County. Based on the results of such research, potential impacts to biological resources resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative will be addressed. Furthermore, potential impacts related to existing HCPs will also be addressed.

Chapter 4.3 – Hazards and Hazardous Materials

The Hazards and Hazardous Materials Chapter will evaluate potential hazards posed by implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative. Hazards to be addressed will include the use of immobilization and euthanasia chemicals under the IWDM Program. Additionally, potential hazards related to non-chemical methods will also be addressed.

Chapter 4.4 – Noise

The Noise chapter of the EIR describes the existing noise environment in the County and identifies potential impacts and mitigation measures related to implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative. The method by which the potential impacts are analyzed is discussed, followed by the identification of potential impacts and the recommended mitigation measures designed to reduce significant impacts to the maximum extent feasible.

Chapter 4.5 – Public Services

The Public Services chapter of the EIR discusses the existing fire protection and sheriff services within the County. The chapter analyzes the potential for implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative to increase the demand for fire protection and sheriff services.

Chapter 5 – Alternative Analysis

The Alternatives Analysis chapter of the EIR describes and evaluates the alternatives to the proposed project.

Chapter 6 – Statutorily Required Sections

The Statutorily Required Sections chapter of the EIR includes discussions regarding those topics that are required to be included in an EIR, pursuant to the CEQA Guidelines Section 15126.2. The chapter evaluates growth-inducing impacts, and includes lists of significant irreversible environmental changes and significant and unavoidable impacts that would be caused by the proposed project. Chapter 6 also includes a separate section for energy, in accordance with Appendix F and Appendix G of the CEQA Guidelines.

Chapter 7 – EIR Authors and Persons Consulted

The EIR Authors and Persons Consulted chapter of the EIR lists EIR and technical report authors who provided technical assistance in the preparation and review of the Draft EIR.

Chapter 8 – References

The References chapter of the EIR provides bibliographic information for all references and resources cited.

Appendices

The Appendices include the NOP, IS, comments received during the NOP comment period, data related to previous iterations of the WS-CA program in Mendocino County, regulations related to furbearers in California, and all technical reports prepared for the proposed project.

2. EXECUTIVE SUMMARY

2

EXECUTIVE SUMMARY

2.1 INTRODUCTION

In general, the Executive Summary chapter of the EIR 1) provides an overview of the Integrated Wildlife Damage Management (IWDM) Program Project (proposed project) and two alternatives evaluated at an equal level to the proposed project – the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative – as discussed below and 2) summarizes the conclusions of the environmental analysis provided in Chapters 4.1 through 4.5. As noted in Chapter 1, Introduction, the environmental analysis of this EIR for the proposed project, and both of the aforementioned alternatives, is provided under two environmental baselines: the CEQA Baseline and the No Program Baseline. In addition to summarizing the environmental analysis presented for the proposed project and both equal-level alternatives, the chapter summarizes the additional alternatives to the proposed project that are described and qualitatively evaluated in the Alternatives Analysis chapter. The chapter further identifies the Environmentally Superior Alternative and discusses areas of controversy and issues to be resolved.

Table 2-1 and Table 2-2, found at the end of this chapter, provide a summary of the environmental effects of the proposed project, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, as identified in each technical chapter of the EIR, under each of the environmental baselines. For the CEQA Baseline, Table 2-1 also contains the significance of potential environmental impacts/effects related to implementation of the proposed project, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, the proposed mitigation/improvement measures for impacts, and the significance of the impacts after implementation of the mitigation. Similar information is provided in Table 2-2 for the No Program Baseline.

2.2 PROJECT LOCATION AND DESCRIPTION

The location of the proposed project consists of Mendocino County. Mendocino County is generally located along California’s west coast and contains 2,246,000 acres, or 3,510 square miles, and is the 15th largest county in California in terms of land area. About one-fifth of the land in Mendocino County is in public ownership, controlled by a variety of federal, state, and local government agencies, including several Indian reservations or rancherias. The rest of the land in the County (almost 80 percent) is in private ownership; about three-fourths of all privately held land is used for agricultural activities or timberland.

The proposed project is approval of the IWDM Program to protect agricultural and livestock commodities, human health and safety, natural resources, and property from wildlife damage. The IWDM Program would include the approval of Mendocino County’s five-year Cooperative Services Agreement (CSA), including annual work plans (work and financial plans) required by the five-year CSA, with the U.S. Department of Agriculture’s Animal and Plant Health Inspection

Service (APHIS) Wildlife Services California Office (WS-CA) for wildlife damage management assistance in the County. While the CSA would fund an initial five-year term during which WS-CA would implement the IWDM Program in the County, the IWDM Program being analyzed in the EIR is not limited to five-years. Rather, the proposed project would adopt and establish the IWDM Program for ongoing implementation in the County. Any future discretionary actions by the County necessary to implement the Program would need to be evaluated for consistency with the IWDM Program and conformance with this EIR.

2.3 MITIGATION MONITORING AND REPORTING PROGRAM

Section 15097 of the California Environmental Quality Act (CEQA) requires all State and local agencies to establish monitoring or reporting programs for projects approved by a public agency whenever approval involves the adoption of environmental findings related to environmental impact reports (see Guidelines Section 15091 for Findings). In order to ensure that the mitigation measures and project revisions identified in the EIR are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

Consistent with CEQA Guidelines Section 15097, implementation of the proposed project, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative would require adoption of a Mitigation Monitoring and Reporting Program (MMRP) by Mendocino County. The MMRP, to be included in the Final EIR, will specify the methods for monitoring measures required to eliminate or reduce the project's significant effects on the environment. Because the analysis within this EIR is presented under the CEQA Baseline and No Program Baseline, the MMRP prepared for the proposed project, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative will include the mitigation measures required under the CEQA Baseline as well as the improvement measures recommended under the No Program Baseline.

2.4 ENVIRONMENTAL ANALYSIS AND MITIGATION/IMPROVEMENT MEASURES

Under the California Environmental Quality Act (CEQA), a significant effect on the environment is defined as a substantial, or potentially substantial, adverse change in any of the existing physical conditions within the area affected by the project, including land, air, water, mineral, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Mitigation measures must be implemented as part of the proposed project to reduce potential adverse impacts to a less-than-significant level. In addition to the mitigation measures that must be implemented under the CEQA Baseline, this EIR includes recommended improvement measures to reduce potential adverse effects to a less-than-significant level under the No Program Baseline. Such mitigation and/or improvement measures are noted in this EIR and are found in Chapter 4.2, Biological Resources, and Chapter 4.4, Noise, of this EIR.

As discussed in detail in Chapter 4.2, Biological Resources, of the EIR, implementation of the IWDM Program under the No Program Baseline could have the potential to result in a significant level of take of cougars when considered together with other sources of take that are not part of the IWDM Program (such as CDFW depredation permits issued to entities other than WS-CA and illegal poaching). Thus, the IWDM Program could result in a significant effect on the Mendocino County cougar population, which, for the purposes of this analysis, is conservatively considered a special-status species in Mendocino County pursuant to CEQA Guidelines Section 15380, and improvement measures have been recommended. Although the recommended improvement measure would be sufficient to reduce potential significant effects on the Mendocino County cougar population, the County does not have jurisdiction over CDFW's cougar take permitting process. As such, effects related to cougars in Mendocino County are conservatively considered significant and unavoidable under the No Program Baseline.

As discussed in Chapter 4.4, Noise, of this EIR, under the CEQA Baseline, both the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative would have the potential to result in a significant noise impact related to use of livestock protection dogs within lands under Mendocino County jurisdiction and incorporated cities. While the EIR provides mitigation to reduce noise exposure at sensitive receptors, the County concluded that circumstances may exist in which the mitigation may be infeasible and, thus, the impact was conservatively determined to be significant and unavoidable. Under the No Program Baseline, significant noise effects were identified for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative. The EIR provides recommended implementation measures to address each significant effect identified in Chapter 4.4. However, similar to the CEQA Baseline, the County concluded that the implementation measures could prove to be infeasible in certain circumstances. Thus, each of the noise effects identified under the No Program Baseline was conservatively determined to be significant and unavoidable.

A summary of the identified impacts and effects in the technical sections of the EIR is presented in Table 2-1 and Table 2-2 below. The impacts/effects are identified for each technical section of Chapter 4 (Sections 4.1 through 4.5) of the EIR for the proposed project, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, under the CEQA Baseline and the No Program Baseline. In addition, the tables include the level of significance of each impact/effect, any mitigation/improvement measures required for each impact/effect, and the resulting level of significance after implementation of mitigation/improvement measures for each impact/effect.

2.5 ALTERNATIVES TO THE PROPOSED PROJECT

This section presents a summary of the alternatives considered for the proposed project, which include the following:

- No Project/No Action Alternative;
- Non-Lethal Program Alternative;
- Variation to the Non-Lethal Program Alternative;

- Mendocino County Wildlife Management Services Alternative;
- Mendocino County Wildlife Management Services Non-Lethal Alternative; and
- Variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative.

The following summary provides brief descriptions of the six alternatives to the proposed project that are evaluated in this EIR. For a more thorough discussion of project alternatives, please refer to Chapter 5, Alternatives Analysis. As previously mentioned, the EIR provides an equal level analysis of the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative throughout all technical chapters of the EIR.

Summary of the No Project/No Action Alternative

Under the No Project/No Action Alternative, Mendocino County would not enter into an agreement with WS-CA for wildlife damage management services, and consequently, WS-CA would not provide County-funded technical assistance of any kind (including direct control lethal and/or non-lethal methods) to the County, its residents, or resource owners. The County also would not provide any wildlife damage management services.

Summary of the Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not use or recommend lethal methods to attempt to resolve wildlife damage. This Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to property owners reporting wildlife damage. This alternative could also involve cost sharing with property owners for reimbursement of management methods, including building of new fences or repair of fences; purchasing new livestock protection animals and/or maintaining livestock protection animals; and purchasing husbandry-related items such as pens, and non-noise generating and non-igniting frightening devices such as Foxlights. In addition, fladry/turbo fladry could be a component of the cost share program should such methods be shown to be effective for target species. Under the Non-Lethal Program Alternative analyzed in this EIR, technical assistance related to lethal methods would not be provided to land owners or other resource managers. It should be noted that the Non-Lethal Program Alternative would not include the use of those methods typically associated with lethal disposition of animals, such as live capture devices, including cage and corral traps, snares, nets, tracking dogs, and chemical immobilization.

Summary of the Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative that would involve strictly limited use of gunshot (from the ground) as a lethal method. For the variation to the Non-Lethal Program Alternative, gunshot would only be used in exceptional cases where a risk to public health and safety is posed by wildlife. This can be generally defined as animal attacks on humans that result in injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs. The variation to the Non-Lethal Program Alternative would involve cost sharing with property owners for reimbursement of management methods, in the same manner as would occur

under the Non-Lethal Program Alternative. Although the variation to the Non-Lethal Program would allow for the strictly limited use of lethal gunshot for the control of wildlife posing a risk to public health or safety, the variation to the Non-Lethal Program Alternative would not involve the use of live capture devices that are typically associated with the lethal disposition of animals, including cage and corral traps, snares, nets, tracking dogs, or chemical immobilization.

Summary of the Mendocino County Wildlife Management Services Alternative

Under this Alternative, Mendocino County would not approve an agreement with WS-CA. Instead, the County would provide wildlife damage management services that would have otherwise been directed to WS-CA. Given that these services would be provided under the direction of the County, to implement this Alternative, the County would need to have qualified staff and/or enter into subcontracts with qualified professionals to provide the services formerly delivered by WS-CA field specialists. As with the existing agreement, the funded services would be used for addressing agricultural losses, public health and safety, and property damage, and would include direct control (non-lethal and lethal methods). Levels of take previously experienced in the County under the IWDM Program would be anticipated to continue at similar levels under the Alternative.

Summary of the Mendocino County Wildlife Management Services Non-Lethal Alternative

Under this Alternative, Mendocino County would not approve an agreement with WS-CA. Instead, the County would provide wildlife damage management services that would have otherwise been directed to WS-CA. Similar to the Non-Lethal Program Alternative evaluated in this EIR, under the Mendocino County Wildlife Management Services Non-Lethal Alternative, trained personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to residents reporting wildlife damage. However, such personnel would be employed directly by the County, rather than an outside governmental or non-governmental agency.

Overall, the wildlife control methods associated with the Mendocino County Wildlife Management Services Non-Lethal Alternative would be identical to the Non-Lethal Program Alternative. Information and training on lethal management methods would not be provided under this alternative.

Summary of the Variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative

Under this Alternative, Mendocino County would not approve an agreement with WS-CA. Instead, the County would provide wildlife damage management services that would have otherwise been directed to WS-CA. The variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would involve the same non-lethal control methods employed under the Mendocino County Wildlife Management Services Non-Lethal Alternative discussed above. However, in addition, the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would involve strictly limited use of gunshot in exceptional cases where a risk to public health and safety is posed by wildlife. This can be generally defined as animal attacks on

humans that result in injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs.

2.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

As discussed throughout this EIR, implementation of the IWDM Program under the CEQA Baseline would not result in any significant and unavoidable impacts or impacts requiring mitigation to reduce to less-than-significant levels. Considering that the IWDM Program would not result in any significant impacts under the CEQA Baseline, an alternative that would substantially reduce impacts, per CEQA Guidelines Section 15126.6, need not be selected.

With regard to the No Program Baseline, significant and unavoidable effects were identified for Biological Resources and Noise under the IWDM Program. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.” The No Project/No Action Alternative would result in fewer effects than the IWDM Program and all other alternatives. However, given that a “no project” alternative shall not be selected as the environmentally superior alternative, the No Project/No Action Alternative may not be chosen as the environmentally superior alternative; and an environmentally superior alternative among the other alternatives must be chosen.

It should be noted that the Mendocino County Wildlife Management Services alternatives are substantively similar to the corresponding non-Mendocino County administered alternatives. For instance, the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative would involve implementation of identical suites of non-lethal wildlife damage management methods, as well as similarly anticipated cost-sharing mechanisms. The only difference between the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative is one of administration, whereby, under the Mendocino County Wildlife Management Services Non-Lethal Alternative, Mendocino County staff would be responsible for implementing the program. Implementation of the program by Mendocino County staff, as compared to staff of an outside entity, would not result in any changes related to the potential for the alternative to result in physical effects to the environment. The issue, rather, is one of having adequate staff personnel resources and funds to administer the program.

The Non-Lethal Program Alternative, variation to the Non-Lethal Program Alternative, Mendocino County Wildlife Management Services Non-Lethal Alternative, and variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would result in reductions in anticipated environmental effects as compared to the IWDM Program.

Although environmental effects would be reduced under all of the foregoing alternatives, the variation to the Non-Lethal Program Alternative and the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative could involve direct lethal take of cougars to protect public health and safety, while the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative would not involve direct take of

cougars under any circumstances. Considering that the IWDM Program is conservatively anticipated to result in a significant and unavoidable effect due to the lethal take of cougars under the No Program Baseline, the fact that the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative would not result in any direct take of cougars, these Alternatives would have the potential to further reduce significant effects beyond what would be achieved with implementation of the variation to the Non-Lethal Program Alternative and the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative. It should be noted that due to CDFW's role in approving take of cougars, take of cougars would be anticipated to continue within the County regardless of any County actions.

Considering the similarities between the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative, and the potential for both alternatives to reduce the significant and unavoidable effect identified for the IWDM Program under the No Program Baseline, the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative would both be considered the environmentally superior alternatives.

2.7 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

The CEQA Guidelines, Section 15123(b), require that this EIR consider areas of controversy known to the lead agency, including issues raised by agencies and the public. Areas of controversy that were identified in NOP comment letters and verbal comments received at the public scoping meeting held on September 18, 2018 should be considered, as well. The areas of known controversy for the project include the following:

- Impacts to special-status species, target wildlife, non-target wildlife, and wildlife populations due to the use of lethal wildlife damage management methods;
- Efficacy of particular lethal and non-lethal wildlife damage management methods;
- Impacts to agricultural production in the County, including row crops, tree crops, field crops, livestock operations, and timber operations;
- Scope of lethal control methods applied in IWDM Program and the variation to the Non-Lethal Program Alternative;
- Identification of procedures used to determine method of wildlife damage management chosen;
- Frequency of the use of lethal and non-lethal methods;
- Potential for private citizens to use lethal methods independently under the Non-Lethal Program Alternative; and
- Analysis of a sufficient range of alternatives.

All of the above issues are addressed in this EIR in the relevant chapters.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.1 Agricultural and Forest Resources			
4.1-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.	NI	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.1-2 Involve changes in the existing environment which, due to their location or nature, could result in conversion of Farmland or forest land to non-agricultural or non-forest use.	NI	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.1-3 Cumulatively convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
Program of the California Resources Agency, to non-agricultural use, or involve other changes in the existing environment which, due to their location or nature, could result in cumulative conversion of Farmland or forest land to non-agricultural or non-forest use.	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.2 Biological Resources			
4.2-1 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Wildlife, U.S. Fish & Wildlife Service or National Oceanic and Atmospheric Administration Fisheries.	NI	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.2-2 Have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, or regulations or by CDFW or USFWS.	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.2-3 Have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal filling, hydrological interruption, or other means.	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.2-4 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.2-5 Conflict with any local policies or ordinance protecting biological resources.	LTS	IWDM Program <i>None required.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.2-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.2-7 Cumulative impacts to biological resources within Mendocino County, including special-status species, riparian habitat, sensitive natural communities, and/or state or federally protected wetlands.	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.3 Hazards and Hazardous Materials			
4.3-1 Create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of	NI	IWDM Program <i>None required.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
hazardous or acutely hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	NI	Non-Lethal Program Alternative <i>None required.</i>	N/A
	NI	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.3-2 Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires, or be located in or near state responsibility areas or lands classified as very high fire hazard severity zones.	NI	IWDM Program <i>None required.</i>	N/A
	NI	Non-Lethal Program Alternative <i>None required.</i>	N/A
	NI	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.3-3 Creation of a significant cumulative hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.3-4 Cumulative exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires.	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.4 Noise			
4.4-1 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to firearm discharge.	NI	IWDM Program <i>None required.</i>	N/A
	NI	Non-Lethal Program Alternative <i>None required.</i>	N/A
	NI	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.4-2 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other	NI	IWDM Program <i>None required.</i>	N/A
	NI	Non-Lethal Program Alternative <i>None required.</i>	N/A
	NI	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
agencies due to electronic distress device noise exposure.			
4.4-3 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from tracking dogs.	NI	IWDM Program <i>None required.</i>	N/A
	NI	Non-Lethal Program Alternative <i>None required.</i>	N/A
	NI	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.4-4 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from frightening devices.	NI	IWDM Program <i>None required.</i>	N/A
	NI	Non-Lethal Program Alternative <i>None required.</i>	N/A
	NI	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.4-5 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other	NI	IWDM Program <i>None required.</i>	N/A
	S	Non-Lethal Program Alternative <i>MM 4.4-5 <u>Mendocino County Jurisdiction</u></i> <i>To the extent feasible, use of livestock protection dogs</i>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
<p>agencies due to noise from livestock protection dogs.</p>	<p>S</p>	<p><i>shall occur outside of the noise contours shown in Table 4.4-18 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-9.</i></p> <p><u><i>Incorporated Cities Jurisdiction</i></u></p> <p><i>To the extent feasible, use of livestock protection dogs shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-15 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p style="text-align: center;"><i>OR</i></p> <p><i>Alternatively, if feasible, wildlife specialists shall utilize/recommend a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-18 (County jurisdiction) and Table 4.4-15 (incorporated cities jurisdiction).</i></p> <p>Variation to the Non-Lethal Program Alternative MM 4.4-5 <u>Mendocino County Jurisdiction</u></p> <p><i>To the extent feasible, use of livestock protection dogs shall occur outside of the noise contours shown in Table 4.4-18 of this EIR, as applicable to the corresponding</i></p>	<p>SU</p>

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
		<p><i>time period and land use categories shown in Table 4.4-9.</i></p> <p><u><i>Incorporated Cities Jurisdiction</i></u></p> <p><i>To the extent feasible, use of livestock protection dogs shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-15 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p><i>OR</i></p> <p><i>Alternatively, if feasible, wildlife specialists shall utilize/recommend a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-18 (County jurisdiction) and Table 4.4-15 (incorporated cities jurisdiction).</i></p>	
4.4-6 Generation of a substantial temporary or permanent increase in ambient noise levels.	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.4-7 Generation of a substantial temporary or permanent cumulative increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	LTS	IWDM Program <i>None required.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.5 Public Services			
4.5-1 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services.	NI	IWDM Program <i>None required.</i>	N/A
	NI	Non-Lethal Program Alternative <i>None required.</i>	N/A
	NI	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.5-2 Result in substantial adverse physical impacts associated with the provision of new or physically altered	NI	IWDM Program <i>None required.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-1
 SUMMARY OF CONCLUSIONS AND MITIGATION MEASURES UNDER THE CEQA BASELINE**

Impact	Level of Significance prior to Mitigation	Mitigation Measures	Level of Significance after Mitigation
governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services.	NI	Non-Lethal Program Alternative <i>None required.</i>	N/A
	NI	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A
4.5-3 Cumulative impacts on fire protection and law enforcement services.	LCC	IWDM Program <i>None required.</i>	N/A
	LCC	Non-Lethal Program Alternative <i>None required.</i>	N/A
	LCC	Variation to the Non-Lethal Program Alternative <i>None required.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
4.1 Agricultural and Forest Resources			
4.1-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.1-2 Involve changes in the existing environment which, due to their location or nature, could result in conversion of Farmland or forest land to non-agricultural or non-forest use.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.1-3 Cumulatively convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
<p>Program of the California Resources Agency, to non-agricultural use, or involve other changes in the existing environment which, due to their location or nature, could result in cumulative conversion of Farmland or forest land to non-agricultural or non-forest use.</p>	<p>LTS</p>	<p>Variation to the Non-Lethal Program Alternative <i>None recommended.</i></p>	<p>N/A</p>
<p>4.2 Biological Resources</p>			
<p>4.2-1 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Wildlife, U.S. Fish & Wildlife Service or National Oceanic and Atmospheric Administration Fisheries.</p>	<p>S</p>	<p>IWDM Program <i>4.2-1 Except to address serious public safety concerns, direct control assistance related to cougars shall prioritize use of non-lethal methods. A cougar shall only be taken by WS-CA after the identified cougar has been involved in three depredation incidents in a specific area and non-lethal methods have failed, or if an attack on a human has occurred or appears imminent.</i></p> <p><i>The following procedures shall be implemented for successive depredation events occurring in the same specific area within a time period strongly suggesting the cougar's affinity for that location:</i></p>	<p>SU</p>

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
		<p>First Depredation Event: After confirming that the depredation was caused by a cougar, the WS-CA technician shall educate the landowner on cougar behavior and discuss site-specific options for preventing future depredation. WS-CA shall provide instruction on non-lethal strategies to be implemented by the landowner and lend appropriate equipment if available. WS-CA shall communicate to the landowner that continued assistance will be conditional upon the landowner taking measures to reduce the potential for attracting cougars, such as (1) removing the carcasses of depredated animals, (2) installing or repairing fencing or other shelter designed to exclude cougars from the depredated resource, and (3) removing cover from the immediate vicinity by clearing brush or removing lower limbs from shrubs. These conditions shall be identified in writing in WS-CA’s work plan or other agreement with the landowner. If the cougar is still present at the time of WS-CA’s first site visit, the technician may pursue or haze the cougar.</p> <p>Second Depredation Event: After confirming (1) that the depredation was most likely caused by the cougar involved in the first incident, (2) that the landowner implemented non-lethal strategies as instructed, and (3) that the landowner implemented the required conditions for continued assistance, WS-CA shall work with the landowner to develop a new set of non-lethal strategies to</p>	

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
		<p><i>be employed and lend appropriate equipment if available. If there are additional measures that can be employed by the landowner to avoid attracting cougars onto the property, the WS-CA field technician shall identify these in writing as a condition of continued assistance. If the cougar is still present at the time of WS-CA's second site visit, the technician may pursue or haze the cougar.</i></p> <p>Third Depredation Event: <i>After confirming (1) that the depredation was most likely caused by the cougar involved in the first and second incidents, (2) that the landowner implemented non-lethal strategies as instructed, and (3) that the landowner implemented the required conditions for continued assistance, WS-CA may take the cougar associated with the ongoing depredation.</i></p>	
	LTS	<p>Non-Lethal Program Alternative <i>None recommended.</i></p>	N/A
	LTS	<p>Variation to the Non-Lethal Program Alternative <i>None recommended.</i></p>	N/A
<p>4.2-2 Have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, or</p>	LTS	<p>IWDM Program <i>None recommended.</i></p>	N/A
	LTS	<p>Non-Lethal Program Alternative <i>None recommended.</i></p>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
regulations or by CDFW or USFWS.	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.2-3 Have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal filling, hydrological interruption, or other means.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.2-4 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.2-5 Conflict with any local policies or ordinance protecting biological resources.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
4.2-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.2-7 Cumulative impacts to biological resources within Mendocino County, including special-status species, riparian habitat, sensitive natural communities, and/or state or federally protected wetlands.	CC	IWDM Program <i>4.2-7 Implement Improvement Measure 4.2-1.</i>	SU
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.3 Hazards and Hazardous Materials			
4.3-1 Create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
hazardous materials into the environment.			
4.3-2 Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires, or be located in or near state responsibility areas or lands classified as very high fire hazard severity zones.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.3-3 Creation of a significant cumulative hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.3-4 Cumulative exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.4 Noise			
4.4-1 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to firearm discharge.	S	<p>IWDM Program</p> <p><i>4.4-1 <u>Mendocino County Jurisdiction</u></i></p> <p><i>To the extent feasible, firearm discharge shall occur outside of the noise contours shown in Table 4.4-10 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.</i></p> <p><i><u>Incorporated Cities Jurisdiction</u></i></p> <p><i>To the extent feasible, firearm discharge shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-11 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p style="text-align: center;">OR</p> <p><i>Alternatively, if feasible, the wildlife specialist shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-10 (County jurisdiction) and Table 4.4-11 (incorporated cities jurisdiction) for the selected firearm.</i></p>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
	NE	<p>Non-Lethal Program Alternative <i>None recommended.</i></p>	N/A
	S	<p>Variation to the Non-Lethal Program Alternative 4.4-1 <u>Mendocino County Jurisdiction</u></p> <p><i>To the extent feasible, firearm discharge shall occur outside of the noise contours shown in Table 4.4-10 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.</i></p> <p><u>Incorporated Cities Jurisdiction</u></p> <p><i>To the extent feasible, firearm discharge shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-11 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p>OR</p> <p><i>Alternatively, if feasible, the wildlife specialist shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-10 (County jurisdiction) and Table 4.4-11 (incorporated cities jurisdiction) for the selected firearm</i></p>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
4.4-2 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to electronic distress device noise exposure.	S	IWDM Program 4.4-2 <u>Mendocino County Jurisdiction</u> <i>To the extent feasible, use of electronic distress devices shall occur outside of the noise contours shown in Table 4.4-12 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.</i> <u>Incorporated Cities Jurisdiction</u> <i>To the extent feasible, use of electronic distress devices shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-13 of this EIR, if a sensitive receptor is located within those distances.</i> OR <i>Alternatively, if feasible, the wildlife specialist shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-12 (County jurisdiction) and Table 4.4-13 (incorporated cities jurisdiction) for the selected equipment.</i>	SU
	S	Non-Lethal Program Alternative 4.4-2 <u>Mendocino County Jurisdiction</u>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
	S	<p><i>To the extent feasible, use of electronic distress devices shall occur outside of the noise contours shown in Table 4.4-12 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.</i></p> <p><u><i>Incorporated Cities Jurisdiction</i></u></p> <p><i>To the extent feasible, use of electronic distress devices shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-13 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p style="text-align: center;"><i>OR</i></p> <p><i>Alternatively, if feasible, the wildlife specialist shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-12 (County jurisdiction) and Table 4.4-13 (incorporated cities jurisdiction) for the selected equipment.</i></p> <p>Variation to the Non-Lethal Program Alternative 4.4-2 <u><i>Mendocino County Jurisdiction</i></u></p> <p><i>To the extent feasible, use of electronic distress devices shall occur outside of the noise contours shown in Table</i></p>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
		<p><i>4.4-12 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.</i></p> <p><u><i>Incorporated Cities Jurisdiction</i></u></p> <p><i>To the extent feasible, use of electronic distress devices shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-13 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p><i>OR</i></p> <p><i>Alternatively, if feasible, the wildlife specialist shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-12 (County jurisdiction) and Table 4.4-13 (incorporated cities jurisdiction) for the selected equipment.</i></p>	
<p>4.4-3 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other</p>	S	<p>IWDM Program</p> <p>4.4-3 <u><i>Mendocino County Jurisdiction</i></u></p> <p><i>To the extent feasible, use of tracking dogs shall occur outside of the noise contours shown in Table 4.4-14 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.</i></p>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
agencies due to noise from tracking dogs.		<p style="text-align: center;"><u>Incorporated Cities Jurisdiction</u></p> <p style="text-align: center;"><i>To the extent feasible, use of tracking dogs shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-11 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p style="text-align: center;"><i>OR</i></p> <p style="text-align: center;"><i>Alternatively, if feasible, a WS-CA staff shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-14 (County jurisdiction) and Table 4.4-15 (incorporated cities jurisdiction).</i></p>	
	NE	<p>Non-Lethal Program Alternative <i>None recommended.</i></p>	N/A
	NE	<p>Variation to the Non-Lethal Program Alternative <i>None recommended.</i></p>	N/A
4.4-4 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other	S	<p>IWDM Program 4.4-4 <u>Mendocino County Jurisdiction</u></p> <p style="text-align: center;"><i>To the extent feasible, use of frightening device shall occur outside of the noise contours shown in Table 4.4-16 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.</i></p>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
agencies due to noise from frightening devices.	S	<p style="text-align: center;"><u><i>Incorporated Cities Jurisdiction</i></u></p> <p style="text-align: center;"><i>To the extent feasible, use of frightening device shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-17 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p style="text-align: center;">OR</p> <p style="text-align: center;"><i>Alternatively, if feasible, a WS-CA staff shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-16 (County jurisdiction) and Table 4.4-17 (incorporated cities jurisdiction) for the selected device.</i></p> <p>Non-Lethal Program Alternative 4.4-4</p> <p style="text-align: center;"><u><i>Mendocino County Jurisdiction</i></u></p> <p style="text-align: center;"><i>To the extent feasible, use of frightening device shall occur outside of the noise contours shown in Table 4.4-16 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.</i></p> <p style="text-align: center;"><u><i>Incorporated Cities Jurisdiction</i></u></p> <p style="text-align: center;"><i>To the extent feasible, use of frightening device shall occur outside of the daytime (75 dB) and nighttime (65</i></p>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
	S	<p><i>dB) noise contours shown in Table 4.4-17 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p style="text-align: center;"><i>OR</i></p> <p><i>Alternatively, if feasible, a WS-CA staff shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-16 (County jurisdiction) and Table 4.4-17 (incorporated cities jurisdiction) for the selected device.</i></p> <p>Variation to the Non-Lethal Program Alternative 4.4-4 <u><i>Mendocino County Jurisdiction</i></u></p> <p><i>To the extent feasible, use of frightening device shall occur outside of the noise contours shown in Table 4.4-16 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.</i></p> <p><u><i>Incorporated Cities Jurisdiction</i></u></p> <p><i>To the extent feasible, use of frightening device shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-17 of this EIR, if a sensitive receptor is located within those distances.</i></p>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
		<i>OR</i> <i>Alternatively, if feasible, a WS-CA staff shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-16 (County jurisdiction) and Table 4.4-17 (incorporated cities jurisdiction) for the selected device.</i>	
4.4-5 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from livestock protection dogs.	NE	IWDM Program <i>None recommended.</i>	N/A
	S	Non-Lethal Program Alternative <i>MM 4.4-5 <u>Mendocino County Jurisdiction</u></i> <i>To the extent feasible, use of livestock protection dogs shall occur outside of the noise contours shown in Table 4.4-18 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-9.</i> <i><u>Incorporated Cities Jurisdiction</u></i> <i>To the extent feasible, use of livestock protection dogs shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-15 of this EIR, if a sensitive receptor is located within those distances.</i>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
	S	<p style="text-align: center;"><i>OR</i></p> <p style="text-align: center;"><i>Alternatively, if feasible, wildlife specialists shall utilize/recommend a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-18 (County jurisdiction) and Table 4.4-15 (incorporated cities jurisdiction).</i></p> <p>Variation to the Non-Lethal Program Alternative <i>MM 4.4-5 <u>Mendocino County Jurisdiction</u></i></p> <p style="text-align: center;"><i>To the extent feasible, use of livestock protection dogs shall occur outside of the noise contours shown in Table 4.4-18 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-9.</i></p> <p style="text-align: center;"><u><i>Incorporated Cities Jurisdiction</i></u></p> <p style="text-align: center;"><i>To the extent feasible, use of livestock protection dogs shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-15 of this EIR, if a sensitive receptor is located within those distances.</i></p> <p style="text-align: center;"><i>OR</i></p>	SU

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
		<i>Alternatively, if feasible, wildlife specialists shall utilize/recommend a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-18 (County jurisdiction) and Table 4.4-15 (incorporated cities jurisdiction).</i>	
4.4-6 Generation of a substantial temporary or permanent increase in ambient noise levels.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.4-7 Generation of a substantial temporary or permanent cumulative increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.5 Public Services			
4.5-1 Result in substantial adverse physical impacts associated with the provision of new or physically altered	LTS	IWDM Program <i>None recommended.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services.	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.5-2 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services.	LTS	IWDM Program <i>None recommended.</i>	N/A
	LTS	Non-Lethal Program Alternative <i>None recommended.</i>	N/A
	LTS	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A
4.5-3 Cumulative impacts on fire protection and law enforcement services.	LCC	IWDM Program <i>None recommended.</i>	N/A
	LCC	Non-Lethal Program Alternative <i>None recommended.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

**TABLE 2-2
 SUMMARY OF CONCLUSIONS AND IMPROVEMENT MEASURES UNDER THE NO PROGRAM BASELINE**

Impact	Level of Significance prior to Measures	Improvement Measures	Level of Significance after Measures
	LCC	Variation to the Non-Lethal Program Alternative <i>None recommended.</i>	N/A

NI = No Impact; NE = No Effect; N/A = Not Applicable; LTS = Less-than-Significant; S = Significant; SU = Significant and Unavoidable; LCC = Less-than-Cumulatively-Considerable; CC = Cumulatively Considerable.

3. PROJECT DESCRIPTION

3

PROJECT DESCRIPTION

3.1 INTRODUCTION

The proposed project is approval of the Integrated Wildlife Damage Management (IWDM) Program to protect agricultural and livestock commodities, human health and safety, natural resources, and property from wildlife damage. The IWDM Program would include the approval of Mendocino County’s five-year Cooperative Services Agreement (CSA), including annual work plans (work and financial plans) required by the five-year CSA, with the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS) Wildlife Services California Office (WS-CA) for wildlife damage management assistance in the County. While the CSA would fund an initial five-year term during which WS-CA would implement the IWDM Program in the County, the IWDM Program being analyzed in the EIR is not limited to five-years. Rather, the proposed project would adopt and establish the IWDM Program for ongoing implementation in the County. Any future discretionary actions by the County necessary to implement the Program would need to be evaluated for consistency with the IWDM Program and conformance with this EIR.

This section describes the location of the proposed project and its environmental setting, a statement of objectives, a general description of the proposed project’s technical, economic, and environmental characteristics, and intended uses of the EIR.¹

This EIR also evaluates a Non-Lethal Program Alternative at an equal-level to the proposed project. The Non-Lethal Program Alternative is described in Section 3.8 of this chapter.

Note: in order to facilitate the readability of this chapter, multi-page tables have been included at the end of this chapter.

3.2 BACKGROUND

The United States Department of Agriculture (USDA) has been operating various federal regulatory programs to promote livestock disease research, enforce animal import regulations, and regulate the interstate movement of animals for over 130 years (since about 1883, when the USDA Veterinary Division was founded). The first California organized predator control program was in 1915, when appropriations were made to the Department of the Interior, Bureau of Biological Survey, to employ government trappers in Modoc County. This program was soon extended to other counties in 1916. The program was designed to suppress a coyote rabies outbreak, responsible for the deaths of cattle and horses between 1915 and 1917.² Between 1916

¹ The requirements for a project description are set forth in CEQA Guidelines Section 15124.

² W. Karabian. *Animal Damage Activities in California*. Submitted to the Cal. Legislature and the Cal. Dept. of Agriculture. October 20, 1970.

and 1919, the U.S. Forest Service requested predator control on National Forest land in the state for the protection of range sheep.

In 1919, the U.S. Biological Survey and the County of Mendocino started the first cooperatively financed predator control program; the Bureau of Biological Survey and the County supplied funds to employ hunters and trappers. In 1921, the State Legislature started biennial appropriations for cooperative predator animal control to suppress losses to livestock, poultry, and agricultural crops. A paid hunter system was established and the joint Federal-State-County program was supervised by the Federal Government. Reports from the 1920s confirm the ongoing cooperative contractual relationship between the County and USDA-Bureau of Biological Survey for predatory animal control. The Animal Damage Control Act, enacted by Congress in 1931, recognized the cooperative relationship between the USDA and the states and designated Wildlife Services' predecessor (the Bureau of Sport Fisheries and Wildlife, within the U.S. Fish and Wildlife Service and the Department of the Interior) as the organization charged with addressing human/wildlife conflicts.

The California Department of Fish and Game (predecessor to the California Department of Fish and Wildlife (CDFW)) began a predatory animal control program for the purposes of game management in 1932. This program was carried on through 1956 when the State Legislature directed the CDFW to terminate its predator control program. Approval was given for the CDFW to enter into a cooperative contract with the Bureau of Sport Fisheries and Wildlife when CDFW determined that unprotected mammals were unduly preying on any bird, mammal, or fish.

Mendocino County began its own Predatory Animal Damage Control program in 1943. In the 1970s, the Predatory Animal Damage Control Program was housed in the Department of Animal Control for the County; the Department of Agriculture managed and supervised wildlife damage management activities conducted by the Department of Animal Control. A review of County records demonstrates that collaborative wildlife damage management occurred throughout the 1970s and 1980s. In 1986, Animal Damage Control was transferred into USDA-APHIS, which oversees wildlife damage management programs in 35 of the state's 58 counties. It should be noted that WS-CA is not a land or resource management agency and does not manage wildlife populations. WS-CA assists resource owners with the management of wildlife that are causing damage. A formal Cooperative Agreement was adopted by Mendocino County and WS-CA in 1989, providing the framework for the current wildlife management program. The purpose of the Cooperative Agreement was to "undertake a program for the control of damaging birds and mammals within the County of Mendocino." Under the program, WS-CA specialists would be directed to "reduce, terminate, and/or prevent predation and damage to livestock, crops, and other property within the county." Pursuant to the terms of the Cooperative Agreement, it was to continue indefinitely, permitting either party to terminate the Agreement upon 30 days' notice. The Cooperative Agreement was in place from 1989 until 2004, with the exception of fiscal years 1995 and 1996 when the County faced budgetary constraints that would not guarantee its share of program funding would be satisfied. In December 2004, the County entered into a new Cooperative Agreement with a five-year term, and in March 2010, the second five-year agreement was approved. The Cooperative Agreement and Work Plan were both renewed by the Board on June 3, 2014. The Work Plan expired on June 30, 2015. Since that time, WS-CA has continued to implement the IWDM Program in Mendocino County without funding from the

County. Since April 2016, WS-CA has implemented the IWDM Program wholly independently from and without any oversight, direction, or funding from the County.

The IWDM Program was supervised and administered by the WS-CA State office through the Northern District office. At the County level, the Mendocino County Agricultural Commissioner's office facilitates the contractual agreements for these services and assists landowners in contacting WS-CA for information, advice and operational assistance related to resolving human-wildlife conflict through the use of an integrated wildlife damage management approach. Mendocino County has played an active role in wildlife damage control for over half a century, with the most recent wildlife damage control program in place for over thirty-five years. In addition, similar control measures have been undertaken by landowners at their own discretion (unassociated with the IWDM Program) simultaneously over the same time frame.

Role of other agencies (Memorandums of Understanding)

WS-CA operates in partnership with federal, (US Forest Service [USFS], US Fish and Wildlife Service (USFWS), Bureau of Land Management [BLM]), state (California Department of Food and Agriculture [CDFA], CDFW, California Department of Public Health [CDPH]), and local (County governments and regional authorities) agencies to respond to requests for assistance on wildlife damage-related issues throughout California. At the state level, WS-CA has Memorandums of Understanding (MOUs) with CDFA and CDPH.³ These MOUs specify the purpose, objectives, and among other things, responsibilities between the agencies. Each MOU recognizes and endorses WS-CA as the chief agency responsible for administration and coordination of wildlife damage management programs on private and public lands of California.

At the federal level, WS-CA has MOUs with BLM and USFS.⁴ These federal MOUs transferred much of the responsibilities for wildlife damage management and related compliance with NEPA from BLM and USFS to Wildlife Services.

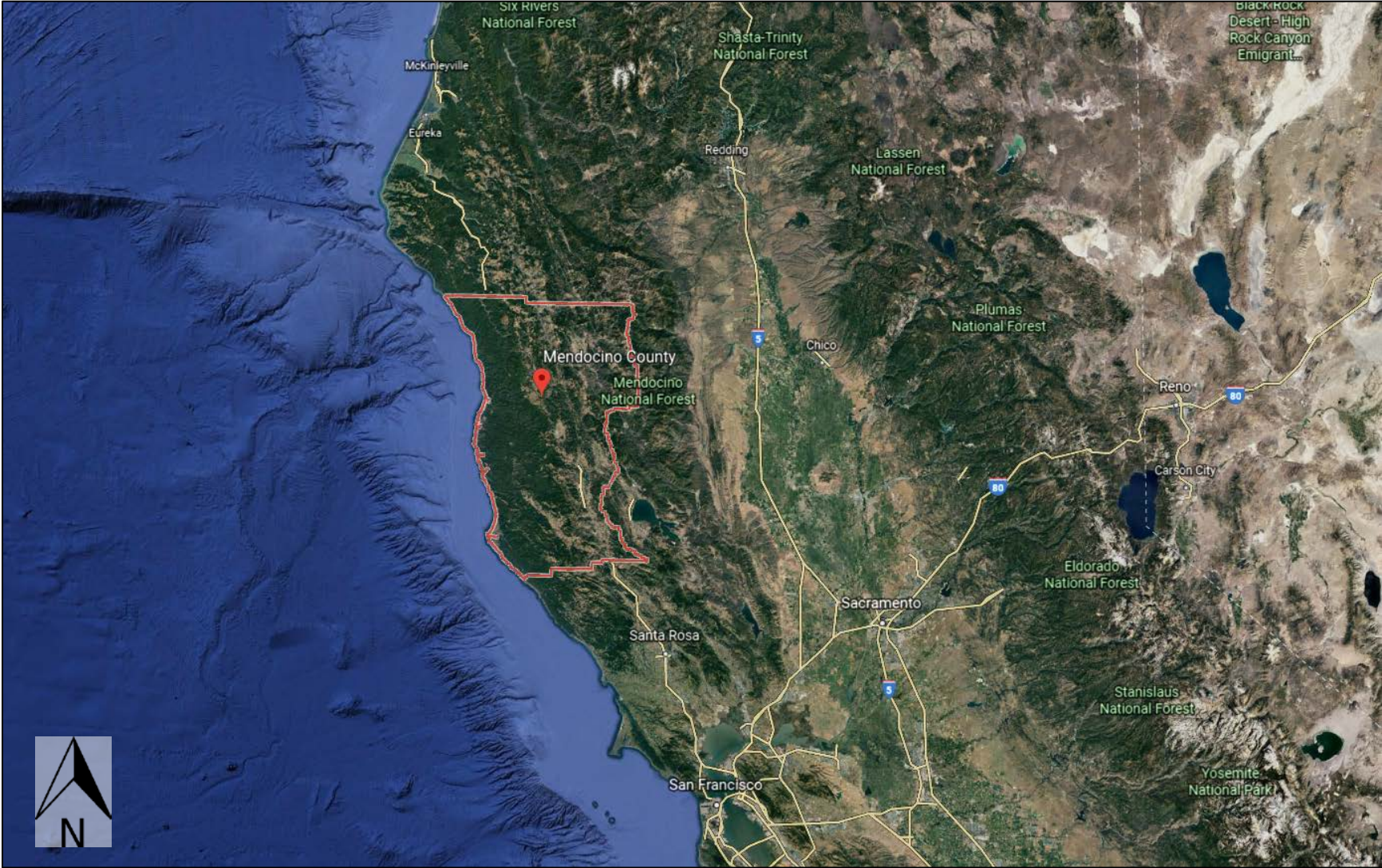
3.3 ENVIRONMENTAL SETTING

Mendocino County is generally located along California's west coast and contains 2,246,000 acres, or 3,510 square miles, and is the 15th largest county in California in terms of land area (see Figure 3-1 and Figure 3-2). About one-fifth of the land in Mendocino County is in public ownership, controlled by a variety of federal, state, and local government agencies, including ten Indian reservations or rancherias. The rest of the land in the County (almost 80 percent) is in private ownership; about three-fourths of all privately held land is committed to long-term agricultural or timber uses. Mendocino County land ownership and jurisdictions are shown in Figure 3-3 and summarized in Table 3-1.

³ APHIS-WS and California Department of Public Health entered into an MOU in 2008 (Agreement No. 08-73-06-6119); and APHIS-WS and CDFA entered into an MOU in 2010 (Agreement No. 10-73-06-3306).

⁴ APHIS-WS and USFS entered into an MOU in 2011 (FS Agreement No. 11-SU-11132422-151/Cooperator Agreement No. 11-7100-0329-MU); and APHIS and BLM entered into an MOU in 2012.

Figure 3-1
Regional Location



**Figure 3-2
Project Location**

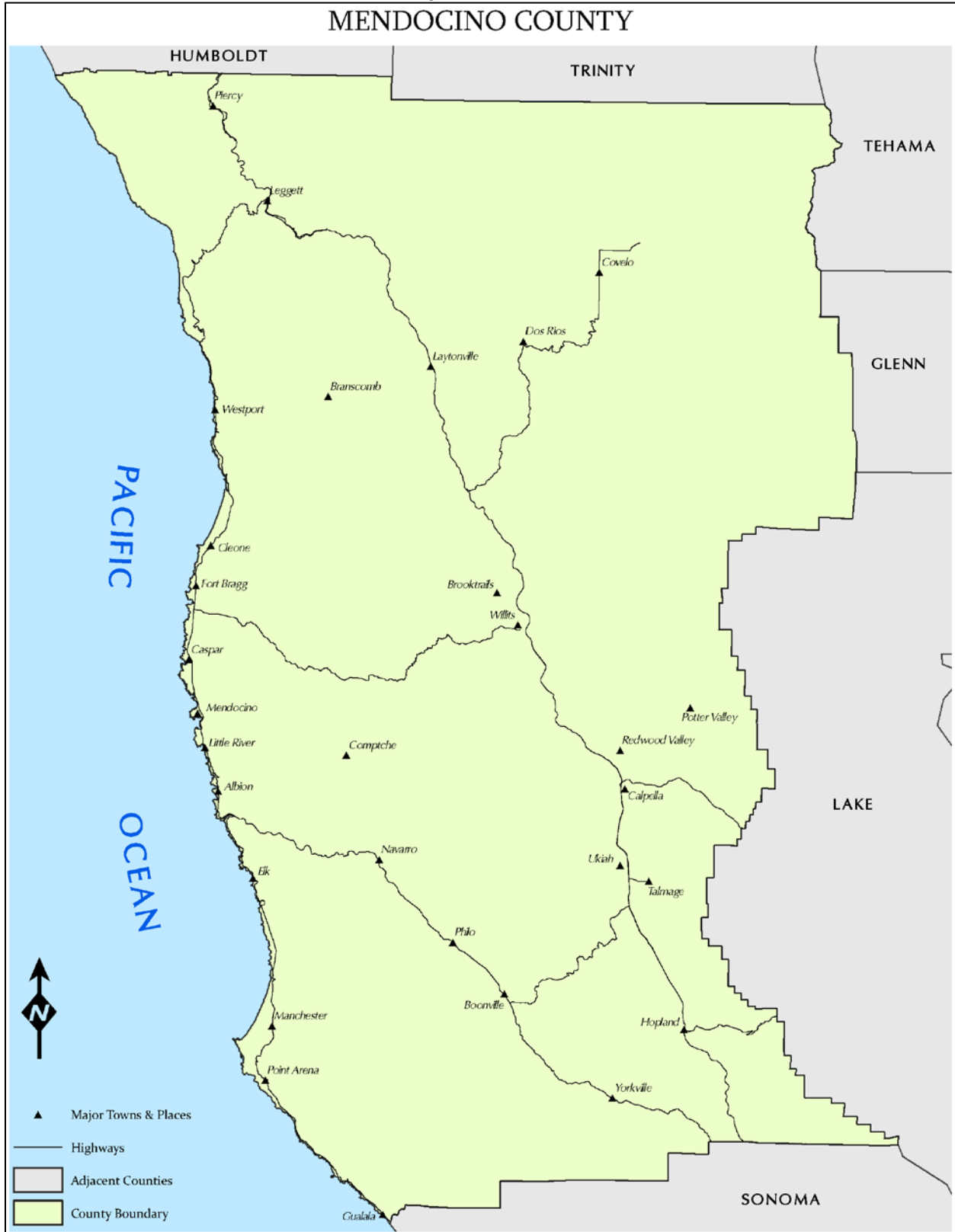


Figure 3-3
Land Ownership and Jurisdiction

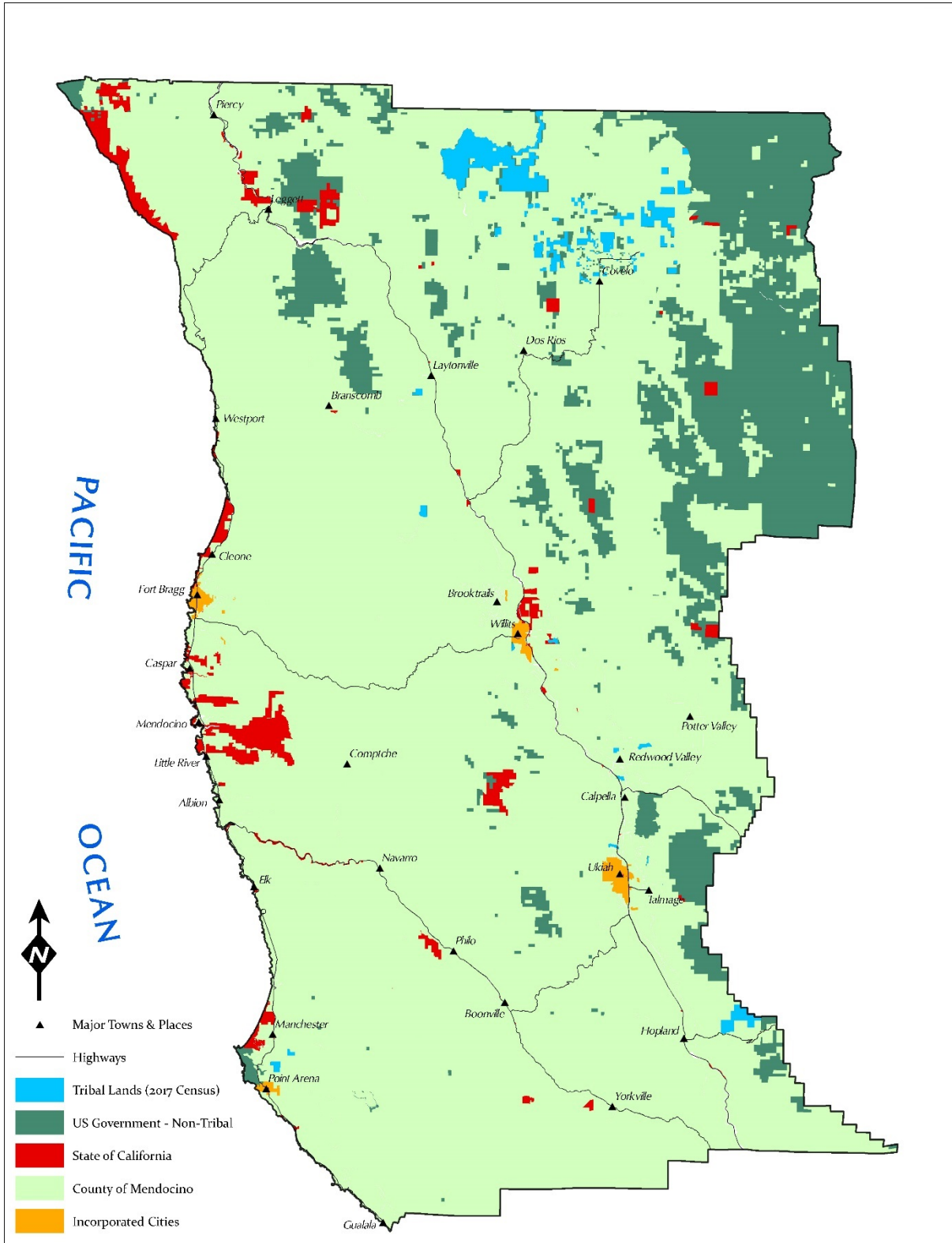


Table 3-1 Land Ownership in Mendocino County		
Ownership Agency	Acres	Percentage of Total
<i>Federal</i>	334,801	14.9
U.S. Forest Service	174,000	7.7
Bureau of Land Management	120,730	5.4
Other	43,570	1.9
<i>Native American</i>	25,796	1.1
<i>State, County, and Cities</i>	102,000	4.5
Incorporated Cities	7,394	0.3
State Parks	30,336	1.4
County Parks	567	0.1
Other	48,497	2.7
<i>Private</i>	1,783,403	79.4
Agricultural Preserves	497,143	22.1
Timber Production Zones	854,383	38.0
Other	431,877	19.2
Total All Land	2,246,000	100.0
<i>Sources:</i>		
<ul style="list-style-type: none"> • <i>Mendocino County General Plan, August 2009.</i> • <i>Russell Ford, Mendocino County Planning and Building Services. Personal communication [email] with Jacob Byrne, Air Quality Technician, Raney Planning & Management. February 22, 2019.</i> 		

Mendocino County’s diverse geographic regions have affected land use and settlement patterns. The coastal terrace and inland river valleys contain the major population centers, rural residential settlements, and agricultural uses. Timber, grazing, and rural residential development characterize the Coast Range. Other inland areas are largely mountainous and forested with limited population centers.

Today, Mendocino County remains mostly rural, with about 69 percent of the population living outside of incorporated cities.⁵ The remaining population lives in the four incorporated cities in the County; of these, Ukiah is the largest, with a population larger than the other three cities combined. The other three cities are Fort Bragg, Willits, and Point Arena. The populations for the foregoing incorporated cities are presented in Table 3-2 below.

Table 3-2 Population of Incorporated Cities in Mendocino County	
City	Population
Ukiah	16,036
Fort Bragg	7,312
Willits	4,875
Point Arena	453
<i>Source: U.S. Census Bureau. American FactFinder Available at: https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkml. Accessed July 2018.</i>	

⁵ County of Mendocino. *The County of Mendocino General Plan* [pg. 3-2]. August 2009.

Mendocino County has a very wide range of biological communities, some of which are highly productive or contain rare plant communities. These include redwood, Douglas-fir, montane hardwood, chaparral, grasslands, closed cone pine-cypress, oak woodland, agricultural, white fir, ponderosa pine, Klamath mixed fir, coastal scrub, urban, red fir, barren, and aquatic habitats. Figure 3-4 contains a map of the biological communities in Mendocino County. These habitats are home to numerous common wildlife species as well as species that are protected under federal and state laws and regulations.

3.4 PROJECT PURPOSE

As is true throughout the United States, wildlife habitat in the County has been altered as human populations expand and land is used for human needs. These human needs often compete with wildlife, which increases the potential for conflicting human-wildlife interactions. The Wildlife Services program summarizes the relationship of wildlife values and wildlife damage as follows:⁶

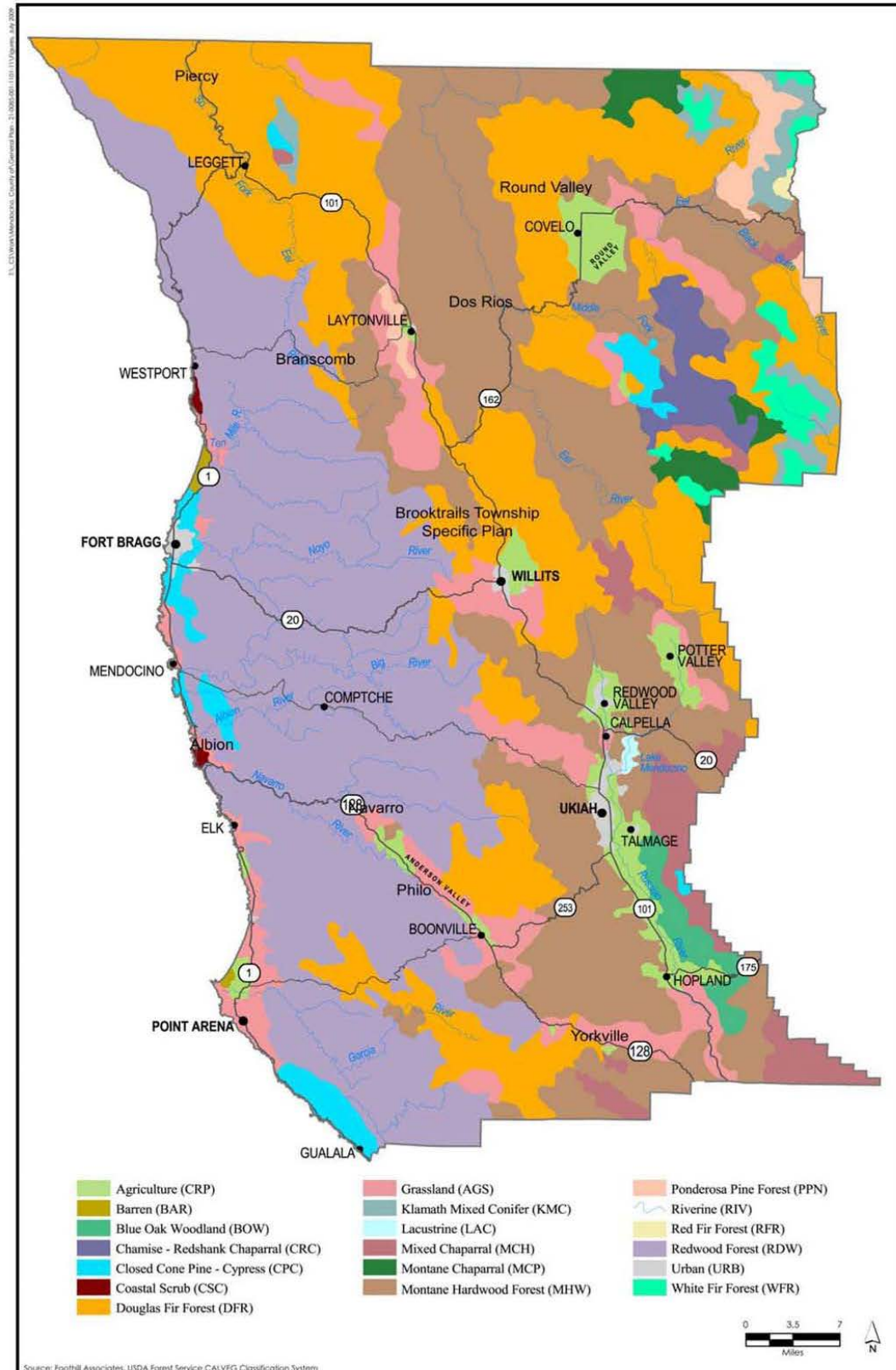
Wildlife has either positive or negative values, depending on varying human perspectives and circumstances ... Wildlife generally is regarded as providing economic, recreational and aesthetic benefits ... and the mere knowledge that wildlife exists is a positive benefit to many people. However, the activities of some wildlife may result in economic losses to agriculture and damage to property ... Sensitivity to varying perspectives and values is required to manage the balance between human and wildlife needs. In addressing conflicts, wildlife managers must consider not only the needs of those directly affected by wildlife damage but a range of environmental, socio-cultural and economic considerations as well.

Conflicts between humans and wildlife are common in the County. The purpose of the IWDM Program is to resolve conflicts with selected species that have caused damage to resource owners in the County. Damaging mammals in California include a range of species that prey on livestock and wildlife, cause property and other resources damage and threaten human health and safety. The CDFW has management authority and responsibility for resident wildlife including furbearers (the California Fish and Game Code, Division 4, Section 4000, defines furbearers as pine marten, fisher, mink, river otter, gray fox, red fox, kit fox, raccoon, beaver, badger, and muskrat), game species and nongame mammals that cause damage, including badger, bear, beaver, bobcat, coyote, gray fox, red fox, black-tailed jackrabbit, cougar, muskrat, Virginia opossum, desert cotton-tail rabbit, raccoon, striped skunk, western spotted skunk, and California ground squirrel. CDFW can request assistance from WS-CA for any species under CDFW's primary responsibility.

Feral swine, deer, beaver, elk, bobcat, turkeys, cougar, black bear, and gray squirrel are managed by CDFW pursuant to Fish and Game Code sections requiring CDFW to issue a permit to authorize the removal of individual animals that damage specified resources.

⁶ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015.

Figure 3-4
Geographical Distribution of Major Habitat Types within Mendocino County



Coyotes, badgers, skunks, weasels and raccoons may be taken year-round with no restriction and furbearers can be taken at any time if they are found damaging or threatening agricultural and livestock commodities or other property. This is allowed by the CDFW under various sections within the Fish and Game Code Section (see Appendix D for a comprehensive list of codes related to the take of furbearers threatening agricultural and livestock commodities or other property) because current population levels of these species can generally sustain a high level of removal without irreparable consequences.

The IWDM Program provides assistance to protect agricultural and livestock commodities, human health and safety, natural resources, and property from wildlife damage.

The target species for the IWDM Program include coyote, raccoon, striped skunk, spotted skunk, badger, Virginia opossum, bobcat, feral dog, gray fox, red fox, black bear, cougar, feral swine, black-tailed deer, California ground squirrel/other squirrels, and avian species, including rock dove (pigeon) and European starling. The IWDM Program may be used for other species in Mendocino County, as in the past; however, the numbers of take are historically very low.⁷

The following sections of this Chapter discuss the various aspects of the IWDM Program, including wildlife damage management to protect agricultural and livestock commodities, human health and safety, property, and natural resources.

Wildlife Damage Management to Protect Agricultural and Livestock Commodities

Cattle and calves are most vulnerable to predation (killing, harassment or injury resulting in monetary losses to the owner) during calving, and less vulnerable at other times of the year. However, sheep and especially lambs can sustain high predation rates throughout the year.

Operators and livestock owners are not required to report the number of livestock lost when contacting WS-CA for assistance in wildlife management. However, when WS-CA receives requests for services, pertinent information is collected when possible. Such information may include the number of livestock lost or damaged, the type of damage incurred, the type of wildlife causing damage, the number of incidents, and the monetary value of livestock lost. Information is often provided voluntarily by requesters, but in some cases such data may be incomplete. Nevertheless, Table 3-5 summarizes livestock losses and damage due to wildlife from 2007 to 2017 (please refer to the end of this chapter for Table 3-5).

Damage inflicted by wildlife upon agricultural operations is not limited to damage to traditional livestock production. The following are examples of other types of damage to agricultural resources: badger and ground squirrel damage to hay fields, crops, and pastures; coyote, raccoon, and ground squirrel damage to vegetable and fruit crops and to irrigation systems; ground squirrel damage to pastures, rangeland, and fruit, nut, and row crops; and fox, coyote, or bobcat predation on small enterprise operations with rabbits, chickens, sheep, goats, or other animals.

⁷ For example, from the 20-year period 1997-2017 the IWDM Program included control activities related to the following: three turkey vultures; six porcupines; two elk; two snakes; four common ravens, etc.

Table 3-3 summarizes damage (in dollar value) caused by wildlife target species to agricultural and livestock commodities, human health, natural resources, and property from 2007-2017. Table 1 within Appendix D of this EIR presents species-specific attribution of the wildlife damage summarized in Table 3-3 of this chapter.

Year	Agriculture Non- Livestock	Human Health	Agriculture Livestock	Natural Resource	Property	Sum of Damages Loss
2007	\$16,365.00	\$0.00	\$40,340.00	\$500.00	\$29,805.00	\$87,010.00
2008	\$22,950.00	\$1,225.00	\$24,070.00	\$1,200.00	\$51,365.00	\$100,810.00
2009	\$40,150.00	\$36,500.00	\$91,745.00	\$3,300.00	\$54,690.00	\$226,385.00
2010	\$425,775.00	\$1,000.00	\$25,500.00	\$7,050.00	\$94,550.00	\$553,875.00
2011	\$579,500.00	\$0.00	\$29,375.00	\$0.00	\$45,455.00	\$654,330.00
2012	\$66,913.46	\$2,000.00	\$29,030.30	\$4,294.86	\$47,280.00	\$149,518.62
2013	\$104,472.39	\$1,000.00	\$27,113.30	\$9,987.15	\$29,255.00	\$171,827.84
2014	\$187,488.82	\$0.00	\$82,678.41	\$3,647.43	\$33,363.00	\$307,177.66
2015	\$100,299.84	\$2,000.00	\$30,439.46	\$3,294.86	\$29,395.00	\$165,429.16
2016	\$25,542.44	\$0.00	\$48,907.94	\$0.00	\$27,095.00	\$101,545.38
2017	\$32,806.71	\$0.00	\$27,011.76	\$0.00	\$37,985.00	\$97,803.47
Total	\$1,602,263.66	\$43,725.00	\$456,211.17	\$33,274.30	\$480,238.00	\$2,615,712.13
Note: See Appendix D for breakdown of wildlife damage by species causing damage.						
<i>Source: WS-CA, 2018.</i>						

As shown in Table 3-4, wildlife damage to agricultural and livestock commodities has resulted in costs of \$2,058,474.83 over the course of the last ten fiscal years.

Wildlife Damage Management to Protect Human Health and Safety

Human health and safety concerns include, but are not limited to: animal attacks on humans that result in injuries or death; disease threats from rabies and plague outbreaks where wildlife act as reservoirs; threats from parasite transmission from wildlife to humans; odor and noise nuisances from skunks and raccoons under houses; and airstrike hazards from coyotes or other wildlife crossing runways at airports or airbases. Coyotes, raccoons, skunks, opossums, gray fox, bobcats, and free ranging or feral dogs also kill and harass pets, eat pet food and/or pose disease threats to pets and humans.

WS-CA also plays an active role in surveillance and monitoring of wildlife diseases such as rabies, plague, Lyme disease, and West Nile Virus. Zoonotic diseases (diseases transmissible from wildlife to humans) are one of the leading infectious causes of illness and death to humans. Rabies is frequently carried in skunks, bats, fox, and other animals. Plague can be carried in coyotes, ground squirrels, and other wildlife species. WS-CA's assistance in reducing wildlife disease risks through surveillance, monitoring, and response helps safeguard humans from the

threat of zoonotic diseases and bioterrorist threats by responding to requests for assistance through the IWDM Program.⁸

With respect to public safety, CDFW is responsible for determining whether an animal poses a threat to public safety. The Law Enforcement Division (LED) of CDFW utilizes personnel employed by WS-CA to assist in the response to public safety animals, which could include any animal, but primarily involve cougar, black bear, coyote, and deer.

As shown in Table 3-3, in Mendocino County, wildlife has resulted in human health costs of \$43,725 over the course of the last ten fiscal years.

Wildlife Damage Management for the Protection of Property

The IWDM Program would provide for responses to these complaints, as well as to requests from land and homeowners to alleviate property damage from coyotes, raccoons, skunks, badgers, moles, and ground squirrels including, but not limited to: damage to roofing, building wiring, attacks on pets, consumption or destruction of landscaping, turf or nursery plants, and damage to irrigation systems from coyotes biting holes in lines.

Feral swine are non-native to the Mendocino County area. The species' behavior during feeding and the search for feed is termed rooting. Rooting turns sod and topsoil over which often leaves the area bare of vegetation and susceptible to erosion and colonization of invasive weeds. Feral swine dig or root in the ground with their nose in search of desired roots, grubs, earthworms, and other food sources. When this activity takes place in developed areas, it results in damage to landscaping, golf courses, roads, drainage ditches, and can lead to erosion issues.

As shown in Table 3-3, in Mendocino County, damages to property totaled \$480,238 over the ten-year period from 2007-2017 and averaged \$45,314.30 per year.

Wildlife Damage Management for the Protection of Natural Resources

Natural resource protection in Mendocino County can include protecting sensitive species or other natural resources from mammal damage. In other counties within California, this has been associated with managing damage from muskrats when they burrow into stream banks and undermine the integrity of the banks, causing erosion, sedimentation, collapse of the bank, and damage to riparian areas. In Mendocino County, WS-CA participates in the control of invasive feral swine to protect natural resources. Feral swine foraging behavior includes rooting, which results in soil disturbance. Such disturbance can cause damage to wetlands, watersheds, and native habitats. From 2007 to 2017, WS-CA responded to 58 requests for assistance related to feral swine causing damage to natural resources within the County (see Table 3-4).

⁸ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015.

Table 3-4	
Feral Swine Damage to Natural Resources (Mendocino County)	
Natural Resource Damaged or Threatened	Number of WS-CA Tasks
Habitat, wildlife (general)	17
Watershed	39
Wetlands	2
Total	58
<i>Source: WS-CA, 2018.</i>	

WS-CA may also assist cooperators with requests to protect other natural resources from mammal damage.

As shown in Table 3-3, in Mendocino County, damages to natural resources totaled \$33,274.30 over the ten-year period from 2007-2017 and averaged \$3,024.94 per year.

3.5 PROJECT OBJECTIVES

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible, and establishes that a public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures available that would substantially lessen any significant effects that the project would have on the environment. The law recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors (CEQA Guidelines Section 15021 [Duty To Minimize Environmental Damage And Balance Competing Public Objectives]). The County has identified the following objectives for the proposed project:

- 1) Provide an administrative mechanism for the private citizens and property owners in Mendocino County to request assistance for wildlife damage management services.
- 2) Facilitate access to on-site educational services (e.g., informational materials, advice, and demonstrations) provided by wildlife specialists regarding wildlife damage management specific to conditions in Mendocino County.
- 3) Implement an integrated approach to wildlife damage management that allows qualified professionals to consider the range of options available for wildlife damage management that take into account the species responsible, magnitude of the problem, environmental conditions, legal restrictions such as listed species and permitting, and other considerations to formulate an appropriate strategy for the situation.
- 4) Have a process through which professionals who specialize in wildlife damage management can continue to provide technical assistance to resource owners about the variety of non-lethal methods that can be used to resolve problems (e.g., animal husbandry practices, guard animals, fencing, frightening) and where it is appropriate for resource owners to resolve the problem themselves.

- 5) Ensure preference is given to non-lethal methods of wildlife damage management when practical and effective.
- 6) Ensure that methods and techniques for lethal control to handle wildlife damage situations that may be difficult or dangerous for the public to use are implemented by professionals who are specially trained in such methods and who provide those services in a legal manner that is protective of human health and the environment.
- 7) Provide a transparent process for monitoring and documenting wildlife damage management activities to ensure accurate reporting of the types of wildlife damage and number of wildlife species removed by lethal methods, and to help assess the impacts of wildlife damage and associated wildlife damage management activities in the County.
- 8) Continue to provide wildlife damage management at similar funding levels and ensure County funds for wildlife damage management are used in a fiscally responsible manner.
- 9) Ensure that processes remain in place for the protection of public safety.

3.6 PROJECT IMPLEMENTATION AND OPERATION

The proposed project is approval of the IWDM Program to protect agricultural and livestock commodities, human health and safety, natural resources, and property in the County from wildlife damage. The IWDM Program:

- (1) establishes the general purpose for and standards pursuant to which the Program will be implemented. For purposes of this EIR, the County is adopting and incorporating *WS Directive 2.105, The WS Integrated Wildlife Damage Management Program*. March 1, 2004 as the IWDM Program standards, as further described below.
- (2) authorizes the Department of Agriculture to:
 - a. develop and/or adopt standards, either in the form of a guidance document or as part of a third-party service agreement, to implement the Program;
 - b. negotiate third-party service agreements to implement the Program for approval by the Board of Supervisors;
 - c. make recommendations to the Board of Supervisors concerning the Program, including but not limited to recommending approval of third-party service agreements;
 - d. provide oversight for and monitor implementation of the Program;
 - e. provide the public with information concerning the Program;
 - f. take any other such actions as are necessary to effectively implement the Program in a manner consistent with its general purpose and standards.

As currently proposed, the Program would be implemented initially pursuant to a five-year CSA, including annual work plans (work and financial plans) required by the five-year CSA, with WS-

CA. Similar to previous agreements with WS-CA, the CSA would be a cost-share agreement under which the County would fund a portion of the WS-CA-estimated total cost of services, typically around two-thirds of the total cost. The CSA and annual work plans would require the approval of the Mendocino County Board of Supervisors. Yearly adjustments to the work plan would primarily be a function of personnel and equipment costs. Technical assistance data maintained by WS-CA through the Management Information System (MIS) for one year would also be used to help develop the work plan and budget for the subsequent year throughout the remaining term of the CSA. Activities performed under the IWDM Program would be implemented by WS-CA field specialists in accordance with the regulations, standards, and guidelines of the IWDM Program, including the WS Policy Manual, Directives, and standard operating procedures. The County would not be involved in any of the wildlife damage management activities, though would provide oversight of WS-CA's implementation of the IWDM Program.

While the CSA would fund an initial five-year term during which WS-CA would implement the IWDM Program in the County, the IWDM Program being analyzed in this EIR is not limited to five-years. Rather, the proposed project would adopt and establish the IWDM Program for ongoing implementation in the County. Potential future renewal of the IWDM Program for subsequent five-year terms is considered a later activity of the proposed project, and is programmatically analyzed within this EIR. In conformance with CEQA Guidelines Section 15168(c), any future discretionary actions taken by the County necessary to implement the Program would need to be evaluated for consistency with the IWDM Program and conformance with the analysis included in this EIR.

In conjunction with the County's approval of the cooperative agreement with WS-CA, neither WS-CA nor Mendocino County are proposing any changes to the WS-CA IWDM Program in Mendocino County, as compared to the IWDM Program that was in place until 2015. The reader is referred to the following Wildlife Damage Management section for a description of the existing program and historical operational data.

Program and Agreement

The IWDM Program would include the following wildlife damage management elements, as implemented pursuant to the third-party agreement(s) with WS-CA.

Overview of Wildlife Damage Management

Wildlife damage management is the science of reducing damage or other problems associated with wildlife and is recognized as an integral part of wildlife management.⁹ WS-CA is authorized by law¹⁰ to manage a program to reduce human/wildlife conflicts, and this environmental analysis

⁹ The Wildlife Society. *Standing Position: Wildlife Damage Management*. 2010.

¹⁰ The Secretary of Agriculture is authorized to carry out wildlife damage management programs necessary to protect the Nation's agricultural and other resources. The Secretary has delegated this authority under the statutes listed below to APHIS. Within APHIS, the authority resides with the WS program. The primary statutory authorities for the APHIS-WS program are the Act of March 2, 1931 (7 U.S.C. 426-426c; 46 Stat.

will evaluate the ways by which the IWDM Program will authorize WS-CA to carry out its authority in Mendocino County. Wildlife damage management is often misunderstood and many individuals consider management options as only lethal. However, wildlife damage management is a specialized field within the wildlife management profession and decisions are not predicated solely on biological rationale.

Integrated Approach

The IWDM Program employs an integrated approach to wildlife damage management; hence the program title of “Integrated Wildlife Damage Management Program.” According to Wildlife Services Directive 2.105:¹¹

The WS program applies the IWDM (commonly known as Integrated Pest Management) approach to reduce wildlife damage. As used and recommended by the WS program, IWDM encompasses the integration and application of all approved methods of prevention and management to reduce wildlife damage. The IWDM approach may incorporate cultural practices, habitat modification, animal behavior management, local population reduction, or a combination of these approaches. The selection of wildlife damage management methods and their application must consider the species causing the damage and the magnitude, geographic extent, duration, frequency, and likelihood of recurring damage. In addition, consideration is given to non-target species, environmental conditions and impacts, social and legal factors, and relative costs of management options.

Before wildlife damage management programs are undertaken, careful assessment should be made of the problem, including the impact to individuals, the community, and other wildlife species. Selected techniques should be incorporated that will be effective, biologically selective, and socially appropriate. The Wildlife Society, an international organization that addresses issues affecting the current and future status of wildlife, has developed a series of standing positions related to wildlife conservation that are generally accepted by WS-CA. The policy of The Wildlife Society in regard to wildlife damage management and the alleviation of wildlife problems is to:

1. Recognize that wildlife damage management is an important part of modern wildlife management.
2. Recognize that nuisance wild animals are common in many human-occupied situations and may need special management attention as well as an astute understanding of cultural carrying capacity, to alleviate problems they create.
3. Support those wildlife damage prevention and/or management programs and techniques that are biologically, socially, environmentally, and economically valid, effective, and practical.
4. Encourage research to improve methods of: (a) assessing damage caused by wildlife; (b) assessing effectiveness and environmental impacts of damage management programs; (c)

1468) and Rural Development, Agriculture, and Related Agencies Appropriations Act (Public Law 100-202, Dec.22, 1987. Stat. 1329-1331 (7 USC 426c)), as amended in the Fiscal Year 2001 Agriculture Appropriations Bill.

¹¹ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.105, The WS Integrated Wildlife Damage Management Program*. March 1, 2004.

preventing and managing wildlife damage, including health hazards and nuisance problems; (d) assessing alternatives available to landowners/managers for wildlife damage prevention and/or management; and (e) understanding people's level of tolerance for a variety of human/wildlife conflicts and the social/biological factors that influence their decision-making (Wildlife Stakeholder Acceptance Capacity).

5. Recommend wildlife damage management programs that are cost-effective and whose benefits outweigh risks.
6. Support use of efficient, safe, and economical methods of preventing and/or controlling depredating animals that cause human/wildlife conflicts, and which pose jeopardy to other wildlife populations, including threatened or endangered species.
7. Encourage and support educational programs in wildlife damage prevention and management to ensure that those in need of wildlife damage management information have access to currently approved techniques and methodologies.
8. Support biologically sound laws and regulations governing wildlife damage prevention and management.
9. Recommend that eliminating wildlife habitat in order to reduce serious threats to human and domestic health and safety should only be considered in unique circumstances (e.g. wildlife habitat on or near airports). The impacts on all wildlife resources should be evaluated before landowners/managers choose this option.

WS-CA Decision Model

In recognition of the careful assessment that should be made of each wildlife damage problem, the WS-CA employs a Decision Model for its IWDM Program. The Decision Model provides a systematic approach to decision-making for wildlife management activities. The model is illustrated in Figure 3-5 below.¹²

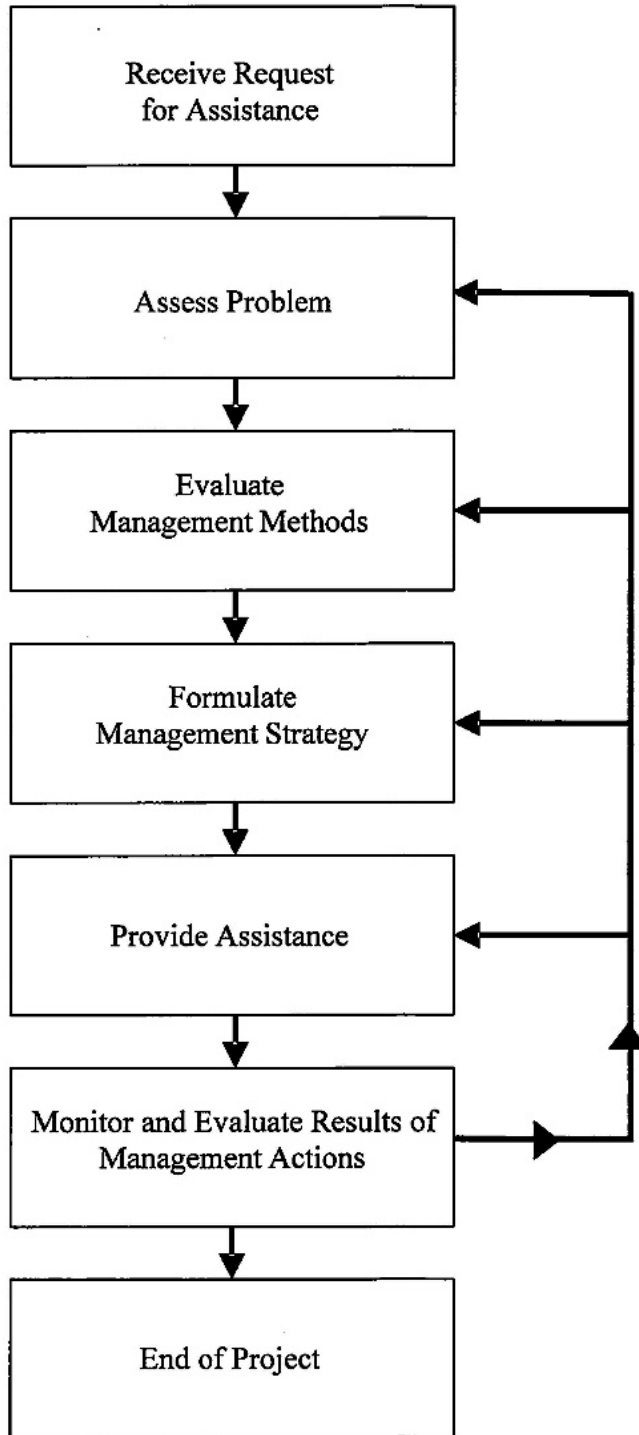
Selecting Wildlife Damage Management Methods

When responding to requests for assistance under the terms of the IWDM Program CSA, WS-CA may provide technical assistance, direct control assistance, and/or research assistance. Technical and direct control assistance, as defined below, may involve the use of either lethal or non-lethal methods, or a combination of the two. WS Directive 2.101 states that when responding to requests for assistance, "Preference is given to non-lethal methods when practical and effective." WS Directive 2.101 further states that the number of non-lethal methods available to the professional wildlife damage management specialist for some field applications may be limited as "...these non-lethal methods focus on management of the affected resource and not the offending animal. In these instances, WS involvement in using non-lethal methods may be limited to technical assistance recommendations which are more appropriately applied by the resource owner."¹³

¹² U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.201, WS Decision Model*. July 15, 2014.

¹³ U.S. Department of Agriculture, Animal and Plant Health Inspection Service. *WS Directive 2.101, Selecting Wildlife Damage Management Methods*. 07/20/09, Section 4, Policy.

Figure 3-5
WS-CA Decision Model



The MIS database used by WS-CA tracks wildlife-human conflicts and actions taken to assist in resolving them. The system records the species involved, method used to capture or remove an animal, as well as the resources damaged or protected.

Non-lethal activities employed by the cooperator or recommended by WS-CA are discussed during the technical assistance process. While the database does record the number of technical assistance incidents and recommendations made to resource owners, it does not record the sequence in which WS-CA made those recommendations. As such, the MIS system cannot be used to review the order in which recommendations were made or preference shown to one method over another if both actions were discussed as part of a technical assistance task. For the period of 2013-2017, WS-CA recorded 1,662 non-lethal recommendations and 1,110 lethal recommendations made by WS-CA staff in response to wildlife-human conflicts occurring within Mendocino County.

Before wildlife damage management is conducted, an Agreement for Control must be signed by WS-CA and the land owner or manager, or an WS-CA work plan is presented to the land owner or its representative for review. The County would not be involved in this action because it would be an agreement between a private party and WS-CA.

When services are requested by a resource owner, WS-CA personnel would conduct an initial investigation that defines the nature, history, and extent of the problem, species responsible for the damage, and methods that would be available to resolve the problem. In selecting damage management techniques for specific wildlife damage situations, the WS-CA field specialist would consider the species responsible and the frequency, extent, and magnitude of the damage. In addition, consideration would be given to the status of target and potential non-target species, local environmental conditions, relative costs of applying management techniques, environmental impacts, and social and legal concerns.

Although the County would provide funding for the services, County staff would not be involved in the decision-making regarding which methods should or should not be used.

WS-CA Technical Assistance

Technical assistance is defined as advice, recommendations, information, equipment, literature, instructions, and materials provided to others for use in managing wildlife damage problems and understanding wildlife damage management principles and techniques.¹⁴

Technical assistance is the primary method used in responding to requests for assistance. Individuals calling for assistance are given advice and information on ways to reduce predation on livestock, damage to property and agricultural commodities or avoid attracting wildlife onto their property that may cause damage. The implementation of technical assistance recommendations is the responsibility of the requester based on information, demonstrations, and

¹⁴ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.101, Selecting Wildlife Damage Management Methods*. July 20, 2009.

advice on available and appropriate wildlife damage management methods provided by WS-CA personnel. Technical assistance includes demonstrations on the proper use of management devices (e.g., propane exploders, exclusionary devices, cage traps, etc.) and information on animal husbandry, habitat management, and animal behavior modification that could reduce damage. These types of non-lethal management methods are described in further depth below.

Technical assistance is provided following consultation or an on-site visit with the requester, and generally several management strategies are described to the requester for short and long-term solutions to damage problems; these strategies are based on the level of risk, need, and practical application.

Under the proposed contract, WS-CA would continue to provide the following services in Mendocino County:

- Offer technical advice/assistance to resource owners on prevention and/or control techniques.
- Inform and educate the public on how to prevent and reduce wildlife damage on their own, including WS-CA staff-prepared pamphlets and documentation.
- Provide expertise from wildlife specialists trained in wildlife control methods, state and federal regulations, and certified in the safe handling and use of firearms and other control equipment.
- Investigate wildlife damage situations to determine the responsible species and evaluate the site for applicability of prevention and control methods.
- Develop and implement wildlife damage management actions for the protection of agricultural and livestock commodities, public health and safety, natural resources, and property.
- Develop and implement wildlife damage management methods and actions targeting invasive species (e.g., wild pigs) that may damage or threaten agricultural and livestock commodities, public health and safety, natural resources, or property.
- Respond to incidents where wildlife species are threatening public health and safety (in coordination with CDFW and local law enforcement) including the use of out-of-county resources and expertise.
- Collect samples for wildlife diseases that may affect agriculture and public safety, and conduct disease surveillance for wildlife diseases that may affect property (i.e. pets and horses), natural resources (other wildlife), and public health and safety.
- Provide access to WS-CA support staff, including at the National Wildlife Research Center, which conducts research on and develops wildlife damage management methods.

Technical assistance associated with specific species in Mendocino County for the 2007–2017 reporting period are shown in Table 3-6 (please refer to the end of this chapter for Table 3-6).

Information related to the following types of management devices and techniques are provided through technical assistance from WS-CA.

Livestock Guardian Animals

Livestock producers have used guarding animals to protect flocks and herds for thousands of years. At the present time, dogs, donkeys, and llamas are most commonly used.

Livestock Protection Dogs

Livestock protection dogs (LPD) can be an important component of an overall wildlife management program. LPDs are working dogs that stay with or near sheep most of the time, with the purpose of aggressively repelling predators. While most commonly used to protect sheep, LPDs are also helpful in protecting other livestock. WS-CA supports the use of LPDs for predation management and develops and distributes informational resources for livestock producers and others.¹⁵

LPDs are generally large animals (80-120 pounds). Some of the more readily known and utilized breeds in the United States include Great Pyrenees, Anatolian Shepherds (Akbash), Komondors, and Maremmas. LPDs disrupt predatory behavior rather than displace predators, such that predators likely remain present and continue to prey on other wildlife species.¹⁶ While further study is necessary, this suggests that guardian dog use does not result in increased predator pressure on neighboring operations that do not use dogs.¹⁷

As part of a larger study of LPDs over a 5-year period, Gehring et al. found that effective fencing and training was a crucial link for successfully incorporating livestock protection dogs into working farms and preventing roaming of the dogs.¹⁸

Nevertheless, LPDs can create problems. They can be aggressive toward people, harass or kill non-target wildlife or livestock, injure herding dogs, or destroy property. The use of LPDs must be compatible with all other wildlife management methods being applied; for instance, LPDs may not be compatible with snare traps unless the LPDs are confined or physically separated from the snares in some manner.¹⁹

Donkeys

Some ranchers prefer donkeys to LPDs due to their relatively low acquisition and maintenance costs, their compatibility with other wildlife control methods (e.g., traps,

¹⁵ U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services. *Factsheet, Livestock Protection Dogs*. October 2010.

¹⁶ University of California, Agriculture and Natural Resources. "Livestock Protection Tools for California Ranchers [pg. 5]." *ANR Publication 8598*. January 2018.

¹⁷ *Ibid.*

¹⁸ Thomas M. Gehring et al. "Good fences make good neighbors: implementation of electric fencing for establishing effective livestock-protection dogs." *Human-Wildlife Interactions*. (2011). 5(1): 106-111, p. 107.

¹⁹ U.S. Department of Agriculture Animal and Plant Health Inspection Service, Wildlife Services. *Factsheet, Livestock Protection Dogs*. October 2010.

snare), their greater longevity, and the fact that they are less likely to stray outside fencelines.²⁰ Donkeys can effectively deter dogs, coyotes, and foxes. When confronting a predator, an effective donkey will bray, bare its teeth, run towards or chase the predator, and possibly kick or bite.

With respect to potential problems, male donkeys can be overly aggressive towards livestock, and females in heat may be aggressive towards lambs or kids. Despite their large size, donkeys are considered prey for some predators and can be attacked and killed by wildlife.

Llamas

Llamas are South American camelids. Typical guarding behaviors include alertness; alarm calling; walking or running toward a predator; chasing, kicking, or pawing at a predator; spitting; herding livestock away from a predator; or placing themselves between livestock and a predator. Llamas appear to effectively deter dogs, coyotes, and foxes, but not wolves, bears, or cougars.²¹

Fencing

Fencing is a predation mitigation method that involves constructing a physical barrier that will keep human resources and targeted terrestrial wildlife apart. Fences are most useful and cost-effective on small, open pastures, without dense brush cover or timber, so that terrestrial wildlife already located in the area can be easily removed. Fencing is a versatile form of physical exclusion that can be tailored to meet the needs of the resource being protected. For instance, fencing surrounding an airport would be designed to meet different exclusionary specifications as compared to fencing surrounding a rangeland.

Conventional fences are relatively ineffective in preventing access by cougars and bears, but if well-constructed and maintained are reasonably effective in excluding dogs and coyotes.²² Conventional netwire fences modified by adding electrically charged wires and all-electric fences may be more effective in excluding terrestrial wildlife but must be carefully maintained. Some are easily grounded and rendered ineffective by wet vegetation, extraneous wires, damage by animals and other causes.

Fladry (including electrified fladry)

Fladry is included in this section as it essentially forms a barrier, like a fence, that deters wildlife. Fladry is a series of cloth or plastic flags attached to a rope or wire. The flags are

²⁰ University of California, Agriculture and Natural Resources. "Livestock Protection Tools for California Ranchers [pg. 6]." *ANR Publication 8598*. January 2018.

²¹ University of California, Agriculture and Natural Resources. "Livestock Protection Tools for California Ranchers [pg. 7]." *ANR Publication 8598*. January 2018.

²² Dale A. Wade. "The use of fences for predator damage control [pg. 31]." *Proceedings of the Vertebrate Pest Conference* 10:24-53. 1982.

allowed to flap freely along the connecting rope or wire, which creates a visual barrier without the need for continuous solid fencing.²³ Field tests have shown fladry to be effective in deterring wolves, but the efficacy may be limited for use in deterring coyotes.²⁴ Certain types of fladry, may be electrified; electrified fladry is commonly referred to as turbo fladry. The combined effect of the visual barrier with electrification can prove more effective than non-electrified barriers.²⁵ Because any vegetation contacting the turbo fladry poses a risk of ignition and wildfire, prior to placing turbo fladry, the area of installation must be cleared of any vegetation that would have the potential of contacting the electrified fladry line. WS-CA may loan turbo fladry to private parties where wolf conflicts occur. Due to the absence of wolves in Mendocino County, unless further research or improved designs show that fladry and turbo fladry are effective against wildlife species other than wolves, such as coyotes, the use of fladry in the County is anticipated to be minimal.

As discussed above, fencing is understood to be an important component to the most effective use of LPDs.

Animal Husbandry

This method includes modifications in the level of care and attention given to livestock. The level of care or attention given to livestock may range from daily to seasonal. Generally, as the frequency and intensity of livestock handling increases so does the degree of protection. The following methods may be used:

Night and Seasonal Enclosures

The risk of depredation can be reduced when livestock are nightly gathered to make them unavailable during the hours when depredating animals are most active. Some producers herd animals back to corrals in the evening when they are most vulnerable to most predators. Nightly gathering may not be possible where livestock are in many fenced pastures and where grazing conditions require livestock to scatter.

One form of enclosure is known as “shed lambing”; i.e., keeping ewes inside a shed when they are giving birth to lambs. In addition, the risk of depredation is usually greatest with immature livestock. This risk can be minimized by holding expectant females in pens or sheds to protect females during birthing and by holding newborn livestock in pens for the first two weeks.

²³ University of California Range Lands. *Livestock-Predator Hub*. Available at: <http://rangelands.ucdavis.edu/predator-hub/current-research/#fencing>. Accessed December 2018.

²⁴ Davidson-Nelson, Sarah J. and Gehring, Thomas M. (2010) "Testing Fladry as a Nonlethal Management Tool for Wolves and Coyotes in Michigan," *Human-Wildlife Interactions*: Volume 4: Issue 1, Article 11. Available at: <https://digitalcommons.usu.edu/hwi/vol4/iss1/11>.

²⁵ Lance N. J., Breck S. W., Sime C., Callahan P., Shivik J. A. (2010) Biological, technical, and social aspects of applying electrified fladry for livestock protection from wolves (*Canis lupus*). *Wildlife Research* 37, 708-714.

Timing of Breeding

Predators are often more likely to kill livestock at specific times of year; e.g., coyote-killing of lambs often coincides with the need to provide food for their pups.²⁶ If livestock are bred earlier in the season, they are larger earlier and may be less vulnerable to predation.

Altering Herd Composition

The composition of herds may influence the degree of depredation. Sheep are generally much more vulnerable to predation than cattle.²⁷ Mixing cattle with sheep may lead to a better use of the landscape, with the added benefit that cattle may be more aggressive toward small predators, thus providing some degree of livestock protection. A herd mixed for such purposes is sometimes referred to as a Flerd.

Herding/Vigilance

North American predators tend to be wary of human presence; and a good herder who is able to stay with and monitor livestock can be an effective method of protection.²⁸ Herders that are specifically tasked with staying with and monitoring livestock are sometimes referred to as Range Riders.

Animal Behavior Modification

Several different methods fall into the category of behavior modification. The following section provides a summary of a range of methods that have been used by WS-CA in Mendocino County.

Frightening Devices

These devices may use sound, lights, pursuit or other methods to disperse animals from the area to be protected. These methods are best suited for short-term protection of relatively small areas. Propane exploders are one type of method designed to produce loud explosions at controllable intervals. They are strategically located in areas of high wildlife use to frighten wildlife from the problem site. Because animals are known to habituate to sounds, exploders must be moved frequently and used in conjunction with other scare devices.²⁹

²⁶ John A. Shivik. "Non-Lethal Alternatives for Predation Management". (2004). *Sheep & Goat Research Journal*. 14, p. 66.

²⁷ C. Kerry Gee. "Cattle and Calf Losses to Predators – Feeder Cattle Enterprises in the United States." (1979) *Journal of Range Management*. 32, p. 154.

²⁸ Shivik, "Non-Lethal Alternatives for Predation Management," p. 65.

²⁹ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program* [pg. 114]. May 29, 2015.

Pyrotechnics is another form of frightening device that range from shell crackers or scare cartridges fired from shotguns to noise bombs fired from flare pistols. They can be used to frighten birds or mammals but are most often used to prevent crop depredation by birds or to discourage birds from undesirable roost locations. Noise bombs are firecrackers that travel about 75 feet before exploding. Whistle bombs are similar to noise bombs, but whistle in flight and do not explode. Land and ground-based pyrotechnics are most effective at causing a startle response in flocking birds feeding or loafing in open environments, such as cropland or airport settings.

Due to the varied topography of the County, the type of agricultural resources grown, and the lack of high-traffic airports, neither propane exploders nor pyrotechnics have been used by WS-CA within Mendocino County within the last 10 years. While their potential future use is also relatively remote, WS-CA would like the IWDM Program to include these techniques in the event that they are deemed appropriate and effective for a particular situation. As a result, this EIR includes analysis of these two infrequently used techniques.

With respect to light/siren combinations, early research into battery operated strobe/siren devices in fenced-pasture sheep operations across the western United States found these devices deterred coyotes for up to 91 days and reduced lamb losses an estimated 44-95 percent.³⁰ However, habituation can be a problem if these devices are randomly—rather than behaviorally—activated.³¹

One type of light frightening device that may be used with the proposed project is Foxlights. Foxlights consist of an LED light battery placed on a T-post with 360-degree projection. The LED lights are set to randomly flash from dusk until dawn, and, depending on the intensity of the LED battery, may be seen from as far as a mile away. The University of California Hopland Research and Extension Center has begun to test the efficacy of Foxlights in deterring wildlife damage from foxes, coyotes, black bears, and cougars within Mendocino County; however, results from such testing have not yet been published.³²

³⁰ Samuel B. Linhart et al. “Electronic Frightening Devices for Reducing Coyote Predation on Domestic Sheep: Efficacy Under Range Conditions and Operational Use.” (1992). *Proceedings of the Fifteenth Vertebrate Pest Conference 1992*. 47, p. 389. Linhart et al. note that strong evidence exists in the technical literature that coyotes have a long-lasting fidelity to established home ranges. Testimony from herders, as well as ongoing coyote predation on the test areas of Linhardt et al., strongly suggest that use of frightening devices will not result in higher levels of predation on adjacent bands of sheep. Linhardt et al. believe that coyotes merely avoided the immediate vicinity of devices but continued to frequent the general area. However, particularly if use of such devices becomes common, the question of how coyote activity and predation patterns are affected might be a subject for future research.

³¹ Shivik JA, Maritn DJ. “Aversive and Disruptive Stimulus Applications for Managing Predation.” *Wildlife Damage Management Conference*. 9: 111-119 (October 2000).

³² University of California Range Lands. *Livestock-Predator Hub*. Available at: <http://rangelands.ucdavis.edu/predator-hub/current-research/>. Accessed November 2018.

Electronic Distress Sounds

Distress and alarm calls of various animals have been used singly and in conjunction with other scaring devices to successfully scare or harass animals. Many of these sounds are available in digital format.

E-Shepherd Collars

E-Shepherd collars are electronic devices that are attached to a collar, which is fitted around the neck of livestock to be protected. Under normal conditions, the collar remains in standby mode; however, when the livestock is disturbed, through predator attack, the collar is triggered. Once triggered the collar emits alarm sounds and begins flashing bright lights to disorient the attacking predator. The trigger of a single animal's alarm can activate E-Shepherd collars placed on any nearby livestock, acting to further protect the herd and disorient the predator.³³

Critter Gitters

The Critter Gitter is one example of an electronic wildlife frightening device. Using both infrared and motion sensors, when wildlife passes within a 90 degree cone up to 12 meters from the device, a 120-decibel siren and flashing lights are triggered. The flashing lights include two red lights, which simulate eyes. The sirens and lights last for approximately five seconds per detection.³⁴

Chemical Repellents

These are compounds that prevent consumption of food items or use of an area. They operate by producing an undesirable taste, odor, feel, or behavior pattern. Effective and practical chemical repellents should be nonhazardous to wildlife; nontoxic to plants, seeds, and humans; resistant to weathering; easily applied; reasonably priced; and capable of providing good repelling qualities. Chemical repellents are strictly regulated, and suitable repellents are not available for many wildlife species or wildlife damage situations.

Modification of Human Behavior

The agency responsible for implementing the program in the field may recommend alteration of human behavior to resolve potential conflicts between humans and wildlife. For example, the elimination of feeding of wildlife that occurs in parks, forest, or residential areas may be recommended. Many wildlife species adapt well to human settlements and activities, but their proximity to humans may result in damage to structures or threats to public health and safety. Eliminating wildlife feeding and handling

³³ EShepherd. *About*. Available at: <http://www.eshepherd.biz/about.html>. Accessed November 2018.

³⁴ Critter Gitter AMTEK *Critter Gitter*. Available at: <https://crittergittersensor.com/>. Accessed November 2018.

can reduce potential problems, but many people who are not directly affected by problems caused by wildlife enjoy wild animals and engage in activities that encourage their presence. It is difficult to consistently enforce no-feeding regulations and to effectively educate all people concerning the potential liabilities of feeding wildlife.

Habitat Management

Just as habitat management is an integral part of other wildlife management programs, it also plays an important role in wildlife damage management. The type, quality, and quantity of habitat are directly related to the wildlife that are present. Therefore, habitat can be managed to not support or attract certain wildlife species. Limitations of habitat management as a method of reducing wildlife damage are determined by the characteristics of the species involved, the nature of the damage, economic feasibility, and other factors.³⁵ Legal constraints may also exist which preclude altering particular habitats.

When depredation cannot be avoided by careful crop selection or modified planting schedules, lure crops can sometimes be used to mitigate the loss potential. Lure crops are planted or left for consumption by wildlife as an alternative food source. This approach provides relief for critical crops by sacrificing less important or specifically planted fields. For lure crops to be successful, frightening techniques may be necessary in fields where crops are to be protected; wildlife should not be disturbed in sacrificial fields.

Establishing lure crops is expensive, requires considerable time and planning to implement, and may attract other unwanted species to the area, causing additional wildlife damage problems.

WS-CA Direct Control Assistance

Direct control assistance, also known as operational management, is defined as field activities conducted or supervised by WS-CA personnel. WS-CA Directive 2.101 states the following regarding the use of direct control assistance:³⁶

1. Direct control assistance may be implemented when it has been determined that a problem cannot reasonably be resolved by technical assistance or that the professional skills of WS employees are required for effective problem resolution. Direct control assistance is often initiated when the wildlife damage involves several ownerships, sensitive species, application of WS restricted-use pesticides, or complex management problems requiring the direct supervision of a professional wildlife manager or biologist.

³⁵ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program* [pg. 112]. May 29, 2015.

³⁶ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.101, Selecting Wildlife Damage Management Methods*. July 20, 2009.

2. Direct control operations will be conducted upon request only with the written authorization of the landowner, cooperators, other authorized officials, or in accordance with another appropriate instrument such as a memorandum of understanding.

Table 3-7 presents a summary of the disposition of wildlife following the application of Direct Control activities in Mendocino County for the 1997–2017 reporting period (please refer to the end of this chapter for Table 3-7).

Types of direct control assistance that have been and could continue to be utilized by WS-CA in Mendocino County are described below.

With respect to the physical capture methods discussed below, such as cages, corrals, and non-lethal snares, it is noted that, except in limited cases where CDFW makes an individual exemption, CDFW does not allow the relocation of wildlife causing damage (see California Code of Regulations, Title 14, Section 465.5(g)(1)). Relocation of wildlife known to cause resource damage in one area does not correct the damaging behavior and can spread the problem to a new area. Relocation can also spread disease to other wildlife and domestic species. CDFW dictates that the type of disposition of all wildlife captured for resource protection be euthanasia, unless it grants an individual exemption. Potential euthanasia methods that may be utilized under the IWDM Program are discussed below.

Field Application of Exclusion, Repellent, or Deterrent Actions

WS-CA specialists may need to provide field application of exclusion, repellent, or deterrent methods for specialized equipment (e.g., turbo fladry, propane cannons, lasers, pyrotechnics). The cost and expertise or training often preclude members of the public from acquiring or successfully applying certain recommended exclusion, repellent, or deterrent methods. Wildlife specialists may make field visits to carry out any of the above technical assistance recommendations, including education on techniques and installation of loaned equipment (i.e., cage traps, culvert traps, turbo fladry), when they deem it needed to resolve wildlife conflicts. WS-CA is still involved after loaning equipment. For example, while WS-CA may loan a cage or culvert trap to a private landowner, the landowner is instructed to contact WS-CA when the animal is trapped, so that WS-CA can euthanize the animal.

With respect to turbo fladry, WS-CA meets with the landowner prior to installation. Oftentimes the CDFW, other federal and state agencies, and environmental organizations are involved as well. WS-CA advises the landowner on where and how to install the fladry, proper maintenance, duration of use, etc. To date, multiple agencies, landowner(s), and environmental organizations have worked together as a team to install electric fladry. WS-CA generally does maintenance checks once installed.

Live Capture Traps

Cage and Corral Traps

These traps come in a variety of styles to target different species. The most common traps are cage traps. Cage traps are usually rectangular, made from wood or heavy gauge wire mesh. These traps are used to capture animals alive and can often be used where lethal tools would be too hazardous. Cage traps are well-suited for use in residential areas.

Other types of cage traps are corral traps and drive-traps. Often, target animals such as feral swine are allowed to feed in a cage until they get used to coming and going. A trip wire that closes the entrance, a one-way door, or other device is set to capture the animal when it comes to feed; these will often capture multiple animals at one location. Cage traps usually work best when baited with foods attractive to the target animal.³⁷ They are used to capture animals ranging in size from mice to deer, but are usually impractical in capturing most large animals. They are virtually ineffective for coyotes, but are highly effective and most often used in the urban environment for raccoon, skunk, and opossum.³⁸

Corral or cage style traps large enough to hold multiple animals would be utilized in areas frequented by feral swine. The size of traps may be up to 20 feet wide by 20 feet long. They would likely be set near water sources, riparian areas, or groves of oak trees where feral swine are likely to congregate and forage. Traps would be set to avoid resource damage within areas of sensitive biological, cultural, or watershed resources. Installation of traps may involve minor ground disturbance with the installation of fence posts and anchors, as well as the activity of the feral swine while they are inside the traps. Traps would be baited with grain or other food attractive to feral swine.

After the target animal or animals are trapped, trapped animals would be euthanized quickly in a humane manner and the carcasses disposed of off-site in compliance with applicable regulations or left on-site if removal is not feasible. It should be noted that relocation of trapped wildlife is not commonly used in California, as relocation is rarely authorized by the CDFW. Potential scenarios where relocation may be used or authorized is in the case of feral cats or dogs, and where wildlife has inadvertently wandered into developed areas, but otherwise has not been reported to have caused conflicts related to agricultural and livestock commodities, human health and safety, natural resources, and/or property.

Trapping locations in remote areas may be logistically supported by helicopter as needed or trapping may also be supported by limited use of packstock; stock would be restricted to

³⁷ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015.

³⁸ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program* [pg. 116]. May 29, 2015.

designated trails. Title 14 of the California Code of Regulations, Section 465.5, specifies that all traps must be inspected and trapped animals removed at least once daily.

Snares

Snares made of wire or cables are among the oldest wildlife management tools and are generally not affected by inclement weather. They can be used effectively to catch most species. Snares positioned to capture the animal around the body can be a useful live-capture device, but they are more often used in conjunction with euthanasia. Snares can also be used to capture animals by the legs, but leg snares are not often set for feral swine. Snares can be effectively used wherever a target animal moves through a restricted lane of travel (e.g., trails through vegetation). When a target animal moves forward into the loop formed by the cable, the noose tightens and the animal is held. The catch-pole snare is used to capture or safely handle target wildlife. This device consists of a hollow pipe with an internal cable or rope that forms an adjustable noose at one end. The free end of the cable or rope extends through a locking mechanism on the end opposite of the noose. By pulling on the free end of the cable or rope, the size of the noose is reduced sufficiently to hold an animal. Catch poles are used primarily to remove live animals from traps without danger to or from the captured animal. Snares may also incorporate a breakaway feature to release non-target wildlife and livestock, should WS-CA staff deem such features appropriate and needed.

The foot or leg snare is a spring-powered non-lethal device, activated when an animal places its foot on the trigger. In some situations, using snares to capture wildlife is impractical due to the behavior or animal morphology of the animal, or the location of many wildlife conflicts. Snares must be set in locations where the likelihood of capturing non-target animals is minimized. The WS-CA program uses a leg snare with a built-in pan tension device that can be set to exclude capturing animals lighter than the target animal.

The Collarum is a non-lethal, spring-powered, modified neck snare device that is primarily used to capture coyotes. It is activated when an animal bites and pulls a cap with a lure attractive to coyotes, whereby the snare is projected from the ground up and over the head of the coyote. As with other types of snares, the use of the Collarum device to capture coyotes is greatly dependent upon finding a location where coyotes frequently travel where the device can be set. Collarums must also be set in locations where the likelihood of capturing non-target animals is minimized.

Similar to the discussion of cage and corral traps above, relocation of snared wildlife is rarely authorized by CDFW. Therefore, snared wildlife is typically euthanized, using quick and humane methods appropriate for the particular species being snared.

Padded-Jaw Foot-Hold Traps

Padded-jaw foot-hold traps are a type of restraining trap that includes a metal foot plate, curved jaw, and spring system. When the foot plate is triggered the jaws snap shut, restraining and holding the animal or object that triggered the trap. The trap is usually anchored to the ground or secured to a large object such as a fallen tree branch. The pan tension of the foot plate may be calibrated to allow for exclusion of animals smaller than the target species. WS-CA only utilizes

foot-hold traps that include rubber padding on the jaws and that feature a central attachment that can swivel, both of which prevent damage to the target species. Research on padded traps has demonstrated that although padded foot-hold traps are less effective than unpadded traps, padded foot-hold traps reduce injury to captured animals, as compared to unpadded traps.³⁹ It should be noted that padded-jaw foot-hold traps may only be used for the protection of public safety and threatened/endangered species (in *National Audubon Society v. Davis* [N.D.Cal. 2000] 144 F.Supp.2d 1160, the United States District Court for the Northern District of California granted preliminary declaratory relief, allowing the use of padded-jaw traps for the protection of endangered species).

Nets

Nets are versatile live capture devices that can be designed for application with a wide variety of animal species and size classes. Nets may be applied to target wildlife by hand, for instance by throwing a net or mounted on a handle or shaft. Additionally, nets may be propelled through the force of gravity, as is the case in drop nets that are positioned above a target area and dropped when wildlife enters the target area, or propelled by other means such as compressed air, launchers, or rockets. Nets typically include weighted perimeter roping to subdue and partially immobilize the target wildlife.

Tracking Dogs or Trailing Dogs

Trained dogs are used primarily to locate, pursue, or decoy animals. Training and maintaining suitable dogs requires considerable skill, effort, and expense. There must be sufficient need for dogs to make the effort worthwhile.⁴⁰ Dogs commonly used are different breeds of hounds such as blue tick, red-bone, and Walker. They become familiar with the scent of the animal they are to track and follow, and will howl when they smell them. Tracking dogs are trained not to follow the scent of non-target species. WS-CA Specialists find the track of the target species and put their dogs on it. Typically, if the track is not too old, the dogs can follow the trail and bay the animal. When trained dogs are used, handlers will be at the site of encounters between target animals and dogs as soon as possible to minimize stress to the target and reduce potential injury to the dog. Dogs will not be allowed to kill the target animal and WS Directive 2.445 prohibits using dogs to fight, injure, or kill wildlife. When the objective is removal, the target will be euthanized as quickly as possible; for feral swine the most common method of euthanizing is via mortal gunshot. Animals intended to be captured alive (e.g., research, Judas operations) will be protected from trained dogs once handlers are on-site. When the dogs bay the animal, it usually seeks refuge in a thicket on the ground at bay. The dogs stay with the animal until the WS-CA Specialist arrives and dispatches, tranquilizes, or releases it, depending on the situation.

³⁹ Linhart S, Blom S, Dasch G, Engeman R, Olsen G. 1988. *Field Evaluation of Padded Jaw Coyote Traps: Effectiveness and Foot Injury*. Proceedings of the Thirteenth Vertebrate Pest Conference. Available at: <http://digitalcommons.unl.edu/vpcthirteen/46/>.

⁴⁰ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015, see pg. 19.

Chemical Immobilization

Per WS Directive 2.430, properly trained and certified personnel may use certain chemicals to immobilize wildlife. Depending on the need, immobilization chemicals can be selected to cause physical paralysis of the animal, while allowing the animal to maintain consciousness, or immobilization chemicals may be selected that result in unconsciousness with anesthesia. Immobilizing chemicals are a non-lethal method of wildlife control, which allow WS-CA personnel to handle or transport target wildlife while minimizing the potential for physical harm to either the immobilized wildlife or the WS-CA personnel. As noted in WS Directive 2.430, the type of immobilization chemical used by WS-CA personnel is limited to those chemicals approved by the WS's Immobilization and Euthanasia Committee.

Immobilization chemicals that may be used in Mendocino County could include Telazol, Xylazine, and/or Yohimbine. Telazol is an immobilizing agent that has been approved by the FDA and is used by WS. Once applied through deep intramuscular injection, Telazol produces a state of unconsciousness and an anesthetic effect usually occurs within 5 to 12 minutes. Xylazine is a sedative that produces a transitory hypertension followed by prolonged hypotension and respiratory depression. Xylazine is administered through intramuscular injection, which results in immobilization in approximately five minutes, which lasts for 30 to 45 minutes.⁴¹ Yohimbine may be used to counteract the sedative effects of Xylazine. In an emergency situation, unapproved immobilization chemicals may be used on a one-time or limited basis by WS-CA personnel; however, the use of such unapproved chemicals is only allowed when approved by an attending/consulting veterinarian and the State Director or designee.

WS-CA personnel must use all immobilization chemicals in accordance with protocols approved by the Institutional Animal Care and Use Committee, and in compliance with all state and federal law and regulations. Furthermore, the acquisition, storage, and use of immobilizing chemicals must comply with all applicable federal, state, and local law and regulations. Proper care, use, chain of custody, and security of immobilizing chemicals is the responsibility of WS employees.

As discussed in regard to live wildlife traps, the CDFW rarely authorizes relocation of wildlife, whether such wildlife is trapped or chemically immobilized. Thus, immobilized wildlife may be euthanized in a humane manner and the carcasses disposed of off-site in compliance with applicable regulations. However, in certain circumstances immobilized wildlife may be freed or relocated subject to approval by the CDFW.

⁴¹ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015.

Lethal Methods Identified in the Notice of Preparation/Initial Study

The Notice of Preparation/Initial Study (NOP/IS) identified a few lethal methods that may be utilized as part of the proposed project. These methods were limited to snares, trap devices, and use of firearms from the ground. These methods are briefly described below.

Trap Devices and Snares

Snares may be employed as lethal devices. Snares set to capture an animal by the neck are usually lethal but stops can be attached to the cable to make the snare a live capture device.

A number of specialized "quick-kill" traps are used in wildlife damage management work. They include Conibear, snap, gopher, and mole traps. Conibear traps are used mostly in shallow water or underwater to capture beaver. The Conibear consists of a pair of rectangular wire frames that close like scissors when triggered, killing the captured animal with a quick body blow. Conibear traps have the added features of being lightweight and easily set. Extensive regulations exist within California and as WS directives related to the application of Conibear traps for use in wildlife management, including California Code of Regulations Title 14 section 465.5(g) and WS Directive 2.450. Snap traps are common household rat or mouse traps usually placed in buildings. These traps are often used to collect and identify rodent species that cause damage so that species-specific management tools can be applied. If an infestation is minor, these traps may be used as the primary means of management. Glue boards (composed of shallow, flat containers of an extremely sticky substance) are also used as an alternative to snap traps. Spring-powered harpoon traps are used to reduce damage caused by surface-tunneling moles. Soil is pressed down in an active tunnel and the trap is placed at that point. When the mole reopens the tunnel, it triggers the trap and is killed. Two variations of scissor-like traps are also used in burrows for both mole and pocket gopher damage reduction.

Gunshot

Gunshot is conducted with hand guns, rifles, shotguns, and pneumatic pellet rifles and is very selective for the target species. Gunshot is an approved American Veterinary Medical Association (AVMA) euthanasia method, and the NOP/IS identified gunshot as the only means of euthanasia used within Mendocino County. Death is caused by the destruction of brain tissue. Selection of firearm, round and shot placement are critical and discussed further in the *AVMA Guidelines for the Euthanasia of Animals: 2013 Edition*.⁴² Aspects of some locations may prohibit the use of gunshot euthanasia due to safety concerns for the general public or WS-CA personnel.

Shooting is frequently performed in conjunction with calling particular wildlife such as coyotes, bobcats, and fox. Trap-wise coyotes are often vulnerable to calling. Shooting is limited to locations where it is legal and safe to discharge firearms. Shooting may be ineffective for

⁴² American Veterinary Medical Association. *AVMA Guidelines for the Euthanasia of Animals: 2013 Edition*. 2013.

controlling damage by some species and may actually be detrimental to control efforts. Shooting is used selectively for target species but may be relatively expensive because of the staff hours sometimes required. Nevertheless, shooting is an essential control method. For example, many airports have perimeter fences for security purposes that also confine resident deer populations. These deer frequently stray onto active runways and pose a significant threat to aircraft. Removal of these deer may be effectively achieved by shooting.⁴³

Shooting is sometimes used as the primary method in feral swine management operations. Often, though, shooting is only used opportunistically where an WS-CA Specialist sees the target swine in the damage area. Shooting can also be used in conjunction with spotlighting and for lethal reinforcement to ensure the continued success in swine scaring and harassment efforts. In situations where the feeding instinct is strong, feral swine can quickly adapt to scaring and harassment efforts unless the IWDM Program is periodically supplemented by shooting. Shooting is limited however to locations where it is legal and safe to discharge firearms.

In addition to the use of shooting as a lethal method of wildlife control, shooting is sometimes used as a means of dispersal where it is legal and safe to discharge firearms.

Lethal Methods Identified for Consideration Since Release of NOP/IS

The lethal control of animals by WS-CA is implemented consistent with the policies set forth in WS-CA Directive 2.505.⁴⁴ A variety of methods for removing a target animal species are available in California; WS-CA selects methods according to the guidelines set forth by the AVMA, WS Directive 2.430 - Controlled Chemical Immobilizing and Euthanizing Agents, and WS Directive 2.505 - Lethal Control of Animals.

Historical data from the past 10 years of WS-CA providing IWDM in Mendocino County shows that gunshot is the most common method of euthanizing trapped animals. However, under the proposed project, WS-CA could be called upon to respond to damage or human health and safety threats from a wide range of species. AVMA provides specific guidance on euthanasia methods by species and age class. As such, no one method can be used to cover every possible need for euthanasia that could occur within the County. Thus, limitations on the method of euthanasia could curtail WS-CA's ability to respond to incidents of damage or human health and safety threats or prevent WS-CA from applying the method of euthanasia considered most humane for the particular species or age class.

Accordingly, subsequent to the release of the NOP/IS for the proposed project, the County proposed the inclusion of additional methods of euthanasia. The additional methods proposed for use within the proposed project are limited to those methods that comply with state and federal regulations, AVMA standards, WS Directive 2.430, or WS Directive 2.505.

⁴³ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015.

⁴⁴ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.505, Lethal Control of Animals*. May 18, 2011.

WS-CA adheres to state and federal regulations and AVMA standards when selecting appropriate methods for euthanasia whenever practicable. For free-ranging wildlife, the AVMA recommends methods be as age-, species-, or taxonomic/class-specific as possible. Per Directive 2.505, WS-CA personnel will use methods appropriate for the species and conditions.

The following are the additional euthanasia methods that are being evaluated in this EIR for use in the IWDM Program:

- **Carbon dioxide (CO₂)** can be used to euthanize wildlife that are captured in live traps. This method is approved as a euthanizing agent by the AVMA⁴⁵ and is the most common method of euthanizing laboratory research rodents. Carbon dioxide gas is a byproduct of animal respiration, is common in the atmosphere, required by plants for photosynthesis, and not considered a risk to personnel or the environment in the amounts needed to perform this method.
- **Euthanasia solution** contains two active ingredients (sodium phenytoin and sodium pentobarbital) which are chemically compatible but pharmacologically different. When administered as the label directs, sodium pentobarbital produces rapid anesthetic action followed by a smooth and rapid onset of unconsciousness. Sodium phenytoin hastens the stoppage of electrical activity in the heart during a deep anesthesia stage caused by sodium pentobarbital. This sequence of events leads to a humane, painless and rapid euthanasia (Schering-Plough Animal Health 1999). Vet-One Euthanasia solution®, Beuthanasia®-D, and Euthasol® are regulated by the Drug Enforcement Agency (DEA) and the FDA for rapid and painless euthanasia of dogs, but may legally be used on other animals if the animal is not intended for human consumption.

The AVMA guidance allows for the administration of barbiturates via intravenous and intraperitoneal injection. Administration via an injection means that the euthanasia drug is contained at all times in either the labeled bottle, syringe, or target captured animal. In the event that chemical euthanasia is used, all carcasses are disposed of properly per WS Directive 2.430 to avoid secondary toxicity effects to other animals.⁴⁶ As such, the possibility of release of these substances into the environment does not exist.

While WS-CA has not used this method for euthanizing an animal in Mendocino County in the past 10 years, the method is commonly used in other counties with larger urban areas where gunshot euthanasia is not practical or safe. Despite the emphasis on mainly rural applications of the WS-CA IWDM Program in Mendocino County, there are circumstances where chemical euthanasia may be the safest method available or when the method is requested or directed by outside regulatory agencies (i.e. Department of Health). WS-CA personnel may be more likely to select chemical euthanasia in cases of

⁴⁵ American Veterinary Medical Association. *AVMA Guidelines for the Euthanasia of Animals: 2013 Edition*. 2013.

⁴⁶ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.430, Controlled Chemical Immobilization and Euthanizing Agents*. July 06, 2009.

cornered or injured wildlife, or when safety of the employee and general public indicate the use of the method. WS-CA also responds to human health and safety incidents where wildlife have bitten or otherwise exposed people to rabies, or in cases where a disease is spreading in a local wildlife population. Rabies testing of wildlife requires the preservation of all brain tissue and cannot be performed on animals euthanized by gunshot to the head. In the event where an outside agency is requesting an animal be captured for rabies testing, chemical euthanasia may be required.

- **Physical euthanasia methods** include captive bolt, cervical dislocation, decapitation, thoracic compression, exsanguination, stunning, and pithing. According to the AVMA, when properly used by skilled personnel with well-maintained equipment, physical euthanasia may result in less fear and anxiety and be more rapid, painless, humane, and practical than other forms of euthanasia.⁴⁷ Exsanguination, stunning, and pithing are not recommended as a sole means of euthanasia, but may be considered as adjuncts to other agents or methods.⁴⁸ While some consider physical methods of euthanasia aesthetically displeasing, there are occasions when what is perceived as aesthetic and what is most humane are in conflict. Despite their aesthetic challenges, the AVMA states that in certain situations physical methods may be the most appropriate choice for euthanasia and rapid relief of pain and suffering.⁴⁹

Integrating Control Methods

The most effective approach to resolving wildlife damage problems is to integrate the use of several of the above-referenced methods, either simultaneously or sequentially. The IWDM Program would integrate and apply practical methods of prevention and reduce damage by wildlife while minimizing harmful effects of damage reduction measures on humans, other species, and the environment. IWDM may incorporate resource management, physical exclusion and deterrents, and population management, or any combination of these depending on the characteristics of specific damage problems.

In selecting damage management techniques for specific damage situations and the methods under each alternative, WS-CA places preference on non-lethal methods, per WS Directive 2.101, and consideration is given to the responsible species and the magnitude, geographic extent, duration and frequency, and likelihood of wildlife damage. Consideration is also given to the status of target and potential non-target species, local environmental conditions and affects, social and legal aspects, and relative costs of damage reduction options. The cost of damage reduction may sometimes be a secondary concern because of the overriding environmental, legal, and animal welfare considerations. Where multiple techniques are being applied for the management of wildlife, the compatibility of all applied techniques must also be considered. These factors are evaluated in formulating damage management strategies that incorporate the application of one or more techniques.

⁴⁷ American Veterinary Medical Association. *AVMA Guidelines for the Euthanasia of Animals: 2013 Edition*. 2013.

⁴⁸ *Ibid.*

⁴⁹ *Ibid.*

Adaptive Management

A premise of adaptive management is that because practitioners/managers do not have full knowledge of wildlife management issues, a management program and its practitioners must apply enough rigor to management activities to ensure that they learn and improve through experience. Stakeholders need to understand that a management program must be sufficiently flexible over time to adapt to what is learned as the program unfolds and managers gain experience.

Essential components of adaptive management include but are not necessarily limited to situational analysis, definition of goals and objectives, identification and selection of alternatives, management interventions, monitoring, and adjustment to approaches and management.⁵⁰ Monitoring is a critical step to better understanding current management systems and to forecast effects of management. Monitoring is not an end in itself; rather, results of monitoring inform necessary adjustments to management approaches if desired goals are not met.

Adaptive management is inherent to WS-CA's IWDM approach, as evidenced in select policy directives. For example, WS Directive 2.110 states in reference to Wildlife Services research and methods development, "While conducting assigned field activities, WS operational employees may evaluate modifications to existing WDM techniques, tools, and systems for the purpose of improving these techniques and tools."⁵¹

Summary of Proposed Management Methods

The following section summarizes the types of assistance and range of management methods that may be implemented by WS-CA within the County under the IWDM Program. Both non-lethal and lethal methods are listed below; however, as previously discussed, WS Directive 2.101, and standard operating procedures implemented by WS-CA, place preference on non-lethal methods whenever such methods present a feasible means of solving the wildlife conflict issue. As noted previously, with respect to the physical capture methods, such as cages, corrals, and snares, and tracking dogs, it is noted that, except in limited cases where CDFW makes an individual exemption, CDFW does not allow the relocation of wildlife causing damage (see California Code of Regulations, Title 14, Section 465.5(g)(1)). Rather, trapped/captured wildlife is typically euthanized in a humane manner and the carcasses disposed of off-site in compliance with applicable regulations. Thus, such physical capture methods are considered to be lethal for the purpose of this analysis.

⁵⁰ Shawn T. Riley et al. "The Essence of Wildlife Management." *Wildlife Society Bulletin*, Vol. 30, No. 2 pp. 585-593. Summer, 2002.

⁵¹ U.S. Department of Agriculture, Animal and Plant Health Inspection Service. *WS Directive 2.110, Wildlife Services Research and Methods Development*. July 21, 2008.

Non-lethal Damage Management Methods

- Animal Behavior Modification
 - Frightening devices
 - Propane exploders/cannons
 - Pyrotechnics
 - Distress/predator calls
 - Foxlights
 - E-Shepherd Collars
 - Critter Gitters
 - Chemical repellent methods
 - Tactile repellents
 - Olfactory repellents
- Livestock Guardian Animals
- Fencing
 - Barricades
 - Barrier fencing
 - Electric fencing
 - Fladry
- Modification of human behavior
 - Elimination of wildlife feeding
 - Husbandry changes
 - Night and seasonal enclosures
 - Timing of breeding
 - Altering herd composition
 - Herding/vigilance
- Habitat Management

Live Capture Methods

- Traps
 - Cage/box traps
 - Corral traps
 - Decoy traps
 - Foothold trap
- Snares
 - Catch-pole snare
 - Collarum
 - Foot snare
 - Snares with stops
- Nets
 - Air cannon/rocket net
 - Drop net
 - Hand net

- Net gun/launcher
- Throw net
- Tracking Dogs or Trailing Dogs
 - Decoy dogs
 - Tracking/trailing dogs
- Chemical Immobilization methods
 - Injectable immobilizing drugs
 - Telazol
 - Xylazine
 - Yohimbine

Lethal Damage Management Methods

- Trap Devices and Snares
 - Conibear
 - Snap traps
 - Neck snares without stops
- Euthanasia methods for wildlife (all as described and conditioned by the AVMA manual).
 - Carbon dioxide
 - Euthanasia solution
 - Gunshot
 - Physical euthanasia methods

3.7 PERMITS AND APPROVALS

The following actions and approvals by Mendocino County would be required to implement the proposed project:

- 1) Mendocino County Board of Supervisors certification of the EIR.
- 2) Mendocino County Board of Supervisors adoption of the IWDM Program.
- 3) Mendocino County Board of Supervisors approval of five-year Program and Agreement between WS-CA and Mendocino County and annual work and financial plans required by the five-year CSA for each of the five years, which would provide for the following:
 - Assignment of up to two WS-CA wildlife specialists for a maximum of 4,176 work hours distributed as needed among direct control activities, technical assistance, WS-CA required training and administrative tasks, and leave.
 - WS-CA procurement and maintenance of vehicles, tools, supplies, and other specialized equipment as deemed necessary to accomplish direct control activities.
 - WS-CA supervision of safe and professional use of approved wildlife damage management tools/equipment, including the use of firearms, advanced optics, assorted snaring devices, trailing hounds, all-terrain vehicles, leg-hold traps for the protection of endangered species and public safety, cage-type and other specialized

traps, deterrent methods/devices (including pyrotechnics), chemicals approved by the U.S. Food and Drug Administration, the U.S. Department of Justice's DEA, and other applicable state and federal entities (including immobilizing and euthanasia drugs), night vision equipment, and electronic calling devices.

- Data reporting for inclusion in the WS-CA Management Information System, which would consist of the number and types of request for assistance, control methods, types of species, whether species causing damage or loss were removed or released, estimated value of loss, and other information used to document and monitor program activities.

No state agency approvals are required.

3.8 NON-LETHAL PROGRAM ALTERNATIVE

The Non-Lethal Program Alternative would not use or recommend lethal methods to attempt to resolve wildlife damage. This Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide trained personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to residents reporting wildlife damage. The University of California Cooperative Extension is one such agency that could provide educational technical assistance to landowners on behalf of the County, as well as operational assistance in the form of specialized equipment demonstrations (e.g., electrified fladry, propane cannons, lasers, pyrotechnics).

With respect to deterrent methods, field technicians would instruct property owners or managers how to use deterrent tools in ways that maximize their effectiveness while minimizing the potential for wildlife to habituate to the deterrents. Information and training on lethal management methods would not be provided under this alternative.

This alternative could also involve cost sharing with property owners for reimbursement of management methods, including building of new fences or repair of fences; purchasing new livestock protection animals and/or maintaining livestock protection animals; and purchasing husbandry-related items such as pens, and non-noise generating and non-igniting frightening devices such as Foxlights. In addition, fladry/turbo fladry could be a component of the cost share program, though, the level at which this could occur is uncertain given the factors noted above.

Similar to the proposed project, adaptive management would be a key component of the Non-Lethal Program Alternative. Adaptive management has been an important and effective component of other non-lethal programs, such as the Wood River Wolf Project in Idaho.⁵² However, it should be noted that under the Wood River Wolf Project, private landowners were not prevented from conducting lethal action of their own accord, and authorities maintained the flexibility to provide technical assistance related to the implementation of lethal methods. Under

⁵² Suzanne A. Stone et al. "Adaptive use of nonlethal strategies for minimizing wolf-sheep conflict in Idaho." *Journal of Mammalogy* (98): 33-44. 2017.

the Non-Lethal Program Alternative analyzed in this EIR, technical assistance related to lethal methods would not be provided to land owners or other resource managers.

Objectives

The objectives of the Non-Lethal Program Alternative are as follows:

1. Implement a County-funded and/or cost-share non-lethal wildlife management program that relies exclusively upon and incentivizes the use of non-lethal methods of animal damage management (including livestock guard animals, Foxlights, E-Shepherd collars, fladry, range riders, night corrals, fencing, flocks, and carcass management) and reflects best available science, including peer-reviewed literature that addresses the performance and effectiveness of baseline preventative husbandry techniques supplemented with deterrents (e.g., fladry or sound-light devices, Foxlights, E-Shepherd collars).
2. Create a system through which County personnel, conservation organizations, experts, and local conservation/conflict consultants that specialize in non-lethal wildlife damage management can provide educational resources to private resource owners about the variety of non-lethal methods that can be used to resolve conflicts, and technical assistance and financial resources to help resource owners resolve wildlife conflicts themselves using non-lethal methods.
3. Provide a transparent process for monitoring and documenting the short- and long-term effects and efficacy of non-lethal wildlife damage management activities on targeted and non-targeted species, their habitats, and the nearby environment, including a cost-benefit analysis that considers the cost of non-lethal control relative to its short- and long-term effectiveness (e.g. the cost of removing carnivores relative to the benefits to ecosystem function and biodiversity of keeping apex predators and mesopredators alive).
4. Incorporate a process to accurately verify damage and identify species causing damage.

Technical Assistance

As with the IWDM Program, technical assistance would continue to be the primary method used in responding to requests for assistance. The types of methods that field technicians would recommend to those requesting assistance would include, but is not limited to, the following:

Non-lethal Damage Management Methods

- Animal Behavior Modification
 - Frightening devices
 - Propane exploders/cannons
 - Pyrotechnics
 - Distress/predator calls
 - Foxlights
 - E-Shepherd Collars
 - Critter Gitters
 - Chemical repellent methods
 - Tactile repellents

- Olfactory repellents
- Livestock Guardian Animals
- Fencing
 - Barricades
 - Barrier fencing
 - Electric fencing
 - Fladry
- Modification of human behavior
 - Elimination of wildlife feeding
 - Husbandry changes
 - Night and seasonal enclosures
 - Timing of breeding
 - Altering herd composition
 - Herding/vigilance
- Habitat Management

Field Assistance

Under this Non-Lethal Program Alternative, field assistance would be anticipated to be limited to instances when specialists may need to provide field application of exclusion, repellent, or deterrent methods for specialized equipment (e.g., electrified fladry, propane cannons, light/siren devices, pyrotechnics). The cost and expertise or training can preclude members of the public from acquiring or successfully applying certain recommended exclusion, repellent, or deterrent methods. Specialists may make field visits to carry out technical assistance recommendations, including education on techniques and proper installation of loaned equipment (i.e., electric fladry), when they deem it needed to resolve wildlife conflicts.

Variation to Non-Lethal Program Alternative

A variation to the above-described Non-Lethal Program Alternative is considered within this EIR. This variation continues to prioritize the use of non-lethal methods for wildlife damage management, but would allow the strictly limited use of gunshot (from the ground) as a lethal method. For the variation to the Non-Lethal Program Alternative, gunshot would only be used in exceptional cases where a risk to public health and safety is posed by wildlife. This can be generally defined as animal attacks on humans that result in injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs. Thus, the potential physical environmental consequences of the use of non-lethal methods and lethal gunshot on a strictly limited basis need to be considered. The available lethal method under this alternative would be limited to gunshot, not including aerial gunning. Shooting would be conducted by trained personnel employed by the outside governmental or non-governmental agency contracted by the County under the Alternative.

The lethal control methods under the variation to the Non-Lethal Program Alternative have been limited to gunshot due to comments received on the project during the NOP scoping period.

However, the use of gunshot as the only available lethal method of control would be anticipated to limit the ability of the implementing entity to protect public health and safety to the fullest extent possible. For instance, lethal gunshots would not be an appropriate method of euthanasia for wildlife posing a disease threat in an urban setting, such as under a school or in the attic of a residence. Furthermore, the AVMA recommends differing methods of euthanasia depending on the size class of the animal, and, as a result, lethal gunshot is not always considered the most humane method of euthanasia. Nevertheless, because comments received during the NOP specified that lethal methods should be limited to gunshot under this alternative, this EIR includes analysis of such a program.

It should be noted that although odors and noise nuisances from wildlife are considered an impact related to human health and safety, the creation of odors and/or noise would not be considered justification for the use of lethal gunshot under the variation to the Non-Lethal Program Alternative. Rather, as discussed previously, instances where lethal gunshot would be allowed under this alternative would be restricted to animal attacks on humans and zoonotic disease management where wildlife poses a direct threat to human health and safety.

3.9 SCOPE OF ENVIRONMENTAL IMPACT ANALYSIS IN THIS DRAFT EIR

The EIR will include recognition of differences between the proposed project, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative and the resultant effects of those differences with respect to potential environmental impacts. A few important distinctions are provided in what follows.

Technical Assistance Not Involving Direct Control of Wildlife Damage Management

IWDM Program

The IWDM Program would initially be implemented pursuant to a cost-share agreement with WS-CA. The proposed cost-share agreement between the County and WS-CA is for a range of services, which would be provided to resource owners upon their request. Many of the activities that would be performed by WS-CA personnel under the renewed agreement would be administrative, for example, responding to telephone inquiries, preparing informational literature, giving presentations, and performing initial investigations at the request of resource owners. Personnel would also offer recommendations to resource owners on wildlife damage management that would not involve removal of animals causing damage (that is, non-lethal methods for damage management). In cases where technical assistance would provide sufficient wildlife damage management, further assistance would not be required. These administrative-type activities would not result in physical changes in the environment that require analysis in this EIR.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would operate in a similar manner, with representatives of an outside governmental or non-governmental agency providing technical assistance at the request of resource owners.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would operate in a similar manner as the Non-Lethal Program Alternative with an outside governmental or non-governmental agency providing technical assistance at the request of resource owners.

Use of Direct Control Methods

IWDM Program

The use of direct control methods by WS-CA could involve non-lethal and/or lethal methods. The potential environmental effects of each method would vary. For example, whereas the non-lethal use of pyrotechnics could result in impacts related to noise and target species populations, the lethal use of snares could have impacts on target species populations, but not otherwise result in additional physical impacts to the environment such as noise. Through the cost-share agreement between WS-CA and the County, the County would provide funding to WS-CA for the implementation of direct control methods. Thus, the analysis contained within this EIR will be focused on the potential physical effects to the environment that could result from WS-CA's use of direct control methods.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative could involve the use of all wildlife control methods that would be implemented under the IWDM Program, with the exception of the lethal control methods and those methods typically associated with lethal disposition of animals, such as live capture devices, including cage and corral traps, snares, nets, tracking dogs, and chemical immobilization. The agency responsible for implementing the program in the field would still provide direct control assistance of non-lethal methods when it has been determined that a problem cannot reasonably be resolved by technical assistance or that the professional skills are required for effective problem resolution and/or safe implementation of methods, such as pyrotechnics. Direct control assistance is often initiated when the wildlife damage involves several ownerships, sensitive species, or complex management problems requiring the direct supervision of a professional wildlife manager or biologist.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would operate in the same manner as the Non-Lethal Program Alternative, with the exception that this Alternative would allow the strictly limited use of gunshot (from the ground) as a lethal method. For the variation to the Non-Lethal Program Alternative, gunshot would only be used in exceptional cases where a risk to public health and safety is posed by wildlife. This can be generally defined as animal attacks on humans that result in injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs. Thus, the potential physical environmental consequences of the use of non-lethal methods and lethal gunshot on a strictly limited basis need to be considered.

Use of Non-Lethal Methods by Private Parties

IWDM Program

As part of technical assistance to resource owners, WS-CA staff may recommend non-lethal methods for wildlife damage management. Some of these methods could be safely implemented by the resource owner and would be the responsibility of the resource owner. This could include altering animal husbandry practices, fencing, night pens, or use of guard animals, among others. Neither WS-CA nor County staff would be involved in implementing these actions, nor would the agreement as proposed allow for County funds to be provided directly to resource owners to acquire materials or resources to implement non-lethal methods on private property.⁵³ As such, under the proposed project, the use of non-lethal methods by private parties would be at the sole discretion of the resource owner. The use of non-lethal methods by private parties, and potential environmental effects, would occur with or without the proposed project, and there are no aspects of the proposed project that would change what non-lethal controls a resource owner might use, either by limiting them or adding new ones.

It should be noted that in limited instances when WS-CA loans non-lethal equipment to private parties, this is not done separate and apart from WS-CA's involvement. For example, when WS-CA loans a cage or culvert trap to a landowner, the landowner is directed to call WS-CA when the animal is trapped, so that WS-CA can euthanize the trapped animal. The effects of using cage and culvert traps are thus appropriately evaluated as part of the category of Direct Control Methods.

Similarly, WS-CA is involved in private party use of loaned electric fladry. Thus, this use is covered under Direct Control Methods.

Non-Lethal Program Alternative

In contrast, under the Non-Lethal Program Alternative, the program may provide cost-sharing to private parties for their use of certain non-lethal management methods. For instance, private parties choosing to install fencing or purchase and sustain guard animals following the recommendations of the contracted non-governmental or outside governmental agency may be eligible for cost-sharing. Through cost-sharing with private parties, the County would indirectly provide funds for the implementation of some non-lethal control methods, which may result in impacts to the environment. Therefore, for the Non-Lethal Program Alternative, this EIR analyzes potential impacts that could occur due to implementation of those non-lethal control methods by private parties for which program reimbursement may be sought.

⁵³ While APHIS-WS may temporarily loan and deploy equipment as part of IWDM actions, the agency currently has no mechanism to purchase this equipment for private ownership nor grant or reimburse funds for the purchase of such equipment. (Personal email communication between Shannon Chandler, Environmental Coordinator, USDA APHIS Wildlife Services and Nick Pappani, Vice President, Raney Planning and Management, Inc., August 27, 2018).

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would operate in the same manner as the Non-Lethal Program Alternative, with the exception that this Alternative would allow the strictly limited use of gunshot (from the ground) as a lethal method. Thus, this EIR analyzes potential impacts that could occur due to implementation of those non-lethal control methods by private parties for which program reimbursement may be sought.

Permits and Approvals

It is anticipated that similar actions and approvals would be required for the Non-Lethal Program Alternative, as would be required for the proposed project. For example, Mendocino County would be required to certify the EIR and approve a Program and Agreement between Mendocino County and the outside governmental agency or nongovernmental organization implementing the Non-Lethal Program Alternative as well as annual work and financial plans.

**Table 3-5
Livestock Losses and Damage Within Mendocino County (2007-2017)**

Year	Species Causing Damage	Damaged Resource	Type of Damage	Loss ¹
2007	Bears, Black	Cattle (Calves)	Harassment	10
			Predation	3
		Fowl, Chickens (Other)	Predation	20
		Fowl, Ducks (Domestic)	Predation	7
		Goats, Z-(Other Adults)	Harassment	15
			Predation	7
		Sheep (Adult)	Predation	4
	Swine (Adult)	Predation	2	
	Swine (Piglets)	Harassment	3	
	Bobcats	Fowl, Chickens (Other)	Predation	24
		Fowl, Ducks (Domestic)	Predation	8
		Fowl, Turkey (Domestic)	Predation	2
		Sheep (Lambs)	Predation	5
	Coyotes	Cattle (Calves)	Injury	3
			Predation	9
		Sheep (Adult)	Predation	49
		Sheep (Lambs)	Predation	68
	Dogs, Feral, Free-Ranging and Hybrids	Cattle (Adult)	Harassment	60
			Injury	5
			Predation	2
		Cattle (Calves)	Harassment	16
			Injury	2
			Predation	10
			Predation	10
		Equine, Horses (Adult)	Harassment	6
		Fowl, Chicken (Other)	Predation	18
		Rabbits (Domestic)	Predation	4
	Sheep (Adult)	Injury	27	
		Predation	3	
	Foxes, Gray	Fowl, Guineas	Predation	1
	Lions, Mountain (Cougar)	Cattle (Calves)	Harassment	1
Predation			1	
Goats, Z-(Other Adults)		Predation	6	
Sheep (Adult)		Injury	2	
		Predation	55	
Sheep (Lambs)		Injury	1	
	Predation	13		
Raccoons	Fowl, Chicken (Other)	Predation	4	
	Fowl, Ducks (Domestic)	Predation	2	
Swine, Feral	Swine (Adult)	Harassment	1	
2008	Bears, Black	Cattle (Calves)	Predation	2
		Fowl, Chickens (Other)	Predation	21
		Fowl, Ducks (Domestic)	Predation	4
		Fowl, Geese (Domestic)	Predation	9
		Sheep (Adult)	Predation	3
		Sheep (Lambs)	Predation	3
	Bobcats	Fowl, Chickens (Other)	Injury	2
			No Conflict	2
			Predation	9
		Sheep (Lambs)	Predation	5
	Coyotes	Cattle (Calves)	Injury	1
			Predation	5
		Fowl, Chickens (Other)	Predation	10
		Goats, Z-(Other Adults)	Predation	9
		Sheep (Adult)	Predation	16
		Sheep (Lambs)	Predation	36
	Dogs, Feral, Free-Ranging and Hybrids	Cattle (Adult)	Harassment	47
			Injury	33
		Cattle (Calves)	Harassment	10
			Injury	6
			Predation	1
		Equine, Horses (Adult)	Harassment	7
		Llamas (All)	Predation	1
		Sheep (Adult)	Predation	11
		Swine (Adult)	Injury	2
	Predation		1	
	Fishers	Fowl, Chickens (Other)	Predation	16
Lions, Mountain (Cougar)	Fowl, Ostriches	Predation	1	
	Goats, Angora (Kids)	Predation	1	
	Goats, Z-(Other Adults)	Predation	3	
	Llamas (All)	Predation	1	
	Sheep (Adult)	Harassment	10	
		Injury	5	
	Predation	6		
	Sheep (Lambs)	Predation	15	
Swine (Adult)	Predation	2		
2009	Bears, Black	Equine, Horses (Adult)	Harassment	2
		Fowl, Chickens (Other)	Predation	14
		Goats, Z-(Other Adults)	Predation	6

(Continued on next page)

**Table 3-5
Livestock Losses and Damage Within Mendocino County (2007-2017)**

Year	Species Causing Damage	Damaged Resource	Type of Damage	Loss ¹	
2007-2017		Sheep (Adult)	Predation	5	
		Sheep (Lambs)	Predation	1	
		Swine (Adult)	Harassment	3	
			Predation	1	
	Bobcats	Fowl, Chickens (Other)	Predation	72	
		Fowl, Ducks (Domestic)	Predation	9	
		Fowl, Geese (Domestic)	Predation	5	
		Fowl, Turkeys (Domestic)	Predation	3	
	Coyotes	Sheep (Lambs)	Predation	1	
		Castle (Calves)	Predation	8	
		Fowl, Chickens (Other)	Predation	13	
		Sheep (Adult)	Predation	12	
		Sheep (Lambs)	Injury	4	
	Dogs, Feral, Free-Ranging and Hybrids	Cattle (Adult)	Predation	39	
			Harassment	64	
			Injury	36	
		Cattle (Calves)	Predation	2	
			Harassment	27	
			Injury	12	
		Equine, Horses (Adult)	Predation	6	
			Harassment	2	
			Injury	6	
			Predation	2	
		Goats, Z-(Other Adults)	Predation	1	
		Llamas (All)	Predation	5	
		Sheep (Adult)	Injury	2	
			Predation	6	
	Sheep (Lambs)	Predation	1		
	Lions, Mountain (Cougar)	Alpacas	Predation	7	
		Cattle (CALveS)	Predation	1	
		Goats, Z-(Other Adults)	Predation	7	
		Sheep (Adult)	Predation	32	
		Sheep (Lambs)	Predation	14	
	Raccoons	Fowl, Chickens (Other)	Predation	2	
		Fowl, Ducks (Domestic)	Predation	1	
	Skunks, Striped	Equine, Horses (Adult)	Fatality	1	
	Weasels (Other)	Fowl, Chickens (Other)	Predation	5	
	2010	Bears, Black	Cattle (Calves)	Injury	4
				Predation	1
			Equine, Horses (Adult)	Injury	1
			Fowl, Chickens (Other)	Harassment	12
				Predation	76
			Fowl, Geese (Domestic)	Predation	4
			Fowl, Pigeons (Domestic)	Harassment	12
				Predation	2
			Fowl, Turkeys (Domestic)	Predation	2
			Goats, Z-(Other Adults)	Harassment	9
				Predation	1
			Sheep (Adult)	Harassment	50
Swine (Adult)		Harassment	1 Incident		
		Harassment	6		
Swine (Piglets)		Harassment	15		
Bobcats		Fowl, Chickens (Other)	Predation	29	
		Fowl, Ducks (Domestic)	Predation	1	
Coyotes		Cattle (Calves)	Harassment	13	
			Predation	2	
		Fowl, Chickens (Other)	Predation	2	
		Goats, Z-(Other)	Harassment	1	
		Sheep (Adult)	Predation	28	
		Sheep (Lambs)	Injury	1	
Dogs, Feral, Free-Ranging and Hybrids		Cattle (Adult)	Predation	52	
			Harassment	70	
			Injury	25	
		Cattle (Calves)	Predation	1	
			Injury	1	
			Predation	4	
		Equine, Horses (Adult)	Harassment	3	
			Injury	2	
		Goats, Z-(Other Adults)	Predation	5	
	Sheep (Adult)	Harassment	9		
Injury		11			
Predation	23				
Foxes, Gray	Fowl, Chickens (Other)	Predation	10		
Lions, Mountain (Cougar)	Cattle (Calves)	Predation	1		
	Equine, Horses (Adult)	Harassment	1 Incident		
	Equine, Horses (Foals)	Harassment	1		
	Fowl, Chickens (Other)	Predation	33		
Goats, Z-(Other Adults)	Harassment	2			

(Continued on next page)

**Table 3-5
Livestock Losses and Damage Within Mendocino County (2007-2017)**

Year	Species Causing Damage	Damaged Resource	Type of Damage	Loss ¹
2011			Predation	8
		Sheep (Adult)	Predation	11
		Sheep (Lambs)	Harassment	8
	Raccoons	Fowl, Chickens (Other)	Predation	3
	Skunks, Striped	Fowl, Chickens (Other)	Predation	8
	Bears, Black	Cattle (Calves)	Predation	1
		Fowl, Chickens (Other)	Harassment	12
			Predation	147
		Goats, Z-(Other Adults)	Harassment	26
			Predation	2
		Llamas (All)	Predation	2
		Sheep (Adult)	Predation	10
	Swine (Adult)	Harassment	2 Incidents; 5 Individuals	
		Predation	3	
Bobcats	Fowl, Chickens (Other)	Harassment	22	
		Predation	52	
	Fowl, Ducks (Domestic)	Predation	18	
	Fowl, Geese (Domestic)	Predation	1	
	Fowl, Turkeys (Domestic)	Predation	1	
Sheep (Lambs)	Predation	2		
Coyotes	Cattle (Calves)	Harassment	2 Incidents; 5 Individuals	
		Predation	7	
	Fowl, Chickens (Other)	Predation	20	
	Sheep (Adult)	Injury	1	
		Predation	21	
Sheep (Lambs)	Injury	1		
	Predation	34		
Dogs, Feral, Free-Ranging and Hybrids	Cattle (Adult)	Harassment	60	
		Injury	2	
	Cattle (Calves)	Injury	6	
		Predation	1	
	Equine, Horses (Adult)	Harassment	2	
	Goats, Z-(Other Adults)	Predation	2	
	Sheep (Adult)	Injury	1	
Predation		10		
Sheep (Lambs)	Injury	3		
	Predation	2		
Foxes, Gray	Fowl, Chickens (Other)	Predation	4	
Lions, Mountain (Cougar)	Equine, Horses (Adult)	Harassment	4	
		Predation	1	
	Equine, Horses (Foals)	Harassment	1	
	Fowl, Chickens (Other)	Harassment	15	
		Predation	4	
	Goats, Z-(Other Adults)	Harassment	15	
		Predation	14	
Sheep (Adult)	Injury	1		
	Predation	9		
Sheep (Lambs)	Predation	7		
Raccoons	Fowl, Chickens (Other)	Predation	5	
Skunks, Striped	Fowl, Chickens (Other)	Predation	8	
Swine, Feral	Swine (Adult)	Harassment	3	
2012	Bears, Black	Cattle (Calves)	Predation	1
		Fowl, Chickens (Other)	Predation	34
		Fowl, Geese (Domestic)	Predation	1
		Goats, Z-(Other)	Predation	9
		Sheep (Adult)	Predation	1
		Swine (Adult)	Harassment	4
			Predation	1
	Swine (Piglets)	Predation	1	
	Bobcats	Fowl, Chickens (Other)	Harassment	6
			Predation	30
		Fowl, Geese (Domestic)	Predation	8
		Fowl, Guineas	Predation	6
		Fowl, Pigeons (Domestic)	Predation	6
	Coyotes	Cattle (Calves)	Harassment	1
			Injury	1
			Predation	10
		Fowl, Chickens (Other)	Predation	17
		Goats, Z-(Other)	Predation	1
		Sheep (Adult)	Predation	18
Sheep (Lambs)	Predation	64		
Swine (Piglets)	Predation	2		
Dogs, Feral, Free-Ranging and Hybrids	Cattle (Adult)	Harassment	17	
		Injury	2	
	Cattle (Calves)	Harassment	3	
		Injury	1	
	Predation	5		
Sheep (Adult)	Harassment	20		

(Continued on next page)

**Table 3-5
Livestock Losses and Damage Within Mendocino County (2007-2017)**

Year	Species Causing Damage	Damaged Resource	Type of Damage	Loss ¹	
			Injury	2	
	Foxes, Gray	Fowl, Chickens (Other)	Predation	8	
	Lions, Mountain (Cougar)		Fowl, Chickens (Other)	Predation	6
			Fowl, Geese (Domestic)	Predation	7
			Goats, Z-(Other)	Injury	2
				Predation	4
			Goats, Z-(Other Kids)	Predation	2
			Sheep (Adult)	Harassment	1 Incident
			Predation	2	
	Sheep (Lambs)	Predation	3		
	Raccoons	Fowl, Chickens (Other)	Predation	11	
	Skunks, Striped	Fowl, Chickens (Other)	Predation	1	
2013	Bears, Black		Cattle (Calves)	Predation	2
			Fowl, Chickens (Other)	Predation	148
			Fowl, Ducks (Domestic)	Predation	1
			Fowl, Geese (Domestic)	Predation	2
			Goats, Z-(Other Adults)	Predation	8
			Sheep (Lambs)	Predation	1
	Bobcats		Fowl, Chickens (Other)	Predation	48
			Fowl, Ducks (Domestic)	Predation	10
			Sheep (Lambs)	Predation	1
	Coyotes		Cattle (Calves)	Harassment	9
				Injury	1
				Predation	9
			Fowl, Chickens (Other)	Predation	1
			Sheep (Adult)	Injury	1
				Predation	22
		Sheep (Lambs)	Harassment	16	
			Predation	39	
	Dogs, Feral, Free-Ranging and Hybrids		Cattle (Adult)	Harassment	20
				Injury	5
			Equine, Horses (Adult)	Injury	2
			Rabbits (Domestic)	Predation	4
		Sheep (Adult)	Predation	10	
	Foxes, Gray	Fowl, Chickens (Other)	Predation	10	
	Lions, Mountain (Cougar)		Goats, Z-(Other Adults)	Harassment	8
				Predation	5
			Llamas (All)	Predation	1
			Sheep (Adult)	Predation	12
		Sheep (Lambs)	Predation	4	
	Raccoons	Fowl, Chickens (Other)	Predation	5	
	Skunks, Spotted	Fowl, Chickens (Other)	Predation	6	
Skunks, Striped	Fowl, Chickens (Other)	Predation	4		
2014	Bears, Black		Cattle (Calves)	Predation	1
			Cattle Calves (Beef)	Predation	3
			Fowl, Chickens (Other)	Harassment	42
				Predation	92
			Goats, Angora (Adult)	Predation	2
			Goats, Z-(Other Adults)	Predation	13
			Llamas (All)	Harassment	3
			Sheep (Adult)	Predation	2
			Sheep (Lambs)	Predation	6
			Swine (Adult)	Harassment	4
		Swine (Piglets)	Harassment	4	
	Bobcats		Fowl, Chickens (Other)	Predation	86
			Fowl, Ducks (Domestic)	Predation	4
	Coyotes		Cattle (Calves)	Harassment	3
				Injury	2
				Predation	5
			Cattle Calves (Beef)	Harassment	2
				Predation	3
			Fowl, Chickens (Other)	Predation	75
			Goats, Angora (Kids)	Predation	1
			Sheep (Adult)	Harassment	1
			Predation	16	
		Sheep (Lambs)	Harassment	1 Incident; 4 Individuals	
			Predation	42	
	Dogs, Feral, Free-Ranging and Hybrids		Cattle (Adult)	Harassment	13
				Injury	2
			Cattle (Calves)	Injury	4
			Cattle Adult (Beef)	Harassment	13
				Injury	5
			Sheep (Adult)	Predation	5
	Swine (Adult)	Predation	1		
Foxes, Gray	Fowl, Chickens (Other)	Harassment	2		
		Predation	2		
Lions, Mountain (Cougar)		Cattle (Calves)	Predation	1	
		Fowl, Chickens (Other)	Predation	2	

(Continued on next page)

**Table 3-5
Livestock Losses and Damage Within Mendocino County (2007-2017)**

Year	Species Causing Damage	Damaged Resource	Type of Damage	Loss ¹	
		Goats, Z-(Other Adults)	Predation	3	
		Sheep (Adult)	Predation	8	
		Sheep (Lambs)	Predation	2	
		Swine (Adult)	Predation	1	
	Raccoons	Fowl, Chickens (Other)	Predation	1	
2015	Bears, Black	Fowl, Chickens (Other)	Harassment	4	
			Predation	84	
		Fowl, Ducks (Domestic)	Predation	3	
		Goats, Z-(Other Adults)	Not Reported	\$1,987.16	
		Swine (Piglets)	Harassment	3	
	Bobcats	Fowl, Chickens (Other)	Predation	152	
		Fowl, Guineas	Predation	3	
		Fowl, Turkeys (Domestic)	Predation	2	
		Sheep (Adult)	Injury	3	
	Coyotes	Cattle Calves (Beef)		Harassment	13 Incidents; 14 Individuals
				Injury	1
				Predation	2 Incidents; 7 Individuals
		Fowl, Chickens (Other)	Predation	2	
		Sheep (Adult)	Predation	35	
		Sheep (Lambs)		Harassment	1 Incident
				Injury	3
				Predation	35
	Swine (Piglets)	Predation	2		
	Dogs, Feral, Free-Ranging and Hybrids	Cattle Adult (Beef)		Harassment	12
				Injury	1
		Cattle Calves (Beef)		Harassment	3
				Injury	1
		Equine, Horses (Adult)	Injury	3	
	Sheep (Adult)	Predation	2		
	Foxes, Gray	Fowl, Chickens (Other)	Not Reported	\$184.30	
		Fowl, Ducks (Domestic)	Predation	1	
	Lions, Mountain (Cougar)	Goats, Z-(Other Adults)		Not Reported	\$1,500.00
				Harassment	1 Incident
Sheep (Adult)			Injury	1	
			Predation	4	
Sheep (Lambs)			Injury	2	
		Predation	17		
Opossums, Virginia	Fowl, Chickens (Other)	Not Reported	\$20.00		
	Fowl, Ducks (Domestic)	Predation	1		
Raccoons	Fowl, Chickens (Other)	Not Reported	\$198.50		
Skunks, Striped	Fowl, Ducks (Domestic)	Predation	2		
Weasels, Long-Tailed	Fowl, Ducks (Domestic)	Predation	6		
Wolves, Gray/Timber	Cattle Adult (Beef)	Harassment	10		
2016	Bears, Black	Cattle Calves (Beef)	Predation	2	
		Fowl, Chickens (Other)	Not Reported	\$2,774.45	
		Fowl, Ducks (Domestic)	Predation	7	
		Fowl, Turkeys (Domestic)	Predation	1	
		Swine (Piglets)	Predation	4	
	Bobcats	Fowl, Chickens (Other)	Not Reported	\$468.31	
		Fowl, Ducks (Domestic)	Predation	2	
		Fowl, Turkeys (Domestic)	Predation	1	
	Coyotes	Cattle Calves (Beef)		Harassment	6
				Injury	3
				Predation	2
		Fowl, Chickens (Other)	Not Reported	\$106.91	
		Sheep (Adult)		Injury	1
				Predation	10
	Sheep (Lambs)	Predation	48		
	Dogs, Feral, Free-Ranging and Hybrids	Cattle Adult (Beef)		Injury	4
				Predation	5
		Cattle Calves (Beef)		Injury	5
				Predation	5
		Equine, Horses (Adult)		Harassment	1
				Injury	2
	Llamas (All)	Predation	3		
Foxes, Gray	Fowl, Chickens (Other)	Predation	7		
	Fowl, Ducks (Domestic)	Predation	3		
Lions, Mountain (Cougar)	Fowl, Chickens (Other)	Predation	74		
	Goats, Z-(Other Adults)	Not Reported	\$3,266.87		
	Goats, Z-(Other Kids)	Predation	1		
	Llamas (All)	Predation	2		
	Sheep (Adult)	Predation	50		
	Sheep (Lambs)	Predation	26		
Raccoons	Fowl, Chickens (Other)	Predation	10		
	Fowl, Guineas	Predation	2		
2017	Bears, Black	Fowl, Chickens (Other)	Predation	222	
		Goats, Z-(Other Adults)	Not Reported	\$1,200.00	

(Continued on next page)

**Table 3-5
Livestock Losses and Damage Within Mendocino County (2007-2017)**

Year	Species Causing Damage	Damaged Resource	Type of Damage	Loss ¹
		Swine (Adult)	Predation	1
	Bobcats	Fowl, Chickens (Other)	Predation	33
	Coyotes	Cattle Calves (Beef)	Harassment	3
			Predation	2
		Sheep (Adult)	Harassment	2
			Predation	13
		Sheep (Lambs)	Harassment	1
			Injury	3
	Predation		71	
	Dogs, Feral, Free-Ranging and Hybrids	Cattle Adult (Beef)	Harassment	3
			Injury	6
			Predation	2
		Cattle Calves (Beef)	Harassment	6
			Injury	1
			Predation	2
	Equine, Horses (Adult)	Injury	1	
	Eagles, Golden	Sheep (Lambs)	Predation	4
	Foxes, Gray	Fowl, Chickens (Other)	Predation	13
		Fowl, Guineas	Predation	6
	Lions, Mountain (Cougar)	Fowl, Chickens (Other)	Predation	3
		Goats, Z-(Other Adults)	Not Reported	\$1,614.80
		Goats, Z-(Other Kids)	Predation	2
		Sheep (Adult)	Predation	12
		Sheep (Lambs)	Predation	10
	Raccoons	Fowl, Chickens (Other)	Predation	3
	Ravens, Common	Sheep (Lambs)	Predation	1
	Skunks, Striped	Sheep (Adult)	Disease Threat	1

¹ Loss data represents the number of individual resources damaged per type of damage. In some cases, the number of incidents caused by wildlife was also reported, and in such cases the number of incidents is presented in the Loss column. In cases where the number of individual resources damaged or the number of incidents was not known, but the value of resources damaged was known, the dollar value of damaged resources is presented under the Loss column.

Source: WS-CA, 2018.

**Table 3-6
 Summary of Technical Assistance (2007-2017)**

Species	Personal Consult	Written Telephone	Instructional	Radio TV	Exhibit	WS Materials	Info Transfer General Wildlife	Site Visit	Work Tasks	Parties Advised	Leaflets
Bats (other)	14	16	0	0	0	0	0	0	30	30	29
Bears, Black	292	396	0	2	1	5	7	7	710	2,545	797
Beavers	0	3	0	0	0	0	0	0	3	8	0
Bobcats	16	47	0	0	0	0	1	0	64	125	2
Cats, Feral/Free Ranging	4	7	0	0	0	0	0	1	12	86	48
Chipmunks (Other)	0	1	0	0	0	0	0	0	1	1	0
Coyotes	86	75	0	0	1	0	2	1	165	1,172	680
Deer, Black-Tailed	20	14	0	0	0	0	1	0	35	100	87
Deer, Mule	1	1	0	0	0	0	0	1	3	8	0
Dogs, Feral, Free-Ranging and Hybrids	56	45	0	0	0	0	2	1	104	260	2
Domestic Animal (Pet or Livestock)	0	1	0	0	0	0	0	0	1	1	0
Eagles, Golden	0	1	0	0	0	0	0	0	1	2	0
Elk, Wapiti (Wild)	11	2	0	0	0	0	2	0	15	36	0
Fishers	4	3	0	0	0	0	1	0	8	23	0
Foxes, Gray	36	60	0	0	0	0	0	0	96	227	168
Foxes, Red	0	1	0	0	0	0	1	0	2	3	0
Geese, Canada	0	1	0	0	0	0	0	0	1	2	0
Horses, Feral	0	1	0	0	0	0	0	0	1	2	0
Lions, Mountain (Cougar)	78	143	0	0	2	1	2	7	233	1,595	539
Mice, House	1	0	0	0	0	0	0	0	1	1	0
Multiple Species	0	0	1	0	0	1	1	0	3	19	0
Opossums, Virginia	2	22	0	0	0	0	0	0	24	39	1
Otters, River	1	0	0	0	0	0	0	0	1	3	0
Pigeons, Feral (Rock)	0	1	0	0	0	0	0	0	1	1	0
Porcupines	0	2	0	0	0	0	0	0	2	2	0
Raccoons	70	184	0	0	1	0	0	2	257	891	378
Rats, Black (Roof)	0	2	0	0	0	0	0	0	2	4	0
Rats, Norway (Brown)	4	4	0	0	0	0	0	0	8	8	0
Ravens, Common	3	2	0	0	0	0	0	0	5	10	0
Ringtails	0	1	0	0	0	0	0	0	1	3	0
Skunks, Spotted	0	1	0	0	0	0	0	0	1	3	0
Skunks, Striped	56	217	0	0	0	0	0	2	275	636	245
Snakes, Rattlesnakes, Western Diamond	0	2	0	0	0	0	0	0	2	6	0
Snakes, Rattlesnakes, Western	1	1	0	0	0	0	0	0	2	5	0
Squirrels, Flying (All)	0	0	0	0	0	0	1	0	1	2	0
Squirrels, Ground (Other)	2	0	0	0	0	0	0	0	2	5	0
Squirrels, Ground, California	0	1	0	0	0	0	0	0	1	1	0
Swine, Feral	137	89	0	0	0	0	2	1	229	857	426
Turkeys, Wild	1	1	0	0	0	0	0	0	2	2	0
Weasels (Other)	0	1	0	0	0	0	0	0	1	2	0
Weasels, Long-Tailed	0	1	0	0	0	0	0	0	1	2	0
Wolverines	0	0	0	0	0	0	1	0	1	3	0
Wolves, Gray/Timber	1	0	0	0	0	0	1	0	2	6	0
Woodpeckers, Acorn	2	0	0	0	0	0	0	0	2	4	0
Total	899	1,350	1	2	5	7	25	23	2,312	8,741	3,402

Source: WS-CA, 2018.

**Table 3-7
 Mendocino County Take Records (1997-2017)**

Species	Fate	Year																				Total	
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		2017
American Badger	Killed	0	0	0	0	3	2	0	3	1	0	2	1	0	0	0	0	0	0	0	0	0	12
Bears, Black	Captured	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
Bears, Black	Dispersed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Bears, Black	Freed	0	0	0	0	1	0	0	4	0	0	0	0	0	0	2	1	0	0	0	0	0	8
Bears, Black	Killed	3	10	8	14	6	16	22	13	9	21	12	12	8	16	26	12	9	13	8	9	14	261
Bears, Black	Transfer of Custody	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Bobcats	Freed	0	0	0	1	4	4	5	1	0	6	0	0	0	0	0	0	0	0	0	1		22
Bobcats	Killed	5	1	4	10	9	5	3	12	3	7	4	4	7	1	8	7	5	7	4	4	2	112
Cats, Feral / Free Ranging	Freed	0	0	0	4	5	0	6	6	2	5	0	1	5	8	7	6	0	1	1	1	3	61
Cats, Feral / Free Ranging	Killed	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
Cats, Feral / Free Ranging	Relocated	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	5
Coyotes	Freed	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Coyotes	Killed	151	127	136	244	241	254	241	232	227	216	272	212	210	180	152	149	175	191	171	172	166	4,119
Deer, Black-Tailed	Freed	0	0	1	6	1	3	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	15
Deer, Black-Tailed	Killed	0	1	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	5	1	4	0	15
Dogs, Feral, Free-Ranging and Hybrid	Captured	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Dogs, Feral, Free-Ranging and Hybrid	Freed	0	0	1	10	5	4	2	9	7	5	6	2	5	1	9	1	4	1	0	1	1	74
Dogs, Feral, Free-Ranging and Hybrid	Killed	0	0	3	9	16	16	12	28	12	15	14	26	26	8	10	6	8	14	0	8	3	234
Dogs, Feral, Free-Ranging and Hybrid	Relocated	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Dogs, Feral, Free-Ranging and Hybrid	Transfer of Custody	0	0	0	0	0	0	0	0	0	0	0	2	1	1	2	1	0	1	0	0	0	8
Elk, Wapiti (Wild)	Killed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
Foxes, Gray	Freed	0	1	0	1	1	3	3	3	2	1	1	0	3	2	0	0	0	0	5	7	4	37
Foxes, Gray	Killed	18	11	1	13	10	29	11	10	6	7	3	3	9	1	9	14	3	18	16	20	23	235
Foxes, Gray	Transfer of Custody	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
Foxes, Red	Killed	1	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	8
Lions, Mountain (Cougar)	Freed	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Lions, Mountain (Cougar)	Killed	12	13	9	15	10	15	11	14	14	7	9	5	2	6	10	4	4	2	2	9	8	181
Opossums, Virginia	Freed	1						2	1	2	1	1	1		2	5	3	6	4	1	3	33	
Opossums, Virginia	Killed	3	10	12	7	3	5	11	18	12	16	17	14	17	3	11	14	9	7	7	19	18	233
Pigeons, Feral (Rock Dove)	Killed	0	0	98	166	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282
Porcupines	Killed	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	2	0	0	6
Raccoons	Dispersed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	16
Raccoons	Freed	1	1	2	4	1	2	3	1	3	4	0	1	2		2	2	2	4	5	2	5	47
Raccoons	Killed	10	20	30	65	45	50	51	60	73	33	20	14	32	28	51	43	35	41	67	57	43	868
Ravens, Common	Freed	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Ravens, Common	Killed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
Skunks, Spotted	Freed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Skunks, Spotted	Killed	0	0	1	0	0	0	0	1	0	2	1	0	0	1	2	2	4	7	0	0	1	22

(Continued on next page)

**Table 3-7
 Mendocino County Take Records (1997-2017)**

Species	Fate	Year																				Total	
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016		2017
Skunks, Striped	Freed	1	0	0	0	1	1	0	0	0	0	0	0	0	0	2	0	0	0	1	2	1	9
Skunks, Striped	Killed	28	34	88	52	49	70	64	101	85	41	29	86	68	57	67	71	55	45	43	75	79	1,287
Snakes, Non-Venomous (Other)	Killed	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Snakes, Venomous (All)	Killed	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Squirrels, Ground, California	Killed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	20
Squirrels, Ground, Other	Killed	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Squirrels, Western Gray	Killed	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4
Starlings, European	Killed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
Swine, Feral	Freed	1	0	8	0	2	1	1	5	4	0	1	0	0	0	1	1	0	1	1	0	0	27
Swine, Feral	Killed	1	0	3	7	0	1	2	29	2	2	0	26	28	34	87	43	21	41	91	38	36	492
Swine, Feral	Transfer of Custody	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Vultures, Turkey	Freed	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	3
Grand Total		238	232	405	641	431	481	452	555	467	399	393	416	429	350	489	382	338	406	437	431	430	8,802

4.0 INTRODUCTION TO THE ANALYSIS

4.0

INTRODUCTION TO THE ANALYSIS

4.0.1 INTRODUCTION

The technical chapters of the EIR analyze the potential impacts of implementation of the proposed project on a range of environmental issue areas. Chapters 4.1 through 4.5 describe the following: the focus of the analysis; references and other data sources for the analysis; the environmental setting as the setting relates to the specific issue; standards of significance; method of analysis; project-specific impacts and mitigation measures. Additionally, Chapters 4.1 through 4.5 describe the cumulative impacts of the project combined with past, present and reasonably probable future projects for each issue area. The format of each of the technical chapters is described at the end of this chapter. It should be noted that all technical reports are either attached to this EIR or available at the County by request.

4.0.2 DETERMINATION OF SIGNIFICANCE

Under CEQA, a significant effect is defined as a substantial or potentially substantial adverse change in the environment (Public Resources Code § 21068). The Guidelines implementing CEQA direct that this determination be based on scientific and factual data. The specific criteria for determining the significance of a particular impact are identified within the impact discussion in each section and are consistent with significance criteria set forth in the CEQA Guidelines.

4.0.3 ENVIRONMENTAL ISSUES ADDRESSED IN THIS EIR

The EIR provides the analysis necessary to address the technical environmental impacts of the proposed project. The following environmental issues are addressed in this EIR:

- Agriculture and Forest Resources;
- Biological Resources;
- Hazards and Hazardous Materials;
- Noise; and
- Public Services.

4.0.4 TECHNICAL CHAPTER FORMAT

Each technical chapter addressing a specific environmental issue begins with an **introduction** describing the purpose of the section. The introduction is followed by a description of the project's **existing environmental setting** as the setting pertains to that particular issue. The setting description is followed by the **regulatory context** and the **impacts and mitigation measures** discussion, which contains the **standards of significance**, followed by the **method of analysis**. The **impact and mitigation measures** discussion includes impact statements prefaced by a

number in bold-faced type (for both project-level and cumulative analyses). An explanation of each impact and an analysis of the impact's significance follow each impact statement. All mitigation measures pertinent to each individual impact follow directly after the impact statement (see below). The degree of relief provided by identified mitigation measures is also evaluated. An example of the format is shown below:

X-1 Statement of Impact

CEQA Baseline

IWDM Program

Discussion of impact for the IWDM Program under the CEQA Baseline in paragraph format.

Non-Lethal Program Alternative

Discussion of impact for the Non-Lethal Program Alternative under the CEQA Baseline in paragraph format.

Variation to the Non-Lethal Program Alternative

Discussion of impact for the variation to the Non-Lethal Program Alternative under the CEQA Baseline in paragraph format.

No Program Baseline

IWDM Program

Discussion of effects of the IWDM Program under the No Program Baseline in paragraph format.

Non-Lethal Program Alternative

Discussion of effects of the Non-Lethal Program Alternative under the No Program Baseline in paragraph format.

Variation to the Non-Lethal Program Alternative

Discussion of effects of the variation to the Non-Lethal Program Alternative under the No Program Baseline in paragraph format.

Conclusion

CEQA Baseline

Statement of *level of significance* of impact under the CEQA Baseline prior to mitigation is included at the end of each impact discussion. The following levels of significance are used in the EIR: no impact, less than significant, or significant. If an impact is determined to be significant, mitigation will be included in order to reduce the specific impact to the maximum extent feasible.

Mitigation Measure(s)

Statement of *level of significance* after the mitigation is included immediately preceding mitigation measures. If reduction of the specific impact to a less-than-significant level is not feasible, the impact is considered significant and unavoidable.

MM X-1(a) Required mitigation measure(s) presented in italics and numbered in consecutive order.

MM X-1(b) Required additional mitigation measure, if necessary.

No Program Baseline

Statement of *level of significance* of effect under the No Program Baseline prior to implementation of improvement measures is included at the end of each discussion of environmental effects. The following levels of significance are used in the EIR: no effect, less than significant, or significant. If an effect is determined to be significant, improvement measures will be included in order to reduce the specific effect to the maximum extent feasible.

Improvement Measure(s)

Statement of *level of significance* after the measure is included immediately preceding improvement measures. If reduction of the specific impact to a less-than-significant level is not feasible, the effect is considered significant and unavoidable.

X-1(a) Recommended improvement measure(s) presented in italics and numbered in consecutive order.

X-1(b) Recommended additional improvement measure, if necessary.

4.1 AGRICULTURAL AND FOREST RESOURCES

4.1

AGRICULTURAL AND FOREST RESOURCES

4.1.1 INTRODUCTION

The purpose of the Agricultural and Forest Resources chapter of the EIR is to examine the effects of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative on agricultural and forest resources throughout Mendocino County. The chapter identifies existing agricultural lands within the County and provides an analysis of potential indirect impacts to agricultural operations, as well as direct impacts to agricultural and forest lands, that could occur with implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative. In addition, the chapter analyzes potential conflicts with ongoing agricultural and forest management operations on adjacent agricultural/forest lands. Documents referenced to prepare this chapter include the Mendocino County General Plan,¹ the Mendocino County General Plan EIR,² and the annual Mendocino County Department of Agriculture Crop Reports.

4.1.2 EXISTING ENVIRONMENTAL SETTING

The following sections generally describe the existing agricultural and forest resources within Mendocino County.

Existing Agricultural Resources

The following sections summarize current agricultural production trends and inventories of agricultural resources within Mendocino County.

Agricultural Production Trends

Per the Mendocino County *2017 Crop Report*, the total gross agricultural value for all commodities produced in 2017 was \$268,692,700, which represents a 10 percent increase compared to the 2016 value of \$242,533,700.³ The leading agricultural commodity within the County is wine grapes, at a value of \$120,080,200. Agricultural production in 2017, excluding timber, totaled \$166,837,100. The total value of livestock production within the County in 2017 was \$10,414,700. Table 4.1-1 below provides a summary of livestock production within the County for 2015, 2016, and 2017. Approximately 80 percent of the land within the County is in private ownership; about three-fourths of all privately held land is committed to long-term agricultural or timber uses.

¹ Mendocino County. *General Plan*. August 2009.

² Mendocino County. *General Plan Update Draft Environmental Impact Report, SCH: 2008062074*. September 2008.

³ Mendocino County Department of Agriculture. *2016 Crop Report*. July 10, 2018; Mendocino County Department of Agriculture. *2017 Crop Report*. November 30, 2018.

Commodity	Year	# of Head	Total Value
Cattle and Calves	2017	8,300	\$9,113,400
	2016	8,100	\$8,845,200
	2015	8,300	\$10,703,700
Sheep and Lambs	2017	4,350	\$628,500
	2016	4,100	\$528,360
	2015	4,250	\$536,540
Hogs and Pigs	2017	640	\$122,800
	2016	600	\$104,300
	2015	690	\$101,900
Miscellaneous	2017		\$550,000
	2016		\$600,000
	2015		\$650,000
Total	2017		\$10,414,700
	2016		\$10,077,860
	2015		\$11,992,140
Note: Miscellaneous includes goats, pigeons, poultry, rabbits, turkeys, bison, and aquaculture (fish farms).			
Source: Mendocino County Department of Agriculture 2016 and 2017 Crop Reports.			

Overall, approximately 62,738 acres of land within the County are zoned as Agricultural Lands (AG) and approximately 728,376 acres are zoned Rangeland (RL).⁴

Damage to Agricultural Commodities

Cattle and calves are most vulnerable to predation (killing, harassment or injury resulting in monetary losses to the owner) during calving, and less vulnerable at other times of the year. However, sheep and especially lambs can sustain high predation rates throughout the year. Damage inflicted by wildlife upon agricultural operations is not limited to damage to traditional livestock production. The following are examples of other types of damage to agricultural resources: badger and ground squirrel damage to hay fields, crops, and pastures; coyote, raccoon, and ground squirrel damage to vegetable and fruit crops and to irrigation systems; ground squirrel damage to pastures, rangeland, and fruit, nut, and row crops; and fox, coyote, or bobcat predation on small enterprise operations with rabbits, chickens, sheep, goats, or other animals.

As shown in Table 3-4 of this EIR, between 2007 and 2017, wildlife damage to agricultural and livestock commodities within Mendocino County has resulted in costs ranging from \$87,010 to \$654,330, for a total of \$2,058,474.83 over the 10-year period. Table 1 within Appendix D of this EIR presents species-specific attribution of such wildlife damage.

⁴ Russell Ford. Personal Communication [email] with Nick Pappani, Vice President at Raney Planning & Management, Inc. March 18, 2019.

California Department of Conservation Important Farmland Classifications

The Farmland Mapping and Monitoring Program (FMMP), part of the Division of Land Resource Protection, California Department of Conservation (DOC), uses soil agricultural productivity information from the NRCS to create maps illustrating the types of farmland present within any given area.

The FMMP was established in 1982 to continue the Important Farmland mapping efforts begun in 1975 by the USDA. The intent of the USDA was to produce agriculture maps based on soil quality and land use across the nation. As part of the nationwide agricultural land use mapping effort, the USDA developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classified the land's suitability for agricultural production, in which suitability included both the physical and chemical characteristics of soils and the actual land use. Important Farmland maps are derived from the USDA soil survey maps using the LIM criteria.

Since 1980, the State of California has assisted the USDA with completing the mapping in the State. The FMMP was created within the California DOC to carry on the mapping activity on a continuing basis, and with a greater level of detail. The California DOC applied a greater level of detail by modifying the LIM criteria for use in California. The LIM criteria in California utilize the Land Capability Classification and Storie Index Rating systems, but also consider physical conditions such as dependable water supply for agricultural production, soil temperature range, depth of the groundwater table, flooding potential, rock fragment content, and rooting depth.

The California DOC classifies lands into seven agriculture-related categories: Prime Farmland, Farmland of Statewide Importance (Statewide Farmland), Unique Farmland, Farmland of Local Importance (Local Farmland), Grazing Land, Urban and Built-up Land (Urban Land), and Other Land. The first four types listed above are collectively designated by the State as Important Farmlands. Important Farmland maps for California are compiled using the modified LIM criteria and current land use information. The minimum mapping unit is 10 acres unless otherwise specified. Units of land smaller than 10 acres are incorporated into surrounding classifications.

Each of the seven farmland types are summarized below, based on California DOC's *A Guide to the Farmland Mapping and Monitoring Program*.⁵

Prime Farmland

Prime Farmland is land with the best combination of physical and chemical features able to sustain the long-term production of agricultural crops. The land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. The land must have been used for the production of irrigated crops at some time during the two update cycles (a cycle is equivalent to two years) prior to the mapping date.

⁵ California Department of Conservation, Division of Land Resource Protection, FMMP: *A Guide to the Farmland Mapping and Monitoring Program*. Available at: http://www.consrv.ca.gov/DLRP/fmmp/pubs/fmmp_guide_2004.pdf. Accessed January 2019.

Farmland of Statewide Importance

Farmland of Statewide Importance is land similar to Prime Farmland, but with minor shortcomings, such as greater slopes or with less ability to hold and store moisture. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date.

Unique Farmland

Unique Farmland is land of lesser quality soils used for the production of the State's leading agricultural crops. The land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been cultivated at some time during the two update cycles prior to the mapping date.

Farmland of Local Importance

Farmland of Local Importance is land of importance to the local agricultural economy, as determined by each county's Board of Supervisors and a local advisory committee. Within Mendocino County, farmland of local importance includes lands which do not qualify as Prime, Statewide, or Unique designation, but are currently irrigated crops or pasture or non-irrigated crops; lands that would meet the Prime or Statewide designation and have been improved for irrigation, but are now idle; and lands that currently support confined livestock, poultry operations and aquaculture.

Grazing Land

Grazing Land is land on which the existing vegetation, whether grown naturally or through management, is suited to the grazing of livestock.

Urban Land

Urban and Built-up Land is occupied with structures with a building density of at least one unit to one-half acre. Uses may include but are not limited to, residential, industrial, commercial, construction, institutional, public administration purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as part of this unit, if they are part of a surrounding urban area.

Other Land

Other Land is land that is not included in any other mapping categories. The following uses are generally included: rural development, brush timber, government land, strip mines, borrow pits, and a variety of other rural land uses.

Farmland Classifications within Mendocino County

Per the FMMP, Mendocino County primarily consists of land classified as Grazing Land, with localized pockets of Urban and Built-Up Land around community areas. Areas of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are primarily clustered to the north and south of Lake Mendocino within the southeastern portion of the County, near the City of Ukiah.⁶ Additional areas of Prime Farmland and Unique Farmland are located within the Anderson Valley region further to the west. Table 4.1-2 below summarizes the total acreage of agricultural lands within Mendocino County as of 2016, as classified by the FMMP.

Land Use Category	Acreage
Prime Farmland	18,130
Farmland of Statewide Importance	1,289
Unique Farmland	7,625
Farmland of Local Importance	0
Important Farmland Subtotal	27,044
Grazing Land	1,928,004
Agricultural Land Subtotal	1,955,654
Urban and Built-Up Land	19,507
Other Land	67,513
Water Area	2,135

Source: California Department of Conservation, Mendocino County, 2014-2016 Land Use Conversion

The FMMP’s most recent maps of Farmland resources within Mendocino County are included as Figure 4.1-1 and Figure 4.1-2 below.

Williamson Act Contracts

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. As of 2010, the most recent year for which data is available, a total of 486,665 acres of land within Mendocino County were enrolled under a Williamson Act contract.⁷

Forest Resources

Per the Mendocino County *2017 Crop Report*, timber represents the second highest value commodity within the County, with a gross “at mill” value of \$102,000,000. Mendocino County ranked 4th in the state in timber volumes and produced roughly 7.6 percent of the State’s total timber harvest in 2017.

⁶ California Department of Conservation. *2017 Crop Report*. November 30, 2018.

⁷ California Department of Conservation. *The California Land Conservation Act of 1965 2016 Status Report* [Table 3]. December 2016.

Figure 4.1-1
Mendocino County Important Farmland – North

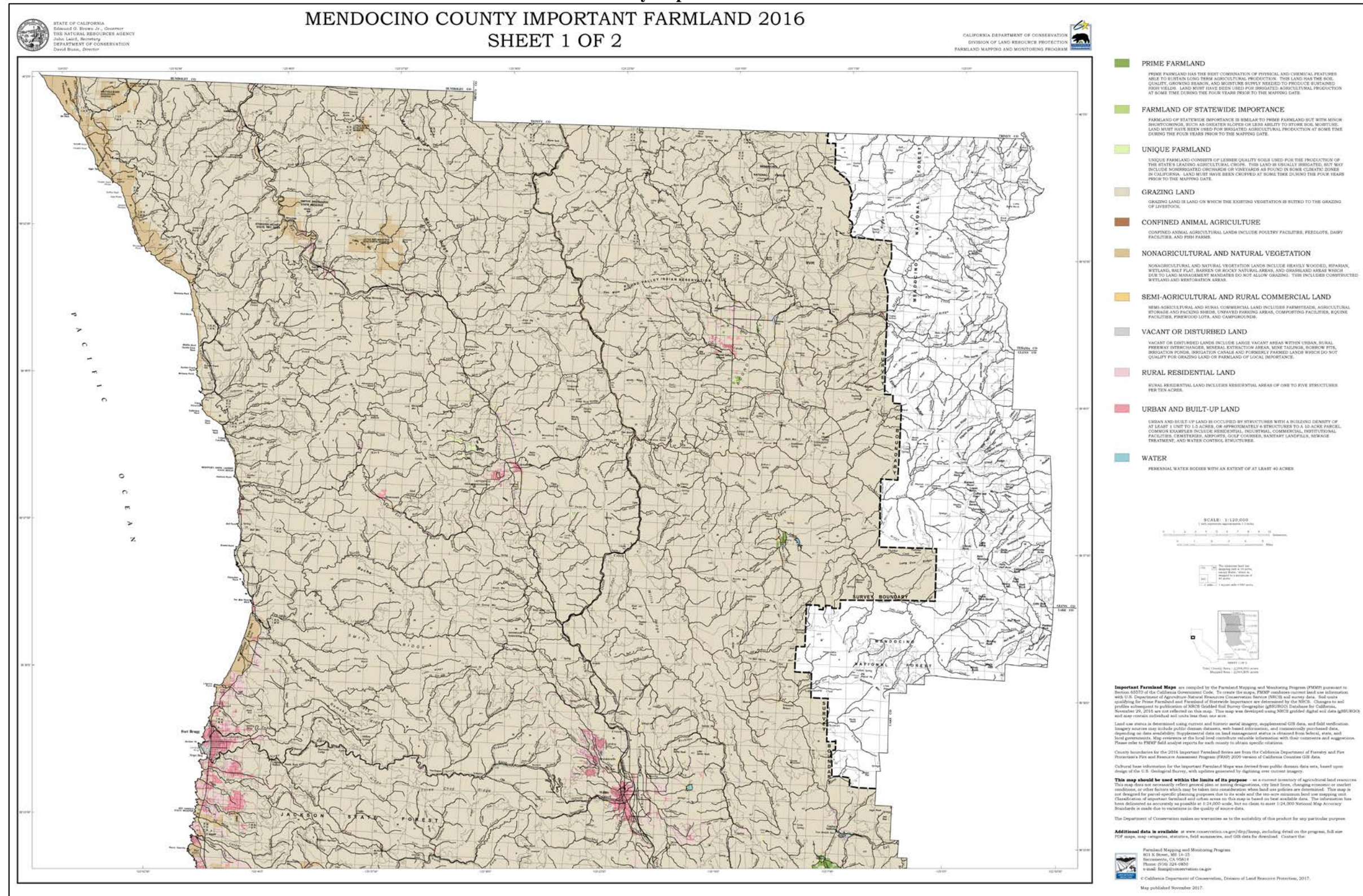
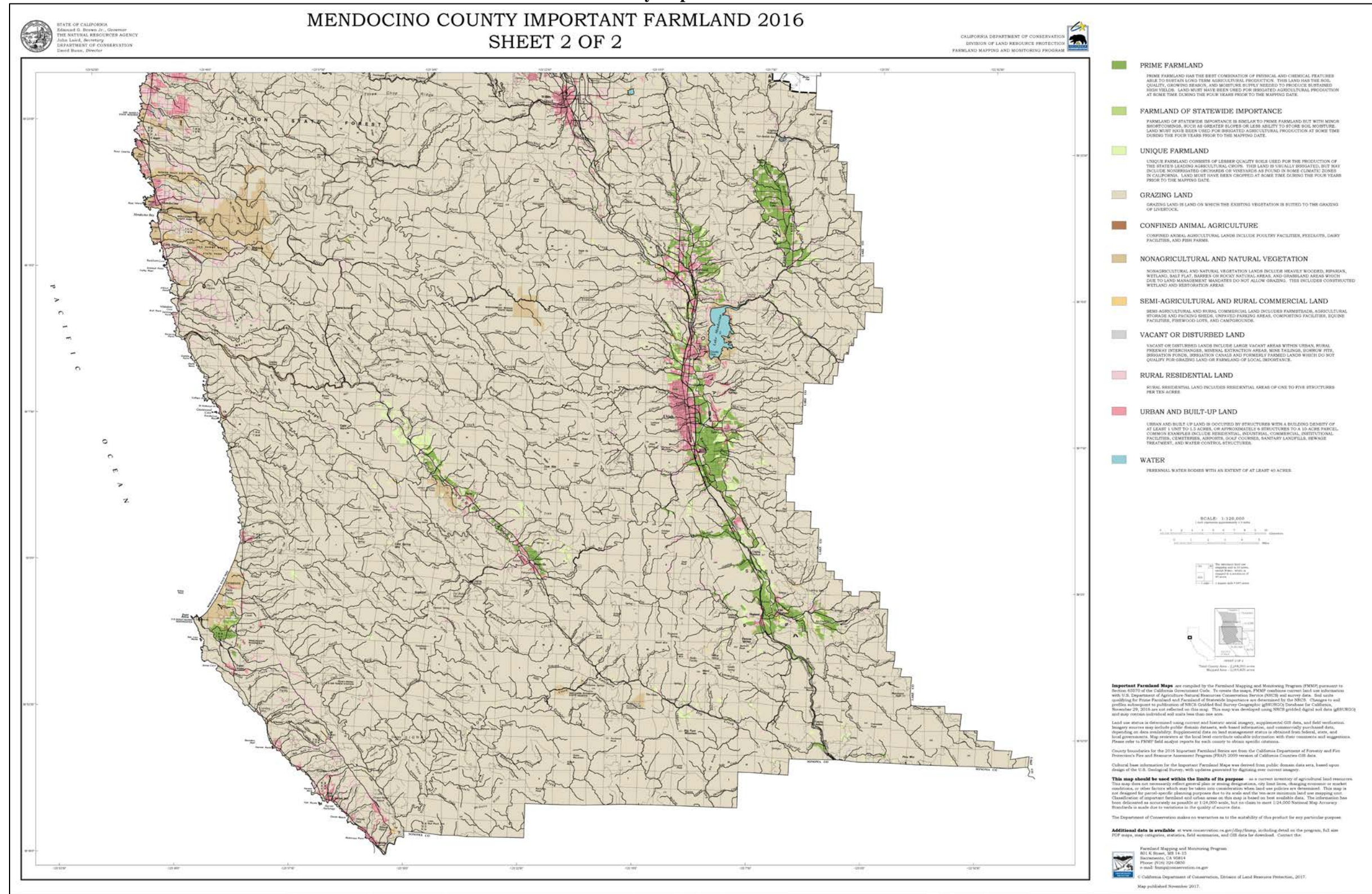


Figure 4.1-2
 Mendocino County Important Farmland – South



Approximately 857,333 acres within the County, or 38 percent, is zoned for timber production uses (TPZ) and meets the definition of timberland provided by Public Resources Code Section 4526.⁸ Approximately 65,482 acres are zoned Forest Land (FL).

4.1.3 REGULATORY CONTEXT

The following is a description of State and local environmental laws and policies that are relevant to the review of agricultural and forest resources under CEQA.

State Regulations

The California Land Conservation Act, better known as the Williamson Act, has been the State's premier agricultural land protection program since the act's enactment in 1965. The California legislature passed the Williamson Act in 1965 to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The Williamson Act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict land to agricultural and open space uses. The vehicle for these agreements is a rolling term 10-year contract (i.e., unless either party files a "notice of non-renewal," the contract is automatically renewed annually for an additional year). In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value.

In addition, the State provides definitions related to forestland and timber resources that would be applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative. The applicable sections of the Public Resources Code related to forest resources are reproduced herein as follows:

PRC Section 12220(g)

(g) "Forest land" is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

PRC Section 4526

"Timberland" means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis.

⁸ Russell Ford. Personal Communication [email] with Nick Pappani, Vice President at Raney Planning & Management, Inc. March 18, 2019.

PRC Section 51104

(g) “Timberland production zone” or “TPZ” means an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h).

Local Regulations

The following are the local government environmental goals and policies relevant to the CEQA review process with respect to agricultural and forest resources.

Mendocino County General Plan

The following goals and policies from the Mendocino County General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

- Goal RM-10 Protection of agriculture as a basic industry important to the economy and quality of life and food security of the county by maintaining extensive agricultural land areas and limiting incompatible uses.
- Policy RM-100: Maintain extensive agricultural land areas and limit incompatible uses.
- Policy RM-101: The County supports policies and programs to maintain and enhance the viability of agricultural operations and retention of agricultural land.
- Action Item RM-101.1: Develop vertical integration opportunities for adding value to natural resources, including local agricultural and timber processing facilities.
- Policy RM-102: The County will work to protect important farmlands under the State Farmland Mapping and Monitoring Program.
- Policy RM-103: The County shall give priority to the protection of lands designated as “Type I Contracts” under the Williamson Act over the protection of lands designated as “Type II Contracts.”
- Policy RM-104: Support the diversification and expansion of the agricultural economic base.
- Policy RM-105: Support sustainable agricultural operations through research, vegetation management programs, best

management practices, and technical assistance for agricultural operators.

Policy RM-106: Land shall not be converted from the Agricultural Lands or Range Lands classifications to non-agricultural classifications unless all of the following criteria are substantiated:

- The project will not result in a need for unintended expansion of infrastructure in conflict with other policies.
- The project will not adversely affect the long-term integrity of the agricultural areas or agricultural uses in the area.
- The proposed use in the subject location will achieve the long-range objectives of the General Plan.

Action Item RM-106.1: Enforce County ordinances that protect agricultural lands and operations from nuisances, trespass, vandalism or theft, livestock predation, and contamination from abandoned or uncared for orchards.

Policy RM-108: Discretionary projects shall not undermine the integrity and economic viability of agricultural operations by causing or contributing to piecemeal land use conversion, land fragmentation, urban encroachment, the introduction or concentration of incompatible uses on lands adjoining or within agricultural areas, or the extension of growth-inducing urban services such as public water or sewers.

Goal RM-11 To protect and enhance the county’s diverse forest resources for all uses including timber harvest.

Policy RM-113: Protect the county’s timber resources by discouraging the conversion or fragmentation of lands zoned “TPZ” to housing or some other use that permanently precludes its use for timber production, or timber growing.

Policy RM-121: Protect forest conservation and timber harvesting operations by minimizing conflicts posed by non-resource uses.

Policy RM-125: The following guidelines shall apply to all projects (including land divisions) contiguous to lands designated as Forest Lands on the Land Use Map of this General Plan:

- The number of ownerships and land use intensities on adjacent parcels shall be minimized.
- Building envelopes, clustered development, and commercial, industrial, civic, and sensitive uses on non-resource lands shall be designed with buffers or setbacks. Buffers shall generally be defined as a physical separation of 200 feet with the potential for a reduced separation when a topographic feature, substantial tree-stand, landscaped berm, watercourse or similar existing or constructed feature is provided and maintained.
- Projects shall be designed to reduce growth-inducing impacts and maintain a stable limit to urban development.
- Potential conflicts related to noise, dust, chemicals, spraying, burning, vandalism and trespass, and other issues associated with forest management or timber operations shall be mitigated by the new discretionary project.
- Residential uses and subdivisions shall have a ten (10) acre minimum. Parcels classified with a smaller minimum parcel size, or zoned Planned Development or Clustering, may exceed these densities, provided that the criteria above are employed to reduce impacts.

Mendocino County Coastal Element

The Mendocino County Coastal Element is a component of the Mendocino County General Plan that was prepared pursuant to the California Coastal Act of 1976. The Coastal Element includes the Mendocino Town Plan, which provides specific policies for new and existing development within the Town of Mendocino. The following policies related to agricultural resources from the Mendocino County Coastal Element are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

- | | |
|---------------|--|
| Policy 3.2-5 | All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (1) continued or renewed agricultural use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continued agricultural use on surrounding lands. |
| Policy 3.2-10 | The County should actively seek technical and marketing assistance to aid agricultural landowners wishing to intensify |

production, including livestock forage, truck crops formerly produced in the area, and potential new crops such as bulbs and agricultural products from small farms used intensively.

Ukiah Valley Area Plan

The Ukiah Valley Area Plan is a component of the Mendocino County General Plan that governs land use and development within unincorporated areas in the Ukiah Valley. All elements in the Mendocino County General Plan and Ukiah Valley Area Plan generally rank in equal importance; however, if a policy or implementing action is in conflict with the adopted General Plan, the policy or implementing action from the Ukiah Valley Area Plan takes precedence over the General Plan.

Goal OC3 Preserve and enhance agricultural areas to protect the economic vitality and rural identity of the Ukiah Valley.

Policy OC3.1 Maintain viable Agricultural Land classifications.

Policy OC3.3 Conserve agricultural lands and reduce development pressure.

Policy OC3.4: Regulate land use to maintain compatibility with existing agricultural uses.

City of Ukiah General Plan

The following goal and policy related to agricultural resources from the City of Ukiah General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal GP-30 Protect existing agriculturally zoned lands in the City's Planning Area.

Policy GP-30.1 Recognizing the irreversibility of conversion from agricultural to other uses, require within city limits and urge within the Planning Area that all such conversions be subject to a citizen review process.

City of Point Arena General Plan/Local Coastal Plan

The following goal and policies related to agricultural resources from the City of Point Arena General Plan/Local Coastal Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal #4 Preserve Open Spaces, Natural Resources, Coastal Assets and Environmental Quality.

Policy 7.11 Continuing agricultural uses of lands which have the soils, acreage and water capability to sustain such operations are encouraged but not required. The maximum amount of prime agricultural land (see glossary for definition) shall be maintained in agricultural production; conflicts shall be minimized between agricultural and urban uses; and lands suitable for agricultural use shall not be converted to non-agricultural uses unless continued or renewed agricultural use is not feasible. All actions undertaken by the City governing use and conversion of agricultural lands shall be governed by Sections 30241, 30241.5, 30242, and 30243 of the California Coastal Act.

Policy 7.13 New physical development shall be contained within the boundaries of the City limits of Point Arena. The city shall work with the County of Mendocino to promote continuing agricultural uses in county territory, and to prevent the intrusion of urban uses and rural residential developments into surrounding agricultural lands, except in accordance with presently-allowable policies in the County General Plan and Zoning Code.

City of Fort Bragg Coastal General Plan

The following goal and policies related to agricultural and forest resources from the City of Fort Bragg Coastal General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal LU-5 Maximize public recreational opportunities in the Coastal Zone consistent with sound resource conservation principles and the constitutionally protected rights of property owners.

Policy LU-5.6: The use of private lands suitable for visitor-serving and commercial recreational facilities designed to enhance public opportunities for coastal recreation shall have priority over private residential, general industrial, or general commercial development, but not over agriculture or coastal-dependent industry.

City of Willits General Plan

The following goal and policies related to agricultural and forest resources from the City of Willits General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal 1.100 To achieve an optimal balance of residential, commercial, industrial and open space land uses.

Policy 1.290 Encourage agricultural activities on lands designated for industrial use until such time as the lands are utilized for industrial purposes.

Agricultural Nuisances and Consumer Disclosures Ordinance

Chapter 10A.13, Agricultural Nuisances and Consumer Disclosures, of the Mendocino County Code of Ordinances has been adopted to minimize loss of the County's commercial agricultural resources by limiting the circumstances under which agricultural operations may be deemed to constitute a nuisance. Section 10A.13.020 of the Code states the following:

It is the declared policy of this County to conserve, protect and encourage intensive agricultural production. Where nonagricultural land uses extend into agricultural areas or exist side by side, agricultural operations have often become the subject of nuisance complaints. As a result, agricultural operations are sometimes forced to cease or curtail operation, and many others are discouraged from making investments in farm improvements. It is the purpose and intent of this section to reduce the loss to the County of its agricultural resources by limiting the circumstances under which agricultural operations may be considered a nuisance. This section is not to be construed as in any way modifying or abridging State law as set out in the California Civil Code, Health and Safety Code, Fish and Game Code, Food and Agricultural Code, or Division 7 of the Water Code, relative to nuisances, but rather is only to be utilized in the interpretation and enforcement of the provisions of this code and County regulations.

No existing or future agricultural operation or any of its appurtenances, conducted or maintained for commercial purposes, and in a manner consistent with proper and accepted customs and standards, shall become or be a nuisance, private or public, for adjacent land uses in or about the locality thereof after the same has been in operation for more than three (3) years, when such action was not a nuisance at the time it began; provided that the provisions of this subsection shall not apply whenever a nuisance results from the negligent or improper operation of any such agricultural operation or its appurtenances.

Section 10A.13.010 of the County Code of Ordinances contains the following definitions for Agricultural Land, Agricultural Operation, and Farm Operation:

AGRICULTURAL LAND. Shall mean those land areas of the County specifically classified and zoned as Agricultural, Rangeland, Forestland, or Timberland Preserve within which agricultural, timber growing and related activities are to be encouraged and protected.

AGRICULTURAL OPERATION. Shall mean and include, but not be limited to, the cultivation and tillage of the soil, animal husbandry, the production, cultivation, growing, harvesting and processing of any agricultural commodity including horticulture, timber or apiculture, the raising of livestock, fish or poultry, and any acceptable cultural practices performed as incident to, or in conjunction with, such farming operations,

including preparation for market, delivery to storage or market, or to carriers for transportation to market.

FARM OPERATION. Shall mean those activities normally conducted in the pursuit of agricultural operations which includes the farming of trees for commercial purposes.

4.1.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology utilized to analyze and determine the potential impacts related to agricultural and forest resources associated with implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative. In addition, a discussion of the project's impacts, as well as impacts associated with the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. For the purposes of this EIR, an impact is considered significant if the proposed project, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use; or
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

Issues Not Discussed Further

Neither the IWDM Program, the Non-Lethal Program Alternative, nor the variation to the Non-Lethal Program Alternative would include any changes to existing zoning designations within the County. In addition, while components of the program could be implemented on properties that are currently under Williamson Act Contracts, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would be supportive of ongoing commercial agricultural uses. Thus, no impact would occur related to the following:

- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));

Accordingly, impacts related to the above are not further analyzed or discussed in this EIR.

Method of Analysis

Evaluation of potential impacts of the proposed project, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative on agricultural and forest resources is based on the following: The Mendocino County General Plan, the associated EIR, the Mendocino County Code of Ordinances, the Department of Conservation’s California Important Farmland Finder, the City of Ukiah General Plan, the City of Point Arena General Plan/Local Coastal Plan, the City of Fort Bragg Coastal Plan, and the City of Willits General Plan. The standards of significance listed above are used to delineate the significance of any potential impacts.

Project-Specific Impacts and Mitigation Measures

The proposed project would include implementation of a variety of wildlife control methods by WS-CA staff, some of which could result in impacts related to agricultural and forest resources. The Non-Lethal Program Alternative would involve the use of wildlife control methods that would be implemented under the proposed project, with the exception of the lethal control and live capture methods as their outcome typically results in euthanizing the animal. In addition, this analysis includes consideration of a variation to the Non-Lethal Program Alternative, which would include the limited use of lethal gunshot only in instances where wildlife poses a threat to public health or safety.

Impacts to agricultural and forest resources due to the implementation of wildlife control methods of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative are assessed relative to the applicable local, State, federal, and CEQA Appendix G checklist criteria. For each impact statement, two baseline scenarios are evaluated: a “CEQA Baseline” and a “No Program Baseline”. Additional information related to the baseline scenarios is included in Chapter 1, Introduction, of this EIR. The impact statements presented below are organized as follows:

CEQA Baseline

This baseline scenario recognizes the fact that the County has had a wildlife damage management program since 1989, and as such, it is part of the environmental baseline pursuant to CEQA Guidelines Section 15125. While the County’s most recent Work Plan with WS-CA expired in June of 2015, WS-CA has continued to implement the IWDM Program in Mendocino County without funding from the County.

No Program Baseline

The No Program Baseline treats the IWDM Program as a new program and, thus, does not account for the fact that such a program is currently occurring. This approach enables the County to provide an informational analysis as to the potential environmental effects of the IWDM Program.

4.1-1 Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. *No impact would occur under the IWDM Program. The impact is less than significant for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative.***
- **No Program Baseline. *The effect is less than significant for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.***

CEQA Baseline

IWDM Program

Wildlife damage management operations to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods have been historically carried out by WS-CA in Mendocino County since 1989. Given that the IWDM Program would represent a continuation of existing conditions, no impact would occur related to conversion of Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to property owners reporting wildlife damage. For example, with respect to deterrent methods, field technicians would instruct property owners or managers how to use deterrent tools in ways that maximize their effectiveness while minimizing the potential for wildlife to habituate to the deterrents.

Similar to the IWDM Program, the Non-Lethal Program Alternative would involve implementation of wildlife control methods similar to methods that have been historically carried out by WS-CA in Mendocino County since 1989. Unlike the IWDM Program, the Non-Lethal Program Alternative is anticipated to include a cost-share/reimbursement mechanism for the use of certain non-lethal methods, thus, requiring their analysis within this EIR. However, these methods (fencing, fladry, livestock protection dogs, Foxlights) would not result in the permanent conversion of Farmland. Thus, the Non-Lethal Program

Alternative would have a less-than-significant impact regarding the direct conversion of Farmland to non-agricultural use.

Variation to the Non-Lethal Program Alternative

The use of firearms under the variation to the Non-Lethal Program Alternative would not result in any new significant impacts to Farmland compared to the Non-Lethal Program Alternative, as use of firearms is part of the baseline, and would not result in conversion of Farmland. Other control methods for which the variation would include a cost-share/reimbursement mechanism would be identical to the Non-Lethal Program Alternative discussed above. Therefore, the analysis and conclusions presented above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

Approval of the IWDM Program would enable WS-CA to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by WS-CA in Mendocino County since 1989. As noted previously, the No Program Baseline sections treat the IWDM Program as a new program and, thus, does not account for the fact that such a program is part of the baseline.

Due to the programmatic nature of the IWDM Program, the proposed project would not result in the direct conversion of Farmland to non-agricultural use. While the IWDM Program would involve limited ground disturbance associated with the installation of corral or cage style traps to capture animals on agricultural land, such ground disturbance would be relatively modest and would not preclude future use of the disturbed areas for agricultural activities. As such, the IWDM Program would not directly convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance and a less-than-significant effect would occur.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel, who would give technical information and operational assistance, if needed, on non-lethal management methods to property owners reporting wildlife damage. For example, with respect to deterrent methods, field technicians would instruct property owners or managers how to use deterrent tools in ways that maximize their effectiveness while minimizing the potential for wildlife to habituate to the deterrents. The minor disturbances that would occur under the Non-Lethal Program Alternative, such as installation of fencing, would not permanently convert agricultural lands. Thus, similar to the proposed project, the Non-

Lethal Program Alternative would not result in direct conversion of Farmland to non-agricultural use and a less-than-significant effect would occur.

Variation to the Non-Lethal Program Alternative

The use of firearms under the variation to the Non-Lethal Program Alternative would not result in conversion of Farmland. In addition, similar to the Non-Lethal Program Alternative, proposed non-lethal methods would, at most, result in minor, temporary disturbance to agricultural lands, and would not result in permanent conversion. Thus, effects related to conversion of Farmland would be less than significant.

Conclusion

CEQA Baseline

Based on the above, neither the IWDM Program, the Non-Lethal Program Alternative, nor the variation to the Non-Lethal Program Alternative would convert Farmland, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use. Under the IWDM Program, ***no impact*** would occur. Under the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, neither the IWDM Program, the Non-Lethal Program Alternative, nor the variation to the Non-Lethal Program Alternative would convert Farmland, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use. Therefore, a ***less-than-significant*** effect would occur.

Improvement Measure(s)

None recommended.

4.1-2 Involve changes in the existing environment which, due to their location or nature, could result in conversion of Farmland or forest land to non-agricultural or non-forest use. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. *No impact* would occur under the IWDM Program. The impact is *less than significant* for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

As noted previously, the control methods associated with the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would be implemented primarily on agricultural lands within the County. However, currently, within Mendocino County, certain commercial timber species are subject to damage from wildlife such as bears. Bear damage typically involves the removal of bark and damage to the cambial layer of trees. As such, in addition to control methods associated with reduction of livestock mortality and crop damage, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative could involve implementation of control methods on forest land within the County to protect timber resources.

The following sections provide a discussion of potential impacts related to changes in the existing environment that could result in the conversion of agricultural or forest resources associated with implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative compared to the CEQA Baseline and No Program Baseline.

CEQA Baseline

IWDM Program

Wildlife damage management operations that provide assistance to landowners for protection of livestock, crops, human health and safety and property from wildlife damage using a variety of methods have been historically carried out by WS-CA in Mendocino County since 1989. As such, these operations are part of the environmental baseline and would not represent net new changes. Given that the IWDM Program would represent a continuation of existing conditions, no impact would occur related to changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland.

Non-Lethal Program Alternative

Similar to the IWDM Program, the Non-Lethal Program Alternative would involve implementation of wildlife control methods similar to methods that have been historically carried out by WS-CA in Mendocino County since 1989. Unlike the IWDM Program, the Non-Lethal Program Alternative is anticipated to include a cost-share/reimbursement mechanism for the use of certain non-lethal methods, one of which – livestock protection dogs – could cause a nuisance to adjacent sensitive properties. As a result, compared to the IWDM Program, provision of funding for use of livestock protection dogs under the Non-Lethal Program Alternative is considered a new control method, requiring evaluation.

The threshold that is the subject of this discussion is whether the proposed Non-Lethal Program Alternative involves changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland or forest land to non-agricultural or non-forest use. In this context, the threshold could be understood to indicate whether changes in wildlife damage management methods could result in induced

conversion of Farmland or forest land. In other words, could the performance of wildlife damage management operations on agricultural properties or forest properties create sufficient nuisances to nearby residential receptors, such that continued agricultural or forest-related operations could be rendered infeasible due to ongoing conflicts/incompatibilities?

Livestock protection dogs would generate noise when barking, and depending upon the duration, could be considered a nuisance by nearby residential receptors. However, dog bark noise associated with use of livestock protection dogs is characterized by a relatively brief exposure period (L_{25}) that would have a relatively insignificant effect on a 24-hour averaged CNEL/Ldn value (see the Noise Chapter of this EIR for further discussion). In addition, as discussed in Chapter 4.4, Noise, of this EIR, Mitigation Measure 4.4-5 would help to reduce such noise exposure to the extent feasible. It is also reasonable to assume that dog bark noise is already a component of the background noise experienced in any residential areas near to those agricultural or forest lands where livestock protection dogs may be used. This would then make it more difficult to distinguish livestock protection dog barks from other dog barks.

Based on the above, the Non-Lethal Program Alternative would result in a less-than-significant impact related to indirect conversion of Farmland or forest land to non-agricultural or non-forest use.

Variation to the Non-Lethal Program Alternative

The use of firearms under the variation to the Non-Lethal Program Alternative would not result in any new significant impacts to Farmland compared to the Non-Lethal Program Alternative, as firearms use is part of the baseline. Other control methods for which the variation would include a cost-share/reimbursement mechanism would be identical to the Non-Lethal Program Alternative discussed above. Therefore, the analysis and conclusions presented above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

As previously discussed, the threshold that is the subject of this discussion is whether the IWDM Program involves changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland or forest land to non-agricultural or non-forest use. In this context, the threshold could be understood to indicate whether changes in wildlife damage management methods could result in induced conversion of Farmland or forest land. In other words, could the performance of wildlife damage management operations on agricultural properties or forest properties create sufficient nuisances to nearby residential receptors, such that continued agricultural or forest-related operations could be rendered infeasible due to ongoing conflicts/incompatibilities?

Some of the proposed wildlife damage management methods could be considered a nuisance if they are conducted on agricultural or forest properties in close proximity to sensitive residential receptors. These methods could include use of noise-generating methods such as gunshot, electronic distress devices, and frightening devices, as discussed in the Project Description of this EIR. However, the need for wildlife damage management operations is infrequent, being specifically tied to landowner requests for service in the event of depredation, public safety, or property damage. Such infrequent program operations, and potential nuisance-related complaints, would not be sufficient so as to render the agricultural or forest lands, on which the program operations are carried out, from being unusable due to sustained conflicts/incompatibilities. In addition, as discussed in Chapter 4.4, Noise, of this EIR, IWDM Program noise-generating methods, including gunshot, tracking dogs, electronic distress devices, and frightening devices are characterized by impulsive noise, and are of short duration, such that noise levels associated with program wildlife control methods would have a relatively insignificant effect on a 24-hour averaged CNEL/Ldn value. Improvement Measures 4.4-1 through 4.4-4 of the Noise Chapter would also help to reduce such noise exposure to the extent feasible.

Furthermore, the County's Agricultural Nuisances and Consumer Disclosures Ordinance places limits on the circumstances under which agricultural operations and associated appurtenances, conducted or maintained for commercial purposes, may be considered a nuisance for adjacent lands. Section 10A.13.040 of the County Code of Ordinances includes protections related to "[...] inconvenience or discomfort arising from use of agricultural chemicals, and from the pursuit of agricultural operations including, but not limited to, cultivation, plowing, spraying, pruning, harvesting, crop protection, which occasionally generate dust, smoke, noise and odor, and protecting animal husbandry from depredation." The direct control methods implemented on agricultural lands as part of the IWDM Program would be considered a component of agricultural operations within the County and, thus, would be covered by the provisions of the Ordinance. For instance, the direct control methods would reduce predation of livestock, thereby improving the viability of livestock management operations.

The County General Plan includes goals and policies related to protection of agricultural resources within the County, including policies RM-101 and RM-105. Policy RM-101 notes that the County supports policies and programs to maintain and enhance the viability of agricultural operations and retention of agricultural land. Policy RM-105 supports sustainable agricultural operations through research, vegetation management programs, best management practices, and technical assistance for agricultural operators. The IWDM Program would be supportive of such policies.

It should be noted that research into the efficacy of lethal control methods has provided evidence that in some cases, lethal intervention to control predators on one property can result in increased predation of livestock on nearby farms.⁹ However, limited data is available to support such a conclusion, and a scientific consensus has not been reached on

⁹ Francisco J. Santiago-Avila, Ari M. Cornman, Adrian Treves. *Killing wolves to prevent predation on livestock may protect one farm but harm neighbors*. January 10, 2018.

the subject. In addition, evaluation of the efficacy of the direct control methods included in the IWDM Program is beyond the scope of this EIR. Per CEQA Guidelines Section 15064(d)(3), “An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project. A change which is speculative or unlikely to occur is not reasonably foreseeable.”

Based on the above, the IWDM Program would not lead to sustained nuisance that could render agricultural or forest lands non-viable. Thus, the IWDM Program would result in a less-than-significant effect related to conversion of Farmland to non-agricultural use.

Non-Lethal Program Alternative

Similar to the IWDM Program, the Non-Lethal Program Alternative would be implemented primarily on existing agricultural and, to a lesser extent, forest lands within the County. However, the Alternative is not anticipated to result in conflicts with existing uses. The types of methods that field technicians would recommend to those requesting assistance under the Non-Lethal Program Alternative could include, but would not be limited to, animal frightening devices, livestock guardian animals, fencing, and habitat management. As discussed in Chapter 4.4, Noise, of this EIR, while electronic distress devices, frightening devices, and livestock guardian animals used under the Non-Lethal Program Alternative, would generate noise, it would be impulsive, having a relatively insignificant effect on a 24-hour averaged CNEL/Ldn value. In addition, Improvement Measures 4.4-2, 4.4-4, and 4.4-5 would help to reduce such noise exposure to the extent feasible.

Furthermore, the non-lethal damage management methods included in the Non-Lethal Program Alternative would be considered a component of agricultural operations within the County and, thus, would be covered by the provisions of the Agricultural Nuisances and Consumer Disclosures Ordinance. Specifically, the methods would reduce predation of livestock, thereby improving the viability of livestock management operations. Thus, similar to the IWDM Program, the non-lethal damage management methods would be covered by the provisions of the County’s Agricultural Nuisances and Consumer Disclosures Ordinance and would be supportive of County goals and policies related to agricultural and forest resources, including policies RM-101 and RM-105. Based on the above, the Non-Lethal Program Alternative would result in a less-than-significant effect related to induced conversion of Farmland to non-agricultural use.

Variation to the Non-Lethal Program Alternative

The infrequent use of firearms under the variation to the Non-Lethal Program Alternative would not result in any significant impacts related to induced Farmland conversion. Other control methods for which the variation would include a cost-share/reimbursement mechanism would be identical to the Non-Lethal Program Alternative discussed above. Therefore, the analysis and conclusions presented above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, neither the IWDM Program, the Non-Lethal Program Alternative, nor the variation to the Non-Lethal Program Alternative would involve other changes in the existing environment which, due to their location or nature, could result in the loss or conversion of Farmland or forest land to non-agricultural or non-forest use. Under the IWDM Program, ***no impact*** would occur. Under the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative, a ***less-than-significant*** impact would occur.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, neither the IWDM Program, the Non-Lethal Program Alternative, nor the variation to the Non-Lethal Program Alternative would involve other changes in the existing environment which, due to their location or nature, could result in the loss or conversion of Farmland or forest land to non-agricultural or non-forest use. Therefore, a ***less-than-significant*** effect would occur.

Improvement Measure(s)

None recommended.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

The following discussion of impacts is based on the implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative in combination with other proposed and pending projects in the region. Other proposed and pending projects in the region under the cumulative context would include buildout of the Mendocino County General Plan.

4.1-3 Cumulatively convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use, or involve other changes in the existing environment which, due to their location or nature, could result in cumulative conversion of Farmland or forest land to non-agricultural or non-forest use. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The cumulative impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The cumulative effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

Cumulative development occurring under buildout of the County General Plan could result in the placement of new sensitive receptors within the vicinity of existing agricultural uses. In addition, cumulative development would result in the direct conversion of Farmland and forest land to non-agricultural and non-forest uses. However, the General Plan EIR concluded that with implementation of applicable General Plan policies, as well as rules and regulations within the County Code of Ordinances, impacts related to loss of agricultural lands would be less than significant. Applicable policies and regulations include, but are not limited to, the following: the County's Right to Farm Ordinance; General Plan Policy RM-93 related to supporting programs that maintain and enhance the viability of agricultural operations and retention of agricultural land; and General Plan Policy RM-97, which sets criteria for protection of agricultural and range lands from conversion. Policy RM-97 is implemented by Action Item RM-97.1, which provides for a County ordinance that would protect agricultural lands from nuisances, trespass, vandalism or theft, livestock predation, and contamination from abandoned or uncared for orchards. Action Item RM-97.1 has been achieved through Chapter 10A.13 of the County Code of Ordinances (Agricultural Nuisances and Consumer Disclosures Ordinance).

CEQA Baseline

IWDM Program

The proposed continuation of the IWDM Program would not involve any changes to the methods that are already considered part of the baseline conditions and, thus, would not involve changes in the existing environment that could result in the conversion of Farmland or forest land to non-agricultural or non-forest use. Thus, the IWDM Program, combined with buildout of the General Plan, would result in a less-than-significant cumulative impact related to conversion of agricultural lands or forest lands to non-agricultural or non-forest uses.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would involve reimbursement/cost-share for specific non-lethal control methods, such as installation of fencing and use of livestock protection dogs, that were not previously funded by WS-CA within the County. However, as noted above, such control methods are not anticipated to result in direct, permanent conversion of Farmland or sustained conflicts with existing uses that could lead to induced conversion of Farmland or forest land. Furthermore, the non-lethal damage management methods included in the Non-Lethal Program Alternative would be considered a component of agricultural operations within the County and, thus, would be covered by the provisions of the County's Agricultural Nuisances and Consumer Disclosures Ordinance. Specifically, the methods would reduce predation of livestock, thereby improving the viability of livestock management operations. In addition, as discussed in Chapter 4.4, Noise, of this EIR, Mitigation Measure 4.4-5 would ensure that the project would help to reduce the exposure of sensitive receptors to excess noise related to livestock protection dogs to the extent feasible. Consequently, the Non-Lethal Program Alternative, combined with buildout of the General Plan, would result in a less-than-significant cumulative impact related to conversion of Farmland to non-agricultural use.

Variation to the Non-Lethal Program Alternative

The use of firearms under the variation to the Non-Lethal Program Alternative is not a net new change, as firearms have historically been used within the County as part of the IWDM Program. Other control methods for which the variation would include a cost-share/reimbursement mechanism would be identical to the Non-Lethal Program Alternative discussed above. Therefore, the analysis and conclusions presented above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

As discussed under Impact 4.1-1 above, the IWDM Program would not result in the direct conversion of Farmland, as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural uses. Thus, the project would not directly contribute to the cumulative conversion of agricultural resources associated with buildout of the County's General Plan. As noted previously, some of the wildlife damage management methods implemented under the IWDM Program could create nuisances, depending on the method employed and the location where the method is implemented, thereby resulting in the potential for induced conversion of agricultural and forest resources. However, the direct control methods implemented under the IWDM Program would be infrequent and considered a component of agricultural operations within the County and, thus, would be covered by the provisions of the County's Agricultural Nuisances and Consumer Disclosures Ordinance. As such, the IWDM Program would not result in conflicts between existing agricultural uses and existing and future residential

development occurring in proximity to such uses. Furthermore, Improvement Measures 4.4-1 through 4.4-4 discussed in Chapter 4.4, Noise, of this EIR would ensure that the project would not result in exposure of sensitive receptors to excess noise related to firearms, electronic distress devices, tracking dogs, and frightening devices to the maximum extent feasible.

Based on the above, the IWDM Program, combined with buildout of the General Plan, would result in a less-than-significant cumulative effect related to conversion of agricultural lands or forest lands to non-agricultural or non-forest uses.

Non-Lethal Program Alternative

Similar to the IWDM Program, the non-lethal damage management methods included in the Non-Lethal Program Alternative would be considered a component of agricultural operations within the County. Specifically, the methods would reduce predation of livestock, thereby improving the viability of livestock management operations. Thus, the non-lethal damage management methods would be covered by the provisions of the County's Agricultural Nuisances and Consumer Disclosures Ordinance. In addition, as discussed in Chapter 4.4, Noise, of this EIR, Improvement Measures 4.4-2, 4.4-4, and 4.4-5 would ensure that the project would help to reduce the exposure of sensitive receptors to excess noise related to electronic distress devices, frightening devices, and livestock guardian animals to the extent feasible. Consequently, the Non-Lethal Program Alternative, combined with buildout of the General Plan, would result in a less-than-significant cumulative effect related to conversion of Farmland to non-agricultural use.

Variation to the Non-Lethal Program Alternative

The use of firearms under the variation to the Non-Lethal Program Alternative, combined with buildout of the County General Plan, would not result in any new significant cumulative direct or indirect effects to Farmland or forest land compared to the Non-Lethal Program Alternative, as use of firearms for wildlife damage management operations is already part of the baseline setting. Other control methods for which the variation would include a cost-share/reimbursement mechanism would be identical to the Non-Lethal Program Alternative discussed above. Therefore, the analysis and conclusions presented above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not result in any project-level impacts related to Farmland conversion that could combine with effects associated with buildout of the County General Plan. Thus, a *less-than-significant* cumulative impact would occur related to converting Prime Farmland, Unique Farmland, or Farmland of

Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use, or involving other changes in the existing environment which, due to their location or nature, could result in cumulative conversion of Farmland or forest land to non-agricultural or non-forest use.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not result in any project-level effects related to Farmland conversion that could combine with effects associated with buildout of the County General Plan. Thus, a *less-than-significant* cumulative effect would occur related to converting Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to non-agricultural use, or involving other changes in the existing environment which, due to their location or nature, could result in cumulative conversion of Farmland or forest land to non-agricultural or non-forest use.

Improvement Measure(s)

None recommended.

4.2 BIOLOGICAL RESOURCES

4.2

BIOLOGICAL RESOURCES

4.2.1 INTRODUCTION

The purpose of the Biological Resources Chapter of the EIR is to examine the potential impacts of the IWDM Program, the Non-Lethal Program Alternative, and the proposed variation to the Non-Lethal Program Alternative on biological resources within Mendocino County. Information included in this chapter is drawn primarily from the Biological Evaluation prepared for the IWDM Program by Live Oak Associates, Inc. (Appendix E),¹ as well as the Mendocino County General Plan² and the Mendocino County General Plan EIR.³

Note: in order to facilitate the readability of this chapter, citations have been included as endnotes rather than footnotes. Please refer to page 120 for the list of endnotes.

4.2.2 EXISTING ENVIRONMENTAL SETTING

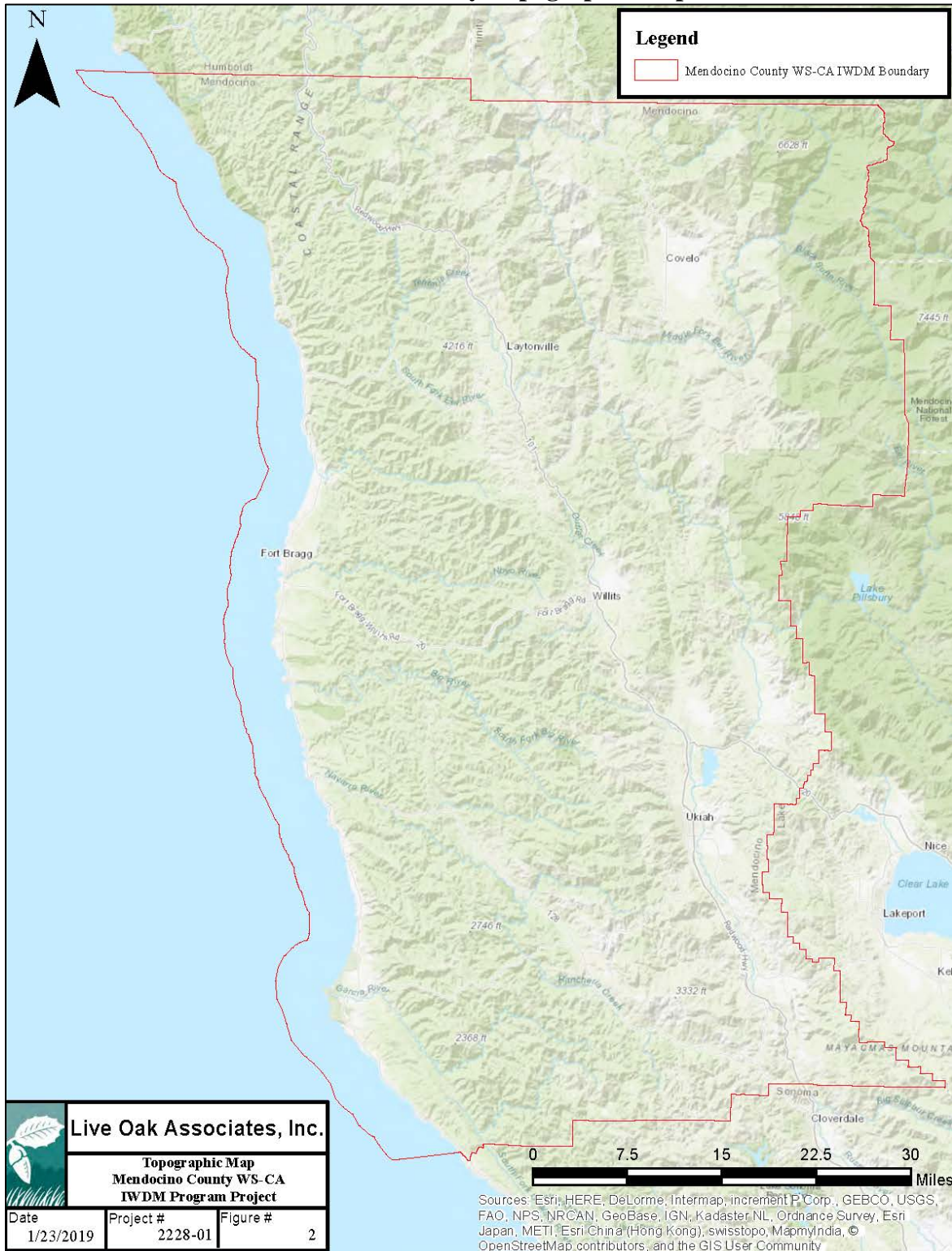
The following sections generally describe the regional setting of Mendocino County, the biological communities occurring within Mendocino County, and the special-status plant and animal species that may be present in such communities, as well as the ecology and population status of key target species of the IWDM Program.

Regional Setting

Mendocino County is located along California's North Coast, midway between the Oregon border and the San Francisco Bay. The County is characterized by rugged topography associated with the North Coast Ranges, which are comprised of two parallel bands of mountains that traverse the County in a northwest to southeast direction (Figure 4.2-1). The parallel mountain bands are characterized as an inner band, which is located in the eastern portion of the County in closer proximity to the Central Valley, and the outer band, which is located in the western portions of the County in closer proximity to the Pacific Ocean. The inner and outer North Coast Ranges are separated by a long valley that is drained by the Eel River in the north and the Russian River in the south. The west slope of the outer North Coast Range is drained by a series of short rivers including the Mattole, Gualala, and Navarro Rivers. The east slope of the inner North Coast Range drains into the Central Valley. Elevations in Mendocino County range from sea level to approximately 6,950 feet at Anthony Peak, located along the County's northeastern boundary.

Because of the variable topography of Mendocino County and the proximity of the County to the Pacific Ocean, a wide range of conditions and diverse habitat types are present within the County. Within portions of the County closest to the coast, coastal scrub, grassland, and closed cone pine-cypress vegetation communities dot the landscape.

**Figure 4.2-1
 Mendocino County Topographic Map**



Heading uphill and east from the coast are vast redwood, Douglas-fir, and montane hardwood forests. The east side of the County is characterized by a mosaic of agriculture, blue oak woodland, montane chaparral and many other vegetation communities.

The climate in the County is generally mild, with local variations driven by elevation and distance from the ocean. Closest to the coast, temperatures are steady and cool, while inland areas experience fluctuations between 20 and 110 degrees Fahrenheit. In the higher elevations, temperatures can dip as low as 10 degrees, and most wintertime precipitation falls as snow. Average annual precipitation in the County is between 36 and 42 inches.

Biotic Habitats

The County's biotic habitat types were inventoried and mapped using California Wildlife Habitat Relationships (CWHR) classifications available through the U.S. Forest Service's (USFS's) CALVEG database;⁴ the CWHR system uses remote sensing technology, field measurement techniques, and staff expertise to categorize all land cover in California into 59 habitat types for use with a predictive model for terrestrial wildlife occurrence. Lists and descriptions of the flora and fauna associated with the County's CWHR habitat types were obtained using the California Department of Fish and Wildlife's (CDFW's) CWHR database.⁵

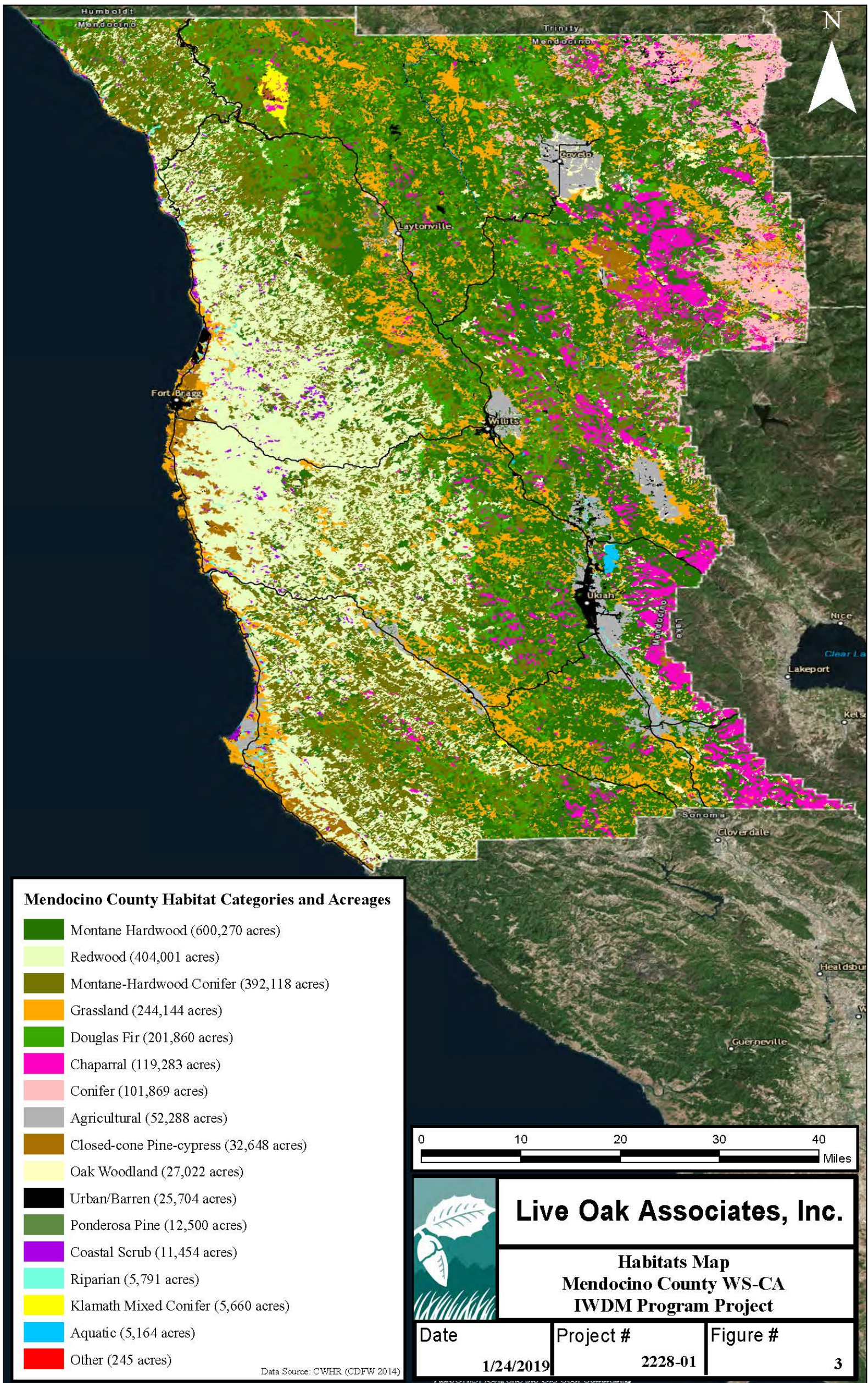
Thirty-seven of California's 59 CWHR habitat classifications are represented in Mendocino County's land area.⁶ The classifications and their areal extent within the County are depicted below in Figure 4.2-2 and Table 4.2-1; it should be noted that some classifications identified by CWHR were grouped in the figure. Montane hardwood (26.7 percent of land within the County), redwood (18.0 percent of land within the County), montane hardwood-conifer (17.5 percent of land within the County), annual grassland (10.6 percent of land within the County), and Douglas-fir (9.0 percent of land within the County) are the predominant habitat types, comprising over 80 percent of the County.⁷ The five predominant habitat types are discussed in greater depth in the following sections.

Montane Hardwood

Montane hardwood predominates in the County's inland hills at elevations between 1,000 and 2,000 feet, and is the most prevalent habitat overall at 26.7 percent of the County's land cover.⁸

Montane hardwood forests are characterized by canyon live oak (*Quercus chrysolepis*) throughout the range of the habitat; associated trees include the coast live oak (*Quercus agrifolia*) at lower elevations and the black oak (*Quercus kelloggii*) at higher elevations. The understory is generally sparse, consisting of scattered manzanita (*Arctostaphylos* sp.), poison oak (*Toxicodendron diversilobum*), and various forbs.

**Figure 4.2-2
 Habitats Map**



**Table 4.2-1
 Habitat Types, Acreages, and Percentages of Mendocino County**

CWHR Habitat Type	Classification Group in Figure 4.2-2	Acres	Percentage of County
Montane Hardwood	Montane Hardwood	600,270	26.7%
Redwood	Redwood	404,001	18.0%
Montane Hardwood-Conifer	Montane Hardwood-Conifer	392,118	17.5%
Annual Grassland	Grassland	238,006	10.6%
Douglas-Fir	Douglas-Fir	201,860	9.0%
Sierran Mixed Conifer	Conifer	87,406	3.9%
Mixed Chaparral	Chaparral	76,002	3.4%
Chamise-Redshank Chaparral	Chaparral	32,724	1.5%
Closed-Cone Pine-Cypress	Closed-Cone Pine-Cypress	32,648	1.5%
Cropland	Agricultural	30,801	1.4%
Pasture	Agricultural	24,919	1.1%
Barren	Urban/Barren	18,755	0.8%
White Fir	Conifer	13,161	0.6%
Ponderosa Pine	Ponderosa Pine	12,500	0.6%
Coastal Scrub	Coastal Scrub	11,454	0.5%
Montane Chaparral	Chaparral	10,556	0.5%
Blue Oak Woodland	Oak Woodland	9,751	0.4%
Blue Oak-Foothill Pine	Oak Woodland	7,824	0.3%
Urban	Urban/Barren	6,950	0.3%
Perennial Grassland	Grassland	5,810	0.3%
Coastal Oak Woodland	Oak Woodland	5,588	0.2%
Montane Riparian	Riparian	5,462	0.2%
Klamath Mixed Conifer	Klamath Mixed Conifer	4,171	0.2%
Valley Oak Woodland	Oak Woodland	3,859	0.2%
Lacustrine	Aquatic	2,753	0.1%
Riverine	Aquatic	2,166	0.1%
Jeffrey Pine	Klamath Mixed Conifer	1,489	0.1%
Red Fir	Conifer	1,283	0.1%
Vineyard	Agricultural	555	0.0%
Valley Foothill Riparian	Riparian	328	0.0%
Wet Meadow	Grassland	327	0.0%
Marine	Aquatic	207	0.0%
Alpine-Dwarf Shrub	Other	185	0.0%
Eucalyptus	Other	59	0.0%
Saline Emergent Wetland	Aquatic	38	0.0%
Subalpine Conifer	Conifer	19	0.0%
Deciduous Orchard	Agricultural	13	0.0%
Total all land and Habitats		2,246,020	100.0%

Source: USFS CALVEG database, 2018.

Montane hardwood habitat favors wildlife dependent on acorn crop from the aforementioned oak species. Such species include animals that disseminate acorns, like the Steller's jay (*Cyanocitta stelleri*), acorn woodpecker (*Melanerpes formicivorus*), and western gray squirrel (*Sciurus griseus*), as well as animals that utilize acorns as a primary food source, like the wild turkey (*Meleagris gallopavo*), dusky-footed woodrat (*Neotoma fuscipes*), and American black bear (*Ursus americanus*). Montane hardwood also readily supports Columbian black-tailed deer and feral swine, both of which use acorns and other forage in this habitat type.

Reptiles associated with montane hardwood in Mendocino County include the rubber boa (*Charina bottae*) and northern alligator lizard (*Elgaria coerulea*). The red-bellied newt (*Taricha rivularis*), an amphibian designated a California Species of Special Concern by CDFW, can be found along streams in the County's montane hardwood forests. Common mammalian predators in montane hardwood of Mendocino County include the bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), and coyote, while avian predators include the red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), and great-horned owl (*Bubo virginianus*). A variety of songbirds utilize the County's montane hardwood forests for nesting and foraging, including the ash-throated flycatcher (*Myiarchus cinerascens*), oak titmouse (*Baeolophus inornatus*), white-breasted nuthatch (*Sitta carolinensis*), lesser goldfinch (*Spinus psaltria*), and many others.

Redwood

Redwood is the dominant habitat type along the County's coastline, extending inland 10 to 20 miles in most areas. The redwood habitat type is characterized by second-growth coast redwood (*Sequoia sempervirens*) and associated conifers such as Douglas-fir (*Pseudotsuga menziesii*) and, closest to the ocean, Sitka spruce (*Picea sitchensis*). Important understory species include the sword fern (*Polystichum munitum*), coast rhododendron (*Rhododendron macrophyllum*), salmonberry (*Rubus spectabilis*), and western thimbleberry (*Rubus parviflorus*).

Redwood habitat in Mendocino County is considered highly suitable for 82 wildlife species,⁹ and is used in some form by nearly 200 wildlife species.¹⁰ Reptiles associated with this habitat include the northern alligator lizard and coast gartersnake (*Thamnophis elegans terrestris*). Amphibians include ten species of salamander, three of which, the red-bellied newt, southern torrent salamander (*Rhyacotriton variegatus*), and California giant salamander (*Dicamptodon ensatus*), are California Species of Special Concern. The Sierran treefrog (*Pseudacris sierra*) and Pacific tailed frog (*Ascaphus truei*) also occur in the County's redwood habitat; the latter is a California Species of Special Concern.

Birds of prey found in this habitat include the sharp-shinned hawk (*Accipiter striatus*), northern spotted owl (*Strix occidentalis caurina*), and western screech owl (*Megascops kennicottii*); the northern spotted owl is listed as threatened under both the federal and State Endangered Species Acts. The marbled murrelet (*Brachyramphus marmoratus*), listed as threatened and endangered under the federal and State Endangered Species Acts, respectively, prefers to nest in old-growth redwood forests, and commutes to the sea each day to forage. Numerous songbirds including the Pacific slope flycatcher (*Empidonax difficilis*), Pacific wren (*Troglodytes pacificus*), brown

creeper (*Certhia americana*), golden-crowned kinglet (*Regulus satrapa*), and Swainson's thrush (*Catharus ustulatus*) use the County's redwood habitats for both nesting and foraging.

Small mammals associated with the County's redwood habitat include the redwood chipmunk (*Tamias ochrogenys*), northern flying squirrel (*Glaucomys sabrinus*), and bushy-tailed woodrat (*Neotoma cinerea*). Two ungulates, the black-tailed deer and elk (*Cervus canadensis*), are known to use this habitat. Mammalian carnivores known from redwood habitat of Mendocino County include the western spotted skunk (*Spilogale gracilis*), black bear, cougar (*Puma concolor*), and fisher (*Pekania pennanti*); the latter is listed as State threatened.

Montane Hardwood-Conifer

Montane hardwood-conifer habitat has patchy distribution across the County, ranging from sea level to approximately 5,500 feet in the upper reaches of the Mendocino National Forest near the County's northeastern corner. The montane hardwood-conifer habitat type is characterized by both hardwoods and conifers, where conifers form the upper canopy and hardwoods the mid-canopy layer. It may also manifest as a mosaic of small, pure stands of conifers interspersed with small stands of broad-leaved trees. Although early successional stages of this habitat type may support dense ground and shrub cover, mature montane hardwood-conifer forest has relatively little understory. In Mendocino County, montane hardwood-conifer is dominated by Oregon white-oak (*Quercus garryana*), California black-oak, Pacific madrone (*Arbutus menziesii*), Douglas-fir, and white fir (*Abies concolor*).

Reptiles associated with montane hardwood-conifer in Mendocino County include the western fence lizard (*Sceloporus occidentalis*), northern alligator lizard, and rubber boa. Several species of amphibian may be found beneath detritus on the forest floor, such as the northwestern salamander (*Ambystoma gracile*) and rough-skinned newt (*Taricha granulosa*). The red-bellied newt, southern torrent salamander, and Pacific tailed frog may be found in and around streams in montane hardwood-conifer forests. Raptors associated with the County's montane hardwood-conifer habitat include the forest-adapted sharp-shinned hawk and Cooper's hawk, red-tailed hawk, great-horned owl, and spotted owl. Other avian species commonly found in this habitat include the mountain quail (*Oreortyx pictus*), band-tailed pigeon (*Patagioenas fasciata*), wild turkey, northern flicker (*Colaptes auratus*), and a diversity of songbirds.

Small mammals associated with the County's montane hardwood-conifer include the western gray squirrel, Douglas squirrel (*Tamiasciurus douglasii*), California ground squirrel (*Otospermophilus beecheyi*), and deer mouse (*Peromyscus maniculatus*). The black-tailed deer is common in montane hardwood-conifer habitat. Mammalian carnivores found in the County's montane hardwood-conifer forests include the raccoon, ringtail (*Bassariscus astutus*), gray fox, bobcat, black bear, and fisher.

Annual Grassland

Annual grassland habitat in Mendocino County occurs both along the coastal bluffs and in the interior, east of the outer Mendocino Range. The coastal grasslands are dominated by plants adapted to poor, rocky soils and salt winds. Although grazing pressure in the coastal grasslands

has promoted the invasion of non-native annuals, many native perennial grasses and forbs can still be found here; for example, red fescue (*Festuca rubra*), California poppy (*Eschscholzia californica*), and Henderson's angelica (*Angelica hendersonii*). In the County's interior grasslands, as elsewhere in California, non-native annuals have become naturalized and now represent the climax successional community. Grasses and forbs commonly found in the interior grasslands include soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), wild oats (*Avena* sp.), and broadleaf filaree (*Erodium botrys*).

The County's annual grassland habitats are of high value for native wildlife. Reptiles and amphibians known to occur in these habitats include the Pacific gophersnake (*Pituophis catenifer catenifer*), common gartersnake (*Thamnophis sirtalis*), and Sierran treefrog. A variety of avian species forage in the County's grasslands; these include resident birds such as the mourning dove (*Zenaida macroura*) and western meadowlark (*Sturnella neglecta*), winter migrants such as the savannah sparrow (*Passerella sandwichensis*), American pipit (*Anthus rubescens*), and Say's phoebe (*Sayornis saya*), and summer migrants such as the western kingbird (*Tyrannus verticalis*). Some birds are known to nest on the ground in grassland habitats; among the ground-nesting birds are the mourning dove, western meadowlark, and horned lark (*Eremophila alpestris*). Small mammals expected to occur in the County's annual grassland habitat include California voles (*Microtus californicus*), Botta's pocket gophers (*Thomomys bottae*), California ground squirrels, and black-tailed hares (*Lepus californicus*).

The presence of reptiles, amphibians, birds, and small mammals attracts foraging raptors and mammalian predators to the County's grassland habitats. Red-tailed hawks, northern harriers (*Circus cyaneus*), and white-tailed kites (*Elanus leucurus*) are regular visitors; the northern harrier is a California Species of Special Concern and the white-tailed kite is California Fully Protected. Harriers may use the County's grassland habitats for nesting as well as foraging; the ground nesting harriers are known to breed along the coast near Fort Bragg and at MacKerricher and Manchester state beaches.¹¹ Mammalian predators occurring in the County's grassland habitats include striped skunks (*Mephitis mephitis*) and coyotes.

Douglas-Fir

Douglas-fir forest is distributed throughout Mendocino County from sea level to approximately 4,000 feet, on sites too dry to support redwood and sites too low to support true fir forest types. This habitat type is characterized by an upper overstory of Douglas-fir and lower overstory of broad-leaved trees including Pacific madrone and tanoak (*Notholithocarpus densiflorus*). Drier sites may also support canyon live oak, ponderosa pine (*Pinus ponderosa*), and sugar pine (*Pinus lambertiana*). The shrub component varies by elevation and site conditions, but often includes Oregon grape (*Berberis aquifolium*), vine maple (*Acer circinatum*), dwarf rose (*Rosa gymnocarpa*), and snowbush (*Ceanothus cordulatus*).

Reptiles associated with Douglas-fir forests in Mendocino County include the western fence lizard, northern alligator lizard, rubber boa, coast gartersnake, and northern Pacific rattlesnake (*Crotalus oreganus oreganus*). Amphibians expected to occur in this habitat include the Oregon ensatina (*Ensatina eschscholtzii oregonensis*), northwestern salamander, coastal giant salamander (*Dicamptodon tenebrosus*), and speckled black salamander (*Aneides flavipunctatus*).

flavipunctatus). The foregoing species and several other salamander species can be found along streams and under rocks and logs on the forest floor. The Pacific tailed frog, a California Species of Special Concern, may also be found in and around streams in the County's Douglas-fir forests.

Resident birds of the County's Douglas-fir forests include the pileated woodpecker (*Dryocopus pileatus*), chestnut-backed chickadee (*Poecile rufescens*), golden-crowned kinglet, and varied thrush (*Ixoreus naevius*). A diversity of migratory songbirds nest in these forests; songbirds that commonly nest in Douglas-fir forests include, but are not limited to, the olive-sided flycatcher (*Contopus cooperi*), western wood-pewee (*Contopus sordidulus*), hermit warbler (*Setophaga occidentalis*), Wilson's warbler (*Cardellina pusilla*), and western tanager (*Piranga ludoviciana*). Birds of prey associated with the County's Douglas-fir forests include the sharp-shinned hawk, northern spotted owl, northern goshawk (*Accipiter gentilis*) and, where forests border large bodies of water, the osprey (*Pandion haliaetus*); the latter favors tall Douglas-fir trees for the construction of the species' typical platform nests. The northern goshawk is a California Species of Special Concern.

Small mammals found in the County's Douglas-fir forests include the Douglas squirrel, northern flying squirrel, deer mouse, and both the dusky-footed and bushy-tailed woodrat. Black-tailed deer are common in Douglas-fir forests within the County. Mammalian carnivores associated with the County's Douglas-fir forests include the gray fox, coyote, black bear, striped and spotted skunks, cougar, and fisher.

Special-Status Plants and Animals

A number of plant and animal species in California have low populations and/or limited distributions. As defined in CEQA Guidelines Section 15380, such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats that such species occupy are converted to agricultural and urban uses. As described more fully below, in Section 4.2.3, Regulatory Context, state and federal laws have provided CDFW and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally listed as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as "species of special concern" by CDFW. The California Native Plant Society (CNPS) has developed a proprietary set of lists of native plants considered rare, threatened, or endangered.¹² Any designated or listed plants or animal species are considered special-status.

In addition, as discussed in further depth below, due to the low estimated cougar populations in Mendocino County, Live Oak Associates considers cougars to be rare within the County. Consequently, based on CEQA Guidelines Section 15380, for the purposes of this analysis, cougars are considered a special-status species.

Federal and State Listed Plant Species

Twenty-two plant species listed as threatened or endangered under the federal Endangered Species Act (FESA)¹³ and/or threatened, endangered, or rare under the California Endangered Species Act (CESA) have been documented in Mendocino County¹⁴ or have some potential to occur within Mendocino County. Listed, threatened, endangered, or rare plant species are listed below in Table 4.2-2.

In many cases, plant species with FESA and/or CESA protection have also been assigned a rare plant rank by the California Native Plant Society (CNPS). The CNPS status is noted in the table where applicable. Occurrences of listed plant species in Mendocino County were obtained from the California Natural Diversity Database (CNDDB), and are presented in Figure 4.2-3.

Other Special-Status Plants

Ninety-one plant species identified by the CNPS as being rare, threatened, or endangered in California, but not listed under the FESA and/or CESA, have been documented in Mendocino County.¹⁵ Such species are listed below in Table 4.2-3. Due to the sheer number and observations of these species, a map depicting the recorded observations of such species in Mendocino County has not been prepared.

Federal and State Listed Animal Species

Thirty-six animal species listed as threatened, endangered, proposed, or candidate under the federal and/or state Endangered Species Acts have been documented in Mendocino County¹⁶ or have some potential to occur here per the USFWS¹⁷ and/or National Marine Fisheries Service (NMFS).¹⁸

The federal and state-listed animal species that have been documented in Mendocino County or have the potential to occur in the County are listed below in Table 4.2-4. In many cases, animal species with FESA and/or CESA protection are also designated by CDFW as species of special concern (SSC) or fully protected (FP). The CDFW designation of listed species is noted in the table where applicable. CNDDB occurrences of listed animal species in Mendocino County are depicted in Figure 4.2-4.

Other Special-Status Animals

Forty-six animal species designated by CDFW as SSC or FP, but not listed under the FESA and/or CESA, have been documented in Mendocino County,¹⁹ or have some potential to occur here because the County is located within the species' range and suitable habitat is present. Species meeting such parameters are listed below in Table 4.2-4. CNDDB occurrences of SSC and FP animals in Mendocino County are depicted in Figure 4.2-5.

**Table 4.2-2
Federal and State Listed Plant Species Potentially Occurring in Mendocino County**

Common Name	Scientific Name	Federal Listing	State Listing	CNPS Rank
McDonald's Rockcress	<i>Arabis mcdonaldiana</i>	FE	CE	1B.1
Marsh Sandwort	<i>Arenaria paludicola</i>	FE	CE	1B.1
Humboldt County Milk-Vetch	<i>Astragalus agnicidus</i>	-	CE	1B.1
Sonoma Sunshine	<i>Blennosperma bakeri</i>	FE	CE	1B.1
Point Reyes Blennosperma	<i>Blennosperma nanum var. robustum</i>	-	Rare	1B.2
Leafy Reed Grass	<i>Calamagrostis foliosa</i>	-	Rare	4.2
Howell's Spineflower	<i>Chorizanthe howellii</i>	FE	CT	1B.2
Kellogg's Buckwheat	<i>Eriogonum kelloggii</i>		CE	1B.2
Menzies' Wallflower	<i>Erysimum menziesii</i>	FE	CE	1B.1
Roderick's Fritillary	<i>Fritillaria roderickii</i>	-	CE	1B.1
Boggs Lake Hedge-Hyssop	<i>Gratiola heterosepala</i>	-	CE	1B.2
Water Howellia	<i>Howellia aquatis</i>	FT	-	2B.2
Burke's Goldfields	<i>Lasthenia burkei</i>	FE	CE	1B.1
Contra Costa Goldfields	<i>Lasthenia conjugens</i>	FE	-	1B.1
Baker's Meadowfoam	<i>Limnanthes bakeri</i>	-	Rare	1B.1
Milo Baker's Lupine	<i>Lupinus milo-bakeri</i>	-	CT	1B.1
Few-Flowered Navarretia	<i>Navarretia leucocephala ssp. pauciflora</i>	FE	CT	1B.1
Slender Orcutt Grass	<i>Orcuttia tenuis</i>	FT	CE	1B.1
North Coast Semaphore Grass	<i>Pleuropogon hooverianus</i>	-	CT	1B.1
Red Mountain Catchfly	<i>Silene campanulata ssp. campanulata</i>	-	CE	4.2
Showy Indian Clover	<i>Trifolium amoenum</i>	FE	-	1B.1
Monterey Clover	<i>Trifolium trichocalyx</i>	FE	CE	1B.1

Notes:

FE = Federal Endangered, FT = Federal Threatened

CE = California Endangered, CT = California Threatened, Rare = not presently threatened with extinction, but occurs in such small numbers throughout its range that it may become endangered if its present environment worsens

1B.1 - seriously threatened in California and elsewhere, 1B.2 - moderately threatened in California and elsewhere

2B.2 - moderately threatened in California but more common elsewhere, 4.2 - of limited distribution

Source: CNDDDB, 2018.

**Figure 4.2-3
 Special-Status Plant Locations**

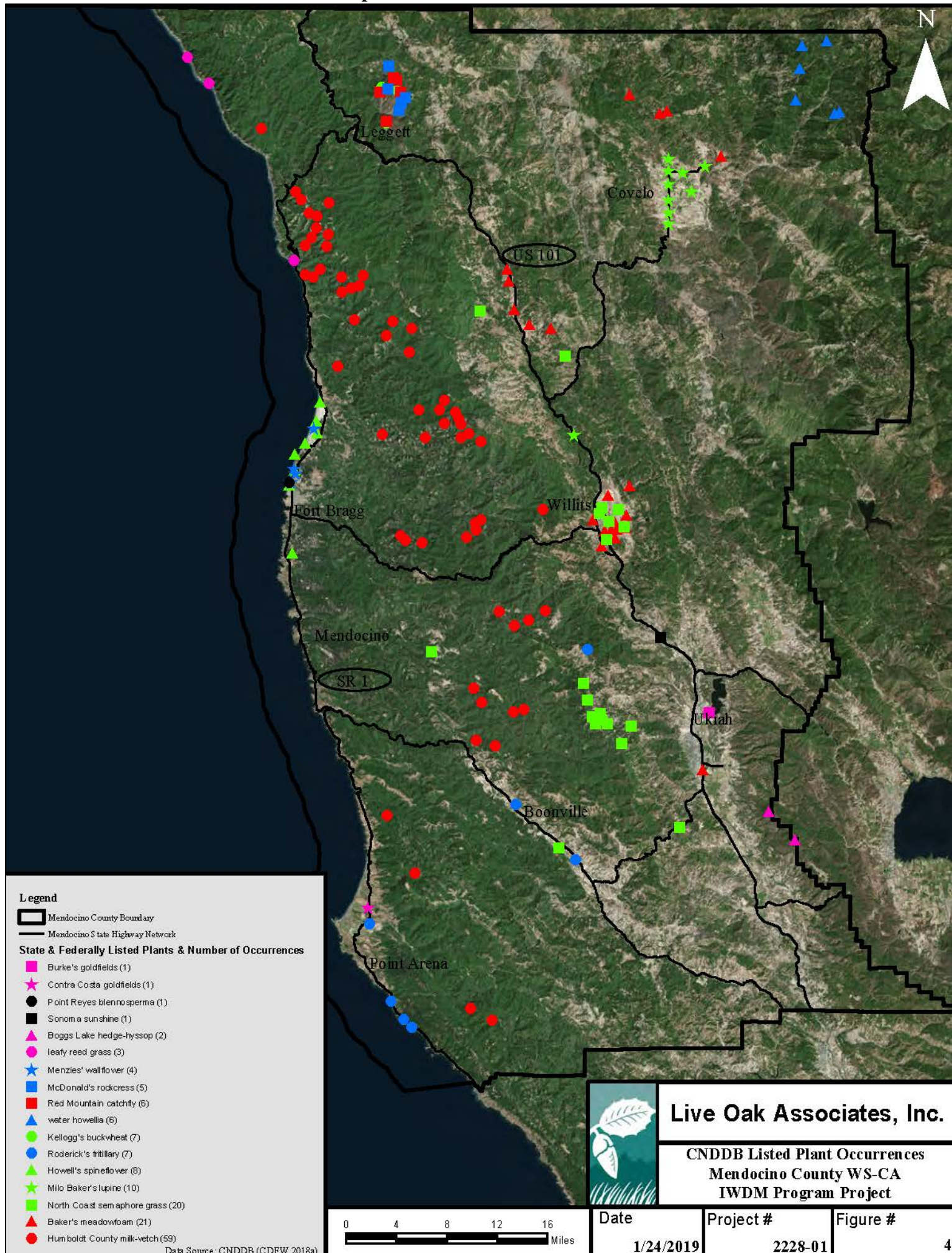


Table 4.2-3		
CNPS-Ranked Plant Species Potentially Occurring in Mendocino County		
Common Name	Scientific Name	CNPS Rank
Pink Sand-Verbena	<i>Abronia umbrellata</i> var. <i>breviflora</i>	1B.1
Blasdale's Bent-Grass	<i>Agrostis blasdalei</i>	1B.2
Grass Alisma	<i>Alisma gramineum</i>	2B.2
Franciscan Onion	<i>Allium peninsulare</i> var. <i>franciscanum</i>	1B.2
Scabrid Alpine Tarplant	<i>Anisocarpus scabridus</i>	1B.3
Konocti Manzanita	<i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	1B.3
Pygmy Manzanita	<i>Arctostaphylos nummularia</i> ssp. <i>mendocinoensis</i>	1B.2
Raiche's Manzanita	<i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i>	1B.1
Rattlesnake Fern	<i>Botrypus virginianus</i>	2B.2
Watershield	<i>Brasenia schreberi</i>	2B.3
Thurber's Reed Grass	<i>Calamagrostis crassiglumis</i>	2B.1
Three-Fingered Morning-Glory	<i>Calystegia collina</i> ssp. <i>tridactylosa</i>	1B.2
Coastal Bluff Morning-Glory	<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	1B.2
Swamp Harebell	<i>Campanula californica</i>	1B.2
Seaside Bittercress	<i>Cardamine angulata</i>	2B.1
California Sedge	<i>Carex californica</i>	2B.3
Bristly Sedge	<i>Carex comosa</i>	2B.1
Lagoon Sedge	<i>Carex lenticularis</i> var. <i>limnophila</i>	2B.2
Lyngbye's Sedge	<i>Carex lyngbyei</i>	2B.2
Deceiving Sedge	<i>Carex saliniformis</i>	1B.2
Green Yellow Sedge	<i>Carex viridula</i> ssp. <i>viridula</i>	2B.3
Humboldt Bay Owl's-Clover	<i>Castilleja ambigua</i> var. <i>humboldtiensis</i>	1B.2
Oregon Coast Paintbrush	<i>Castilleja litoralis</i>	2B.2
Mendocino Coast Paintbrush	<i>Castilleja mendocinensis</i>	1B.2
Rincon Ridge Ceanothus	<i>Ceanothus confusus</i>	1B.1
Vine Hill Ceanothus	<i>Ceanothus foliosus</i> var. <i>vineatus</i>	1B.1
Whitney's Farewell-to-Spring	<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	1B.1
Round-Headed Chinese-Houses	<i>Collinsia corymbosa</i>	1B.2
Bunchberry	<i>Cornus canadensis</i>	2B.2
Serpentine Cryptantha	<i>Cryptantha dissita</i>	1B.2
Deep-Scarred Cryptantha	<i>Cryptantha excavata</i>	1B.1
Jepson's Dodder	<i>Cuscuta jepsonii</i>	1B.2
Mendocino Dodder	<i>Cuscuta pacifica</i> var. <i>papillata</i>	1B.2
Koch's Cord Moss	<i>Entosthodon kochii</i>	1B.3
Snow Mountain Willowherb	<i>Epilobium nivium</i>	1B.2
Oregon Fireweed	<i>Epilobium oreganum</i>	1B.2
Supple Daisy	<i>Erigeron supplex</i>	1B.2
Bluff Wallflower	<i>Erysimum concinnum</i>	1B.2
Coast Fawn Lily	<i>Erythronium revolutum</i>	2B.2
Minute Pocket Moss	<i>Fissidens pauperculus</i>	1B.2
Mendocino Gentian	<i>Gentiana setigera</i>	1B.2
Pacific Gilia	<i>Gilia capitata</i> ssp. <i>pacifica</i>	1B.2
Dark-Eyed Gilia	<i>Gilia millefoliata</i>	1B.2
American Manna Grass	<i>Glyceria grandis</i>	2B.3

(Continued on next page)

Table 4.2-3 CNPS-Ranked Plant Species Potentially Occurring in Mendocino County		
Common Name	Scientific Name	CNPS Rank
Toren's Grimmia	<i>Grimmia torenii</i>	1B.3
Guggolz's Harmonia	<i>Harmonia guggolziorum</i>	1B.1
Congested-Headed Hayfield Tarplant	<i>Hemizonia congesta ssp. congesta</i>	1B.2
Short-Leaved Evax	<i>Hesper-evax sparsiflora var. brevifolia</i>	1B.2
Pygmy Cypress	<i>Hesperocyparis pygmaea</i>	1B.2
Glandular Western Flax	<i>Hesperolinon adenophyllum</i>	1B.2
Bolander's Horkelia	<i>Horkelia bolanderi</i>	1B.2
Point Reyes Horkelia	<i>Horkelia marinensis</i>	1B.2
Thin-Lobed Horkelia	<i>Horkelia tenuiloba</i>	1B.2
Island Tube Lichen	<i>Hypogymnia schizidiata</i>	1B.3
Rau's Jaffueliobryum Moss	<i>Jaffueliobryum raui</i>	2B.3
Hair-Leaved Rush	<i>Juncus supiniformis</i>	2B.2
Small Groundcone	<i>Kopsiopsis hookeri</i>	2B.3
Baker's Goldfields	<i>Lasthenia californica ssp. bakeri</i>	1B.2
Perennial Goldfields	<i>Lasthenia californica ssp. macrantha</i>	1B.2
Marsh Pea	<i>Lathyrus palustris</i>	2B.2
Colusa Layia	<i>Layia septentrionalis</i>	1B.2
Stebbin's Lewisia	<i>Lewisia stebbinsii</i>	1B.2
Coast Lily	<i>Lilium maritimum</i>	1B.1
Anthony Peak Lupine	<i>Lupinus antoninus</i>	1B.2
Northern Microseris	<i>Microseris borealis</i>	2B.1
Marsh Microseris	<i>Microseris paludosa</i>	1B.2
Baker's Navarretia	<i>Navarretia leucocephala ssp. bakeri</i>	1B.1
Wolf's Evening-Primrose	<i>Oenothera wolfii</i>	1B.1
Northern Adder's-Tongue	<i>Ophioglossum pusillum</i>	2B.2
Seacoast Ragwort	<i>Packera bolanderi var. bolanderi</i>	2B.2
North Coast Phacelia	<i>Phacelia insularis var. continentis</i>	1B.2
Bolander's Beach Pine	<i>Pinus contorta ssp. bolanderi</i>	1B.2
White-Flowered Rein Orchid	<i>Piperia candida</i>	1B.2
Nuttall's Ribbon-Leaved Pondweed	<i>Potamogeton epihydrus</i>	2B.2
Dwarf Alkali Grass	<i>Puccinellia pumila</i>	2B.2
Angel's Hair Lichen	<i>Ramalina thrausta</i>	2B.1
White Beaked-Rush	<i>Rhynchospora alba</i>	2B.2
Great Burnet	<i>Sanguisorba officinalis</i>	2B.2
Red Mountain Stonecrop	<i>Sedum laxum ssp. eastwoodiae</i>	1B.2
Point Reyes Checkerbloom	<i>Sidalcea calycosa ssp. rhizomata</i>	1B.2
Siskiyou Checkerbloom	<i>Sidalcea malviflora ssp. patula</i>	1B.2
Purple-Stemmed Checkerbloom	<i>Sidalcea malviflora ssp. purpurea</i>	1B.2
Marsh Checkerbloom	<i>Sidalcea oregana ssp. hydrophila</i>	1B.2
Hoffman's Bristly Jewelflower	<i>Streptanthus glandulosus ssp. hoffmanii</i>	1B.3
Robust False Lupine	<i>Thermopsis robusta</i>	1B.2
Beaked Tracyina	<i>Tracyina rostrata</i>	1B.2
Cylindrical Trichodon	<i>Trichodon cylindricus</i>	2B.2
Santa Cruz Clover	<i>Trifolium buckwestiorum</i>	1B.1
Coastal Triquetrella	<i>Triquetrella californica</i>	1B.2

(Continued on next page)

Table 4.2-3 CNPS-Ranked Plant Species Potentially Occurring in Mendocino County		
Common Name	Scientific Name	CNPS Rank
Oval-Leaved Viburnum	<i>Viburnum ellipticum</i>	2B.3
Alpine Marsh Violet	<i>Viola palustris</i>	2B.2
<p>Note: This table does not include CNPS-ranked plants that are also listed under the federal and/or state Endangered Species Acts. It also does not include plant species with a CNPS rank of 1A or 2A, as these species are considered to have been extirpated from California.</p> <p>1B.1 – seriously threatened in California and elsewhere, 1B.2 – moderately threatened in California and elsewhere, 1B.3 – somewhat threatened in California and elsewhere, 2B.1 – seriously threatened in California but more common elsewhere, 2B.2 - moderately threatened in California but more common elsewhere, 2B.3 – somewhat threatened in California but more common elsewhere.</p> <p>Source: CNDDDB, 2018.</p>		

Table 4.2-4 Federal and State Listed Animal Species Potentially Occurring in Mendocino County				
Common Name	Scientific Name	Federal Listing	State Listing	CDFW Status
Invertebrates				
Behren’s Checkerspot Butterfly	<i>Speyeria zerene behrensii</i>	FE		
Lotis Blue Butterfly	<i>Plebejus idas lotis</i>	FE		
California Freshwater Shrimp	<i>Syncaris pacifica</i>	FE		
Conservancy Fairy Shrimp	<i>Branchinecta conservatio</i>	FE		
Fish				
Tidewater Goby	<i>Eucyclogobius newberryi</i>	FE		SSC
Delta Smelt	<i>Hypomesus transpacificus</i>	FT	CE	
Chinook Salmon – California Coastal ESU	<i>Oncorhynchus tshawytscha</i>	FT		
Coho Salmon – Central California Coast ESU	<i>Oncorhynchus kisutch</i> (pop. 4)	FE	CE	
Coho Salmon – Southern Oregon / Northern California Coast ESU	<i>Oncorhynchus kisutch</i> (pop. 2)	FT	CT	
Steelhead – Northern California DPS	<i>Oncorhynchus mykiss irideus</i> (pop. 16)	FT		SSC
Green Sturgeon – Southern DPS	<i>Acipenser medirostris</i>	FT		SSC
Amphibians				
Foothill Yellow-Legged Frog	<i>Rana boylei</i>		CCT	SSC
California Red-Legged Frog	<i>Rana draytonii</i>	FT		SSC
Reptiles				
Green Sea Turtle	<i>Chelonia mydas</i>	FT		
Olive Ridley Sea Turtle	<i>Lepidochelys olivacea</i>	FT		
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	FE		
Birds				
Yellow-Billed Cuckoo	<i>Coccyzus americanus</i>	FT	CE	
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	FT	CE	
Bald Eagle	<i>Haliaeetus leucocephalus</i>		CE	FP
Swainson’s Hawk	<i>Buteo swainsoni</i>		CT	

(Continued on next page)

Table 4.2-4 Federal and State Listed Animal Species Potentially Occurring in Mendocino County				
Common Name	Scientific Name	Federal Listing	State Listing	CDFW Status
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	FT	CT	SSC
Short-Tailed Albatross	<i>Phoebastria albatrus</i>	FE		SSC
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	FT		SSC
Willow Flycatcher	<i>Empidonax traillii</i>		CE	
Bank Swallow	<i>Riparia riparia</i>		CT	
Tricolored Blackbird	<i>Agelaius tricolor</i>		CT	SSC
Mammals				
Blue Whale	<i>Balaenoptera musculus</i>	FE		
Fin Whale	<i>Balaenoptera physalus</i>	FE		
Humpback Whale	<i>Megaptera novaeangliae</i>	FE		
Southern Resident Killer Whale	<i>Orcinus orca</i>	FE		
North Pacific Right Whale	<i>Balaena glacialis</i>	FE		
Sei Whale	<i>Balaenoptera borealis</i>	FE		
Sperm Whale	<i>Physeter macrocephalus</i>	FE		
Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>	FT	FT	FP
Point Arena Mountain Beaver	<i>Aplodontia rufa nigra</i>	FE		SSC
Humboldt Marten	<i>Martes caurina humboldtensis</i>		CCE	SSC
California Wolverine	<i>Gulo gulo</i>	FPT	CT	FP
Cougar	<i>Puma Concolor</i>			SPM
<p>Notes: FE = Federal Endangered, FT = Federal Threatened, FPT = Federal Proposed Threatened CE = California Endangered, CT = California Threatened, CCE = California Candidate Endangered, CCT = California Candidate Threatened SSC = Species of Special Concern, FP = Fully Protected, SPM = Specially Protected Mammal</p> <p>Source: CDFW CNDDDB, 2018. eBird, 2018. USFWS Information for Planning and Consultation (IPaC) System S 2018. NMFS West Coast Region California Species List, 2018.</p>				

Figure 4.2-4
Federal and State Threatened and Endangered Wildlife Species in Mendocino County

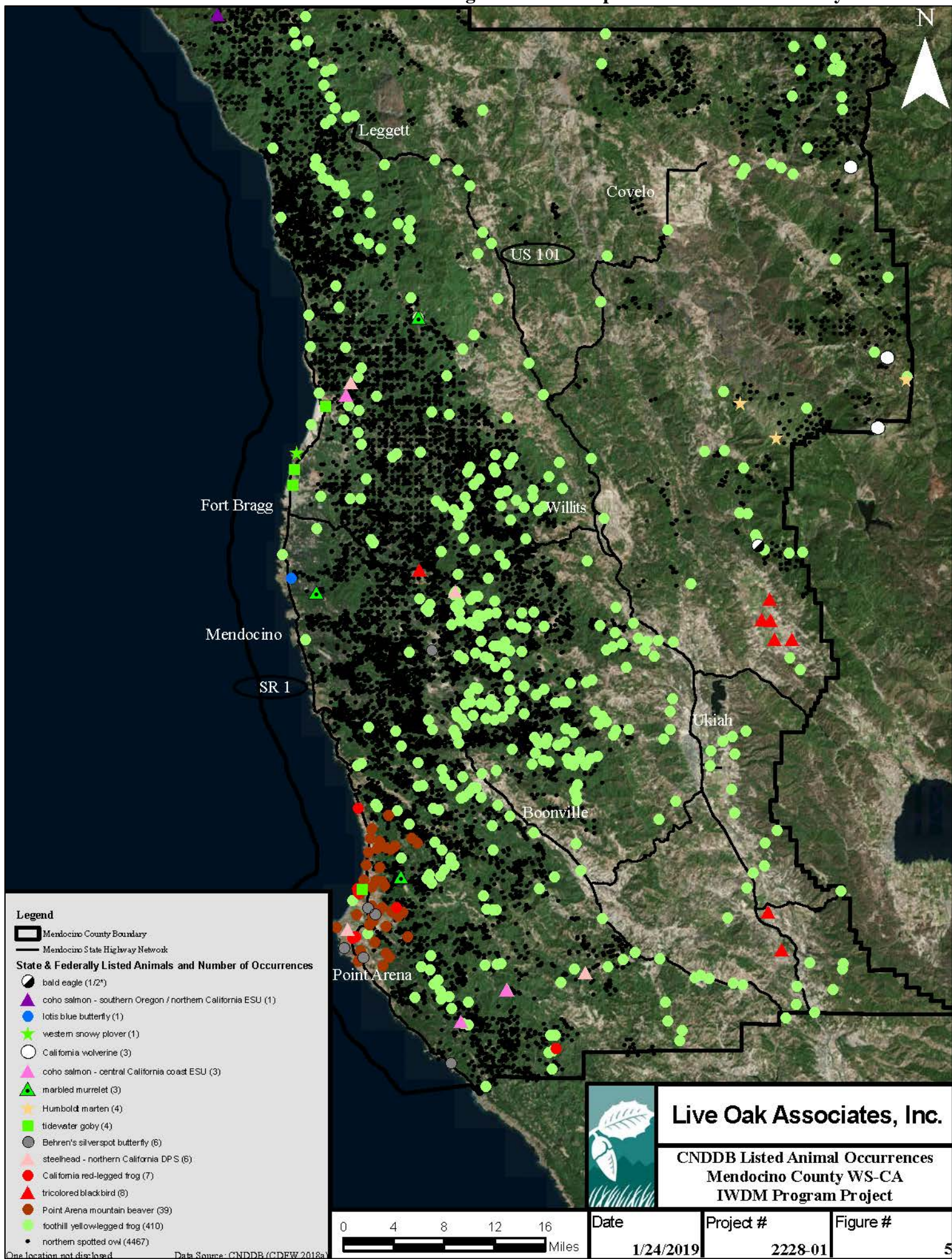
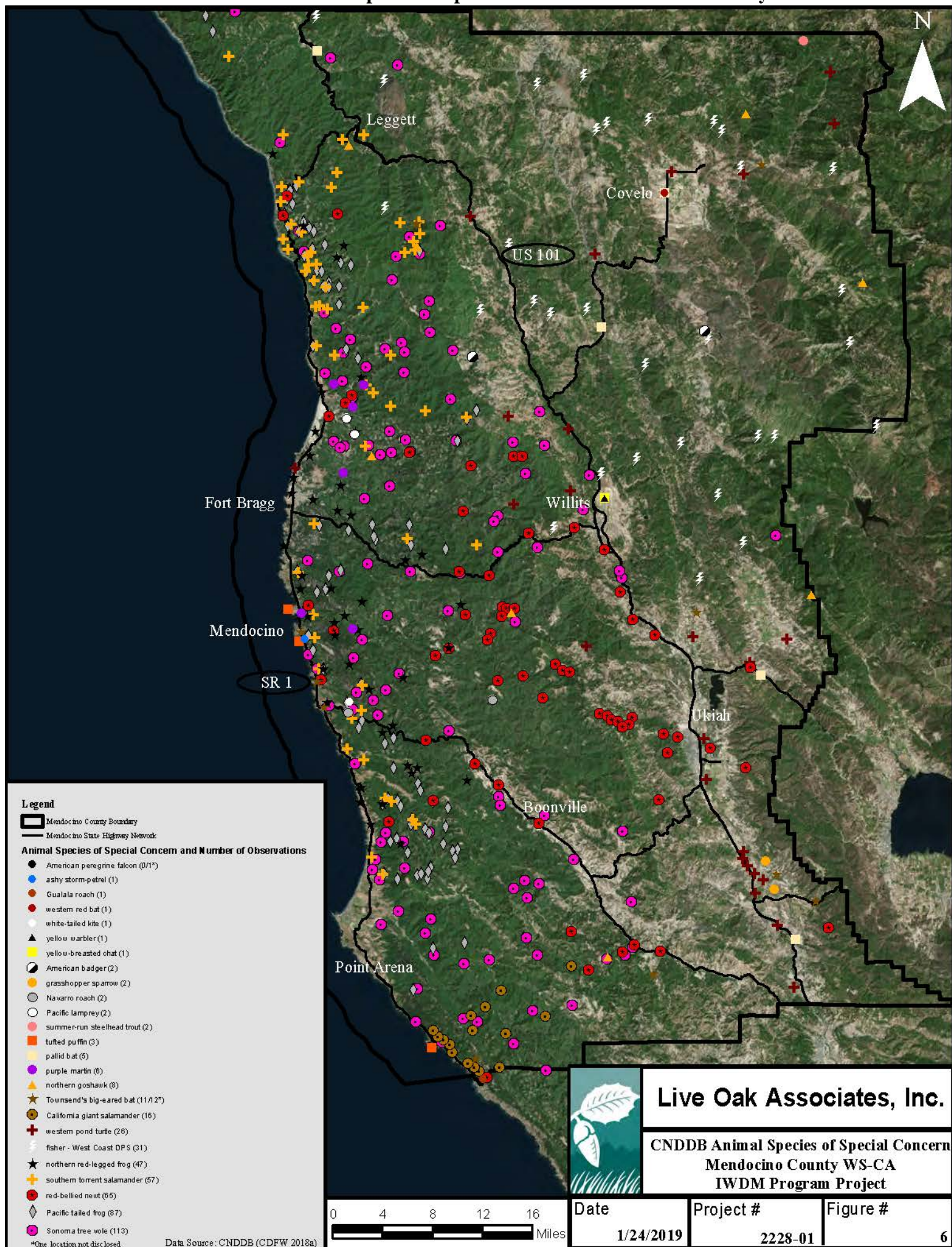


Figure 4.2-5
California Wildlife Species of Special Concern in Mendocino County



In addition to the 46 species discussed above, for the purposes of this analysis, due to the low estimated population of cougars in Mendocino County, according to Live Oak Associates, cougars are considered special-status species within the County pursuant to CEQA Guidelines Section 15380. Thus, cougars are included in Table 4.2-4.

Designated Critical Habitat

As will be discussed in more detail below in Section 4.2.3, Regulatory Context, the USFWS and NMFS often designate areas of “critical habitat” for species listed as threatened or endangered. Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. In Mendocino County, approximately 428,340 acres of critical habitat has been designated for the Contra Costa goldfields, tidewater goby (*Eucyclogobius newberryi*), green sturgeon - Southern DPS (*Acipenser medirostris*), California red-legged frog (*Rana draytonii*), marbled murrelet, northern spotted owl, and western snowy plover (*Charadrius alexandrinus nivosus*).

Approximately 1,552 stream-miles of critical habitat have been designated for the chinook salmon - Central California Coast ESU (*Oncorhynchus tshawytscha*), coho salmon - Central California Coast and Southern Oregon/Northern California Coast ESUs (*Oncorhynchus kisutch*), and steelhead - Northern California DPS (*Oncorhynchus mykiss irideus*).

Designated critical habitat is distributed throughout the County, and in some cases critical habitat areas for different species overlap. Table 4.2-5 below summarizes the designated critical habitat in the County, and Figure 4.2-6 depicts the configuration and location of each unit of critical habitat.

Jurisdictional Waters

Jurisdictional waters are rivers, streams, lakes, ponds, and wetlands that are subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or CDFW. Such waters are discussed in greater detail below in Section 4.2.3, Regulatory Context.

According to the USFWS National Wetlands Inventory, Mendocino County contains over 8,000 miles of rivers and streams and approximately 17,000 acres of lakes, ponds, wetlands, and other water bodies,²⁰ all of which would fall under the jurisdiction of one or more of the regulatory agencies. The County also contains approximately 231,700 acres of the territorial seas, which are federally regulated. Figure 4.2-7 depicts rivers, streams, wetlands, and other water bodies in Mendocino County as mapped by the National Wetlands Inventory.²¹

Sensitive Natural Communities

Mendocino County contains a wide range of natural communities, many of which feature unique assemblages of plants and animals. The natural communities within the County have largely been classified and mapped by CDFW as part of the CDFW’s natural heritage program. CDFW’s

mapping and classification effort is ongoing, with approximately half of the state of California currently classified.²² Natural communities are assigned state and global ranks according to rarity and the magnitude and trend of the threats that such natural communities face. Any natural community with a state rank of three or lower (on a one to five scale) is considered “sensitive.”²³

Table 4.2-5 Designated Critical Habitat in Mendocino County			
Species	Extent of Critical Habitat		Habitat Type / Location
	Acres	Stream Miles	
Contra Costa Goldfields	2,637	-	Vernal pool habitat near Manchester
Green Sturgeon	224,489	-	Marine coastal zone (offshore)
Tidewater Goby	123	-	Coastal stream lagoons associated with Ten Mile River and Pudding and Virgin Creeks
California Red-Legged Frog	21,811	-	Streams, ponds, and associated uplands from Point Arena to Manchester Beach
Marbled Murrelet	101,659	-	Redwood forests across the County
Northern Spotted Owl	133,892	-	Old-growth forests across the County
Western Snowy Plover	1,723	-	Manchester and Ten Mile Beaches
Chinook Salmon – Central California Coast ESU	-	634.2	Eel, Russian, Albion, Mattole, Garcia, Ten Mile, and Noyo Rivers and Wages Creek
Coho Salmon –Southern Oregon/Northern California Coast ESU	-	4	Mattole River
Coho Salmon – Central California Coast ESU	-	Not available	Spatial data unavailable; critical habitat encompasses accessible reaches of all rivers (including estuarine areas and tributaries) in Mendocino County
Steelhead – Northern California DPS	-	1,464.3	Numerous rivers and streams across the County

Source: USFWS. 2018. Threatened and Endangered Species Active Critical Habitat Report. Environmental Conservation Online System. Available at: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>

Figure 4.2-6
Designated Critical Habitat in Mendocino County

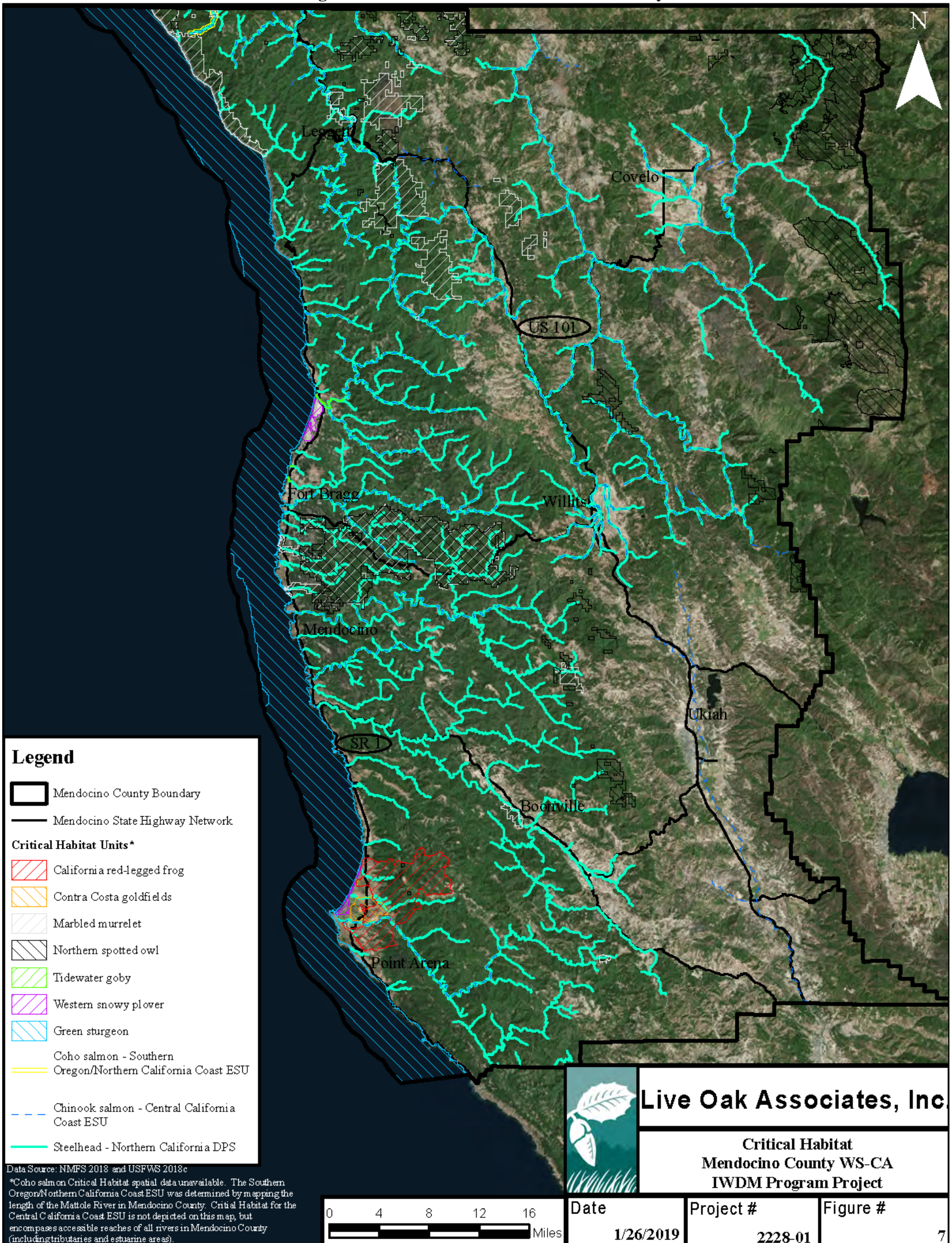
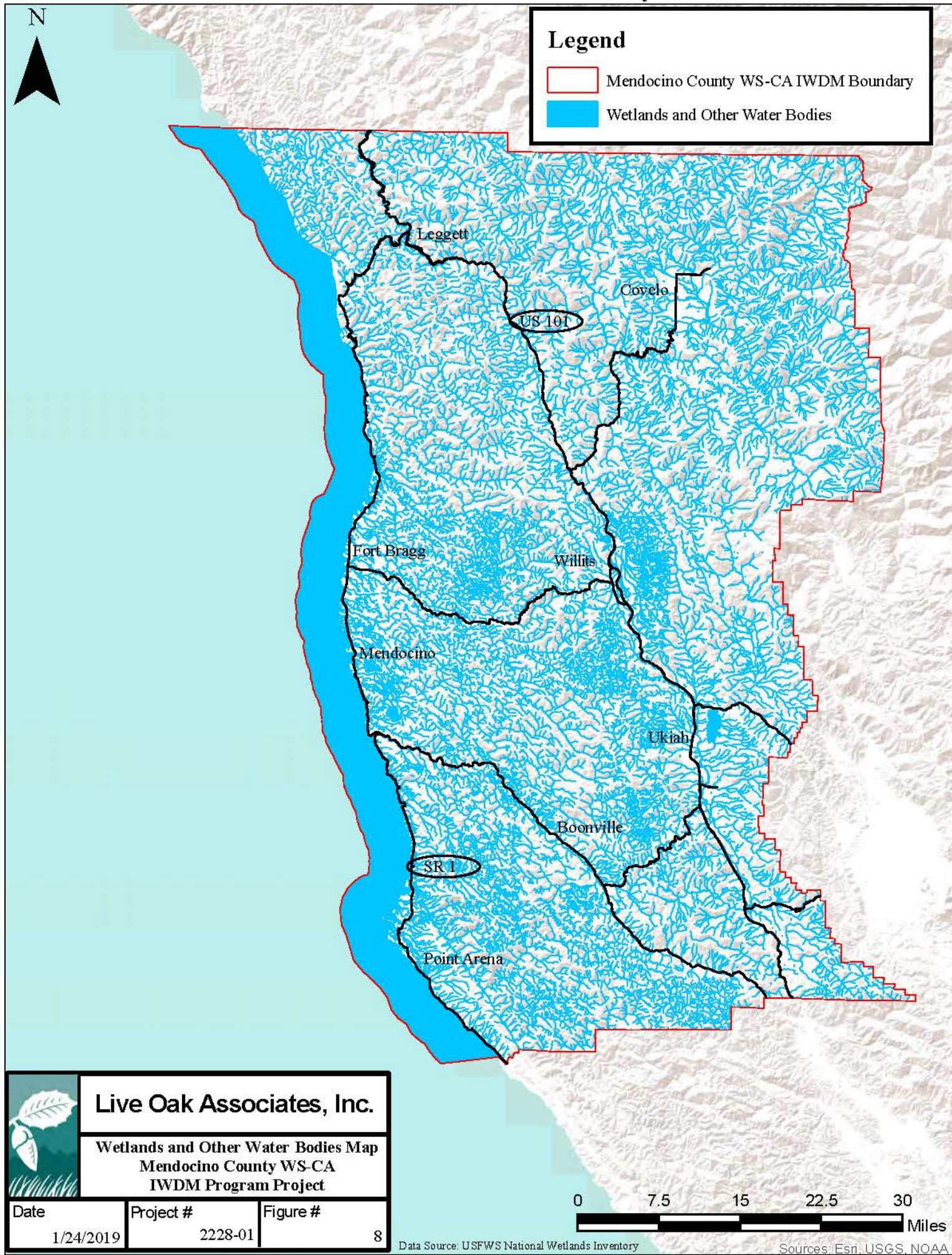


Figure 4.2-7
Waters of the U.S. in Mendocino County



Thirteen sensitive natural communities, encompassing approximately 30,166 acres, have been mapped to date in Mendocino County.²⁴ The existing sensitive natural communities within the County are depicted below in Figure 4.2-8, and identified in Table 4.2-6.

In addition to the communities identified in Table 4.2-6, Mendocino County contains habitats that are sensitive by virtue of significant biodiversity or wildlife value and/or importance to special-status species. Habitats considered sensitive to the foregoing features include the County's wetland and riparian habitats and old-growth forests.

Wildlife Movement Corridors

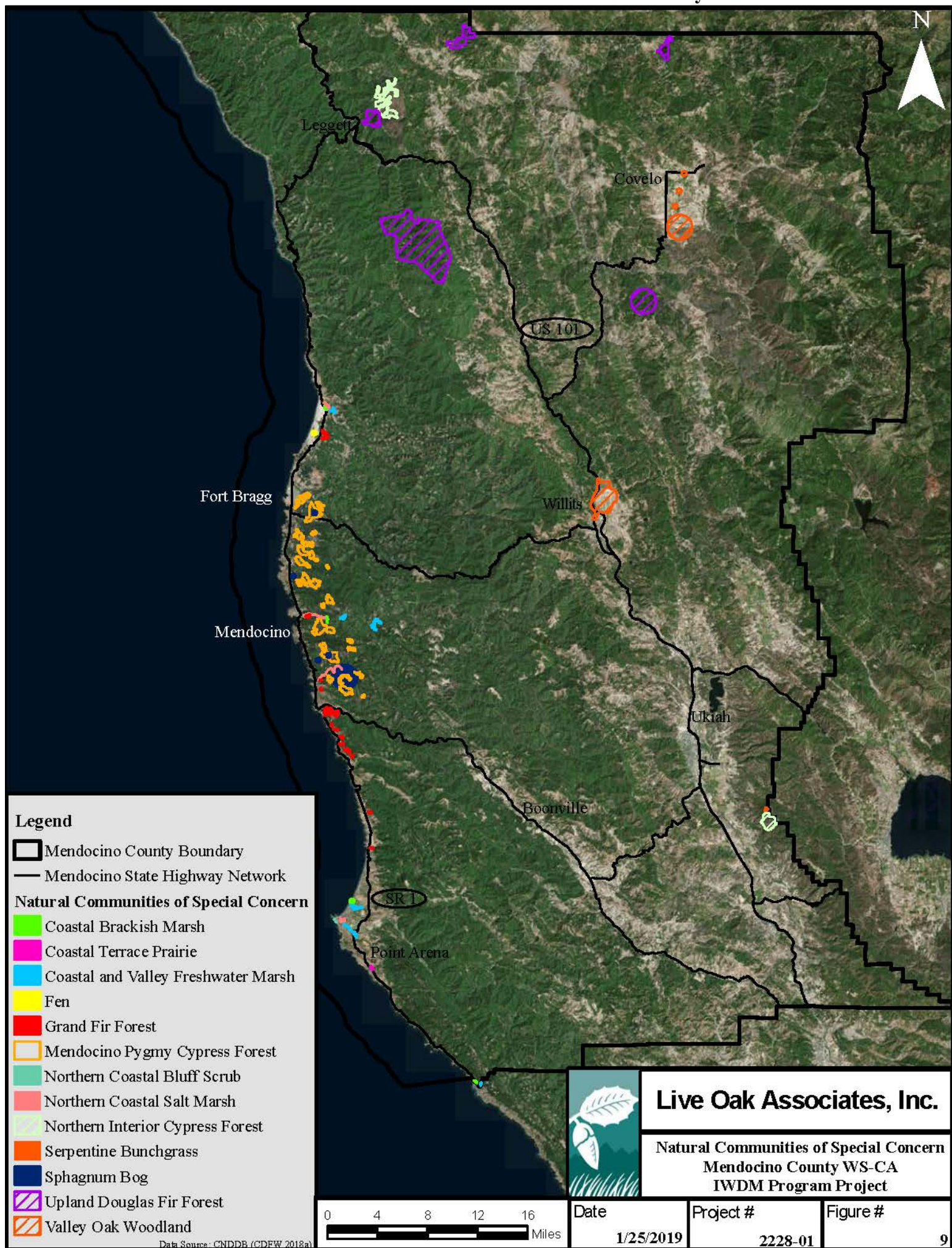
Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation.

Movement corridors or landscape linkages that interconnect patches of suitable habitat in a less suitable matrix are particularly important for native wildlife, as they help promote gene flow and increase the potential for recolonization of habitat patches. Even poor-quality corridors can still provide some benefit to the species that use them.²⁵

The degree to which wildlife use a corridor or linkage is highly dependent on the attributes of the species and landscape in question. For example, corridors may not be as critical for birds or bats as for small, slow-moving animals such as frogs or snakes, as the former are less affected by landscape barriers than the latter.²⁶ In addition, large carnivores that can move long distances in a single night are more capable of making use of poor quality or inhospitable terrain than species that move more slowly and are more vulnerable to predation, vehicle strikes, and other stressors.²⁷ Beier and Noss stress that, while the importance of landscape linkages is well demonstrated in the scientific literature, consideration of context and ecological scale are critical to the evaluation of linkages.²⁸

All of Mendocino County's rivers and major streams would be expected to function as wildlife movement corridors, facilitating passage by aquatic and terrestrial wildlife alike. The rivers and major streams within Mendocino County enable salmon, steelhead, and other anadromous fish species to migrate to the ocean as juveniles and to return to their spawning grounds as adults. Elevational migrant birds like the ruby-crowned kinglet often follow rivers and streams when traveling between their Sierra breeding grounds and lowland winter ranges. Terrestrial mammals like deer and bears rely on riparian corridors for cover while moving between habitat patches, particularly when the surrounding landscape is developed or otherwise unsuitable.

Figure 4.2-8
Sensitive Natural Communities in Mendocino County



Community	State Rank	Mapped Area (Acres)
Coastal and Valley Freshwater Marsh	S2.1	334
Coastal Brackish Marsh	S2.1	174
Coastal Terrace Prairie	S2.1	18
Fen	S1.2	70
Grand Fir Forest	S1.1	509
Mendocino Pygmy Cypress Forest	S2.1	4,452
Northern Coastal Bluff Scrub	S2.2	5
Northern Coastal Salt Marsh	S3.2	459
Northern Interior Cypress Forest	S2.2	1,962
Serpentine Bunchgrass	S2.2	32
Sphagnum Bog	S1.2	2,257
Upland Douglas-Fir Forest	S3.1	15,185
Valley Oak Woodland	S2.1	4,710
TOTAL		30,166
<i>Source: CDFW CNDDDB, 2018.</i>		

Other features in Mendocino County likely to function as important wildlife movement corridors are large linkages of public or other protected lands. For example, the Big River wetlands in Mendocino Headlands State Park is a 7,400-acre wildlife corridor that links coastal and inland habitats, forming the largest connected piece of public land entirely within County boundaries. Swaths of contiguous forest adjacent to open habitats are also important; for example, on the Shasta-Trinity National Forest, Kelleyhouse observed well-worn black bear trails where mixed conifer forest abutted open foraging habitats like wet meadows and manzanita scrub.²⁹

IWDM Program in Mendocino County

Details regarding the application of the IWDM Program are presented in Chapter 3.0, Project Description, of this EIR. In general, formal wildlife damage control activities have been conducted within Mendocino County since at least 1919, with WS-CA providing services within the County since 1986. For the purposes of this analysis, the environmental baseline period is defined as the period of time between 1997 and 2017.

Under previous iterations of the IWDM Program WS-CA has been authorized to respond to request for assistance on land anywhere within Mendocino County. Implementation of the IWDM Program would similarly authorize WS-CA to respond to requests for assistance on land anywhere within Mendocino County. However, for the purposes of establishing a baseline environmental setting, WS-CA services are assumed to be most common on the 79.4 percent of land within the County that is under private ownership.

As summarized in Chapter 3.0 of this EIR, during the period between 1997-2017, WS-CA in Mendocino County addressed wildlife conflicts associated with a range of species. In some cases, WS-CA’s services resulted in lethal control, or “take,” of the species associated with the conflict (“target species”). Generally, such take was intentional, but unintentional take of both

target and non-target species also periodically occurred. Intentional and unintentional take records within the County are summarized in Table 3-7 of Chapter 3.0. Available records of WS-CA unintentional take within Mendocino County are summarized in Table 4.2-7.

Take during the baseline period was most frequent for mammalian species. The primary and most consistent species that were taken between 1997 and 2017 were the black bear, bobcat, cougar, coyote, feral swine, gray fox, raccoon, striped skunk, and Virginia opossum. Average numbers of individuals taken for each species annually varied, with coyote being the most (197), followed by striped skunk (61), raccoon (41), and feral swine (23). The remaining mammals that were taken had less than an average of 15 individuals taken each year.

Lethal control during the baseline period was relatively infrequent for non-mammalian species. Rock pigeons (*Columba livia*) were occasionally taken, and European starlings (*Sturnus vulgaris*) and common ravens (*Corvus corax*) were each taken in a single year of the baseline period. For reptiles, two snakes were taken over the baseline periods, with the take occurring in two separate years. Fish or amphibian species were not subject to take or any other form of direct control during the baseline period.

Table 4.2-8 below presents a summary of all WS-CA take that occurred in Mendocino County during the baseline years. Table 4.2-8 totals the average take for each species for each of the three categories of take and rounds the calculated average number up to the nearest one. The calculated annual average total establishes the baseline take for the project.

Although direct control assistance provided by WS-CA between 1997 and 2017 included both lethal and non-lethal methods, the analysis presented within this chapter uses lethal control as a metric to establish baseline impacts to biological resources. Lethal control is used to establish baseline impacts because lethal control is the best documented and most quantifiable outcome associated with WS-CA's services in Mendocino County. Accordingly, Table 4.2-8 presents baseline take of targeted wildlife species, but does not include individuals that were captured, dispersed, freed, relocated, or transferred of custody.

As shown in Table 3-7 of Chapter 3.0 of this EIR, the number of each target species taken per year varied. Variation in the level of take per species could be due to a number of factors including, but not limited to, changes in predator-prey populations due to drought, mast productivity, disease, and climate change; differences in the amount of food provided by humans from feeding, agriculture, trash deposition, and livestock operations; changes in human populations and their understanding and chosen methods of wildlife damage control; numbers and extent of wildfires and other natural disasters; and changes in available habitat types from human development and reduction of suitable habitat or restoration and increases in suitable habitat.

**Table 4.2-7
 Mendocino County WS-CA Non-Target Unintentional Take (2007-2017)**

Common Species Name	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Grand Total	Annual Average
American Badger	2	0	0	0	0	0	0	0	0	0	0	2	0.18
Black-Tailed Deer	0	0	0	0	0	0	0	5	1	4	0	10	0.91
Elk	0	0	0	0	0	0	0	0	0	1	0	1	0.09
Feral Swine	0	0	0	0	0	0	0	0	0	0	0	1	0.09
Gray Fox	0	1	0	0	2	0	0	0	1	1	1	6	0.55
North American Porcupine	0	0	0	0	0	0	0	1	2	0	0	3	0.27
Raccoon	1	0	0	0	1	0	1	0	1	0	1	5	0.45
Striped Skunk	0	0	0	0	0	0	0	0	0	0	1	1	0.09
Total Animals Unintentionally Taken	3	1	0	1	3	0	1	6	5	6	3	29	2.64

Source: WS-CA, 2018. Live Oak Associates, 2019.

**Table 4.2-8
Mendocino County WS-CA Total Species Take**

Common Species Name	Target Intentional Annual Average (1997-2017)	Target Unintentional Annual Average (2008-2017)	Non-Target Unintentional Annual Average (2007-2017)	Total Take Annual Average¹
American Badger	0.57	0.00	0.18	1
Black Bear	12.43	0.00	0.00	13
Black-tailed Deer	0.71	0.00	0.91	2
Bobcat	5.33	0.00	0.00	6
California Ground Squirrel	0.95	0.00	0.00	1
Cats - Feral and Free-ranging	0.14	0.00	0.00	1
Common Raven	0.19	0.00	0.00	1
Cougar	8.62	0.00	0.00	9
Coyote	196.14	0.00	0.00	197
Elk	0.10	0.00	0.09	1
European Starling	0.29	0.00	0.00	1
Feral Swine	23.43	0.10	0.09	24
Gray Fox	11.19	0.10	0.55	12
North American Porcupine	0.29	0.00	0.27	1
Raccoon	41.33	0.50	0.45	43
Red Fox	0.38	0.00	0.00	1
Rock Dove	13.43	0.00	0.00	14
Striped Skunk	61.29	0.40	0.09	62
Unknown Ground Squirrel	0.38	0.00	0.00	1
Unknown Snake (Poisonous and Non-Poisonous)	0.10	0.00	0.00	1
Virginia Opossum	11.10	0.20	0.00	12
Western Gray Squirrel	0.19	0.00	0.00	1
Western Spotted Skunk	1.05	0.00	0.00	2
Total	400.76	1.30	2.64	405

¹ Total annual averages rounded up to the nearest whole number.

Source: WS-CA, 2018. Live Oak Associates, 2019.

The following sections present information related to species ecology and baseline County-wide population estimates and take data for the nine primary species that were taken between 1997 and 2017. Low and high population estimates were calculated using a variety of sources, and should not be considered precise. Sources that were used to calculate population estimates were often based on information from other parts of California or locations outside of California. Furthermore, population estimates are based on an assumption that each species occurs at a consistent density across the CWHR habitats identified by CDFW as being of medium and/or high suitability for that species' reproduction, cover, and/or feeding (i.e. foraging). Finally, natural mortality or mortality (natural and human-caused) was included in the population estimate, rates of which are an approximation.

Black Bear

The general ecology of black bears and the methods used to estimate the population of black bears within the County are discussed in the following sections.

Ecology of the Species

The black bear occurs across much of North America, inhabiting forested regions of at least 40 U.S. states and all but one Canadian province.³⁰ The species prefers extensive wooded areas with a variety of fruit- and nut-producing plant species. An omnivore, black bears have a largely plant-based diet emphasizing acorns, berries, and succulent vegetation, but also forage for ants and fish, scavenge for carrion, and may catch and consume newborn deer and elk.

The opportunistic black bear shifts their space use as the seasons progress to access preferred foods as the preferred food source become available. Emerging from their dens in the springtime, black bears feed on grasses and forbs in wet meadows and riparian areas. With their fat reserves depleted from hibernation, black bears may strip the bark from trees in conifer forests to access the sugar-rich cambium layer beneath.³¹

Next, bears turn their attention to insects, foraging for ants and larvae in decaying logs and stumps in mixed conifer forest. As berry crops become available, bears move upslope to access huckleberry (*Vaccinium* sp.) or bearberry (*Arctostaphylos uva-ursi*), or into scrub habitats to access manzanita (*Arctostaphylos* sp.) berries. In the fall, bears frequent oak woodlands and mixed conifer forests, where they feed on acorns to fatten up for their return to their dens.

The black bear is a top-level or “apex” predator, one of seven North American species typically given this classification; the others are the grizzly bear (*Ursus arctos horribilis*), polar bear (*Ursus maritimus*), gray wolf (*Canis lupus*), cougar, jaguar (*Panthera onca*), and wolverine (*Gulo gulo*).³² Black bears are the most dominant apex predator within the species' range in California, with the possible exception of areas where gray wolves are present. Black bears are known to displace cougars from cougar kills³³ and, in the Mendocino National Forest, may be limiting cougar density.³⁴ Black bears also exert considerable pressure on mid-level predators or “mesopredators” like the raccoon and skunk. For example, a study of trophic interactions in an intertidal community in British Columbia found that black bears displaced raccoons and American minks (*Neovison vison*) from high-quality foraging habitat.³⁵ In Idaho, black bears

help to regulate elk populations through depredation on calves.³⁶ Black bears also promote avoidance behavior in ungulates, thereby limiting ungulate impacts to plant biomass.

In Mendocino County black bears were responsible for approximately 57 percent of the total reported monetary losses due to wildlife between 2007 and 2017. Specifically, black bear damage resulted in \$1,487,547.53 in damages throughout the County, which included the predation, harassment, or injury of 1,412 livestock.

In 1948 black bears were first classified as game animals with established hunting seasons and licensing requirements. Trapping for reasons other than damage control was outlawed within the State in 1961. Because black bears are a legally designated game mammal in California, hunters must follow regulations and obtain a tag prior to hunting the species during the hunting season for the species. However, Section 4181.1 of the California Fish and Game Code (FGC) stipulates that landowners may kill a bear encountered in the act of molesting or injuring livestock. Furthermore, State law allows for the issuance of a depredation permit to landowners or tenants that experience property damage from bears.³⁷

Baseline Population Estimate and Take Data

The calculation of the black bear population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for black bear reproduction, cover, and/or feeding: alpine-dwarf shrub, annual grassland, blue oak-foothill pine, chamise-redshank chaparral, coastal scrub, Douglas-fir, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, red fir, redwood, riverine, Sierran mixed conifer, subalpine conifer, valley foothill riparian, vineyard, wet meadow, and white fir.³⁸ The total area of CWHR habitats in Mendocino County that are of medium to high suitability for the black bear is 3,335 square miles (Table 4.2-1). Black bear density in California has been estimated at 0.58 to 0.77 individuals per square mile.³⁹ Applying the foregoing density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality,⁴⁰ Live Oak Associates calculated that there are approximately 2,535 to 3,375 black bears in the County (see Appendix E of the Biological Evaluation prepared for the proposed project), which may account for approximately 8.5 percent of the California low population estimate.⁴¹

WS-CA performed services in Mendocino County that resulted in black bear take each year from 1997 to 2017 (see Table 3-7 of the Project Description Chapter of this EIR). WS-CA did not record any unintentional take of black bears during the years for which data is available (see Table 4.2-7). Annual take of black bears ranged from three to 26 individuals, and averaged 13 individuals per year across the baseline period (see Table 4.2-8).

Bobcat

The general ecology of bobcats and the methods used to estimate the population of bobcats within the County are discussed in the following sections.

Ecology of the Species

The bobcat is common throughout North America, occurring in 47 of the 48 contiguous U.S. states, with populations by state generally reported to be increasing.⁴² An adaptable carnivore, bobcats take a variety of prey including rabbits, rodents, birds, reptiles, amphibians, invertebrates, and occasionally deer fawns. Although bobcats evolved as a mesopredator subordinate to apex predators like the cougar, grizzly bear, and gray wolf, bobcats have been promoted to apex predator in areas of the U.S. where larger predators have been extirpated, and has assumed a larger role in shaping ecosystem function.⁴³ In California, bobcats are generally considered a mesopredator, owing to the continued presence of the black bear and cougar.

Like many mesopredators, the bobcat is a habitat generalist, adapting to a wide range of environments that support its prey. Bobcats may be found in virtually all of California's ecosystems, including high alpine zones, forests, deserts, scrublands, and even urban areas. The species' optimal habitats, however, are chaparral and the brushy stages of low- to mid-elevation conifer, oak, riparian, and pinyon-juniper forests, as this is where the bobcats' prey is most abundant.⁴⁴

An elusive animal, bobcats pose virtually no threat to humans. The rare attacks by bobcats on humans that do occur are usually attributed to rabies or other illness. Bobcats can, however, run afoul of farmers by depredating poultry, lambs, and young pigs. Bobcats are also occasionally known to kill domestic cats and small dogs. Between 2007 and 2017, bobcats caused \$21,612.78 worth of reported damage, which includes the predation, harassment, and injury of 799 livestock, within Mendocino County.

In California, bobcats were historically trapped for their fur. However, in 2015, responding to passage of the Bobcat Protection Act, the California Fish and Game Commission enacted a statewide ban on recreational and commercial trapping of the species. Although bobcats may still be taken by licensed hunters possessing the appropriate tags, bobcat pelts may not be possessed, sold, or exported. The only type of trapping that is permissible for bobcats in California is trapping performed under the authority of a depredation permit issued by CDFW.

Baseline Population Estimate and Take Data

The calculation of the bobcat population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for bobcat reproduction, cover, and/or feeding: alpine-dwarf shrub, annual grassland, blue oak woodland, chamise-redshank chaparral, closed-cone pine-cypress, coastal scrub, cropland, Douglas-fir, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, perennial grassland, Ponderosa pine, red fir, redwood, saline emergent wetland, Sierran mixed conifer, subalpine conifer, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir.⁴⁵ The total area of CWHR habitats in Mendocino County that are of medium to high suitability for bobcat is 3,410 square miles (see Table 4.2-1). CDFW estimates that there are approximately 0.55 to 0.58 bobcats per square mile in California.⁴⁶ Applying this density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality,⁴⁷ Live Oak Associates calculated that there are approximately 2,210

to 2,330 bobcats in the County, which would account for approximately 2.7 percent of the California low population estimate (see Appendix F of the Biological Evaluation prepared for the proposed project).

In Mendocino County, one to twelve bobcats were taken by WS-CA every year from 1997 to 2017, with an average of six individuals per year (see Table 3-7 of the Project Description Chapter of this EIR). WS-CA did not record any unintentional take of bobcats during years for which data is available (see Table 4.2-7).

Cougar

The general ecology of cougars and the methods used to estimate the population of cougars within the County are discussed in the following sections.

Ecology of the Species

The cougar is the most widely distributed carnivore in the western hemisphere, ranging from Canada to Patagonia. Largely due to conflicts with humans, however, the species occupies only about one-third of the species' historic range.⁴⁸ The cougar once occurred throughout the United States, but today is found mainly west of the Rockies, with three small breeding populations in the Midwest and an endangered subspecies, the Florida panther (*Puma concolor coryi*), comprising 120 to 230 individuals in south Florida.⁴⁹ Predator eradication programs and overhunting led to the extinction of cougars in the eastern United States and eventual removal of the eastern subspecies (*Puma concolor cougar*) from the federal endangered species list.⁵⁰

In California, the cougar is widespread but uncommon. The species is most frequently associated with riparian areas and brushy stages of various other natural communities, but can be found in nearly any habitat. Cougars are only absent from the Central Valley and xeric regions of the Mojave and Colorado Deserts that do not support the species' primary prey, the mule deer (*Odocoileus hemionus*).⁵¹ Although deer comprise most of the species' diet throughout the year, cougars also predate on rabbits, rodents, porcupines, skunks, coyotes, and occasionally domestic stock animals.⁵²

As an apex predator, the cougar plays a vital role in shaping the ecosystem in which the species lives. Cougars regulate deer populations through predation, thereby preventing irruptions that can have catastrophic effects. In a study of cougar and ungulate populations in Zion National Park, Ripple and Beschta found that, when cougars were displaced, deer numbers surged.⁵³ Despite park managers' efforts to control the deer population, the park's cottonwoods (*Populus* sp.) and other riparian vegetation became severely overbrowsed, leading to stream bank erosion and declines in numerous taxa including plants, fish, lizards, various amphibians, and butterflies. In addition to direct predation, cougars promote avoidance behavior in deer, which has the effect of preventing deer from grazing too long in one location.

Despite popular perception, the cougar is generally not a threat to humans. From 1986 to 2014, there were only three verified fatal cougar attacks in California, and an additional twelve verified cougar attacks occurred in which the victim survived.⁵⁴ Nationwide, there have been

approximately 25 fatal attacks and 95 non-fatal attacks over the last century. Although the frequency of cougar attacks in North America was much higher in the 1990s and early 2000s than in previous decades, the rate of attacks has since dropped and stabilized.⁵⁵

Between 2007 and 2017, cougars caused \$143,447.38 worth of reported damage, which includes the predation, harassment, and injury of 620 livestock, within Mendocino County.

In a study of cougar feeding and spatial ecology on the Mendocino National Forest, Allen et al. detected relatively few cougars despite an abundance of deer, and attributed the low numbers in part to illegal hunting.⁵⁶

Cougars are not a hunted species in California, but may be lawfully taken under the authority of a depredation permit issued by CDFW, generally for conflicts related to the loss of livestock and pets. Cougars are also frequently poached. Poaching poses an additional mortality factor; Allen et al. cited poaching as one of two likely causes of low cougar density on the Mendocino National Forest.⁵⁷ Considering that male cougars are more likely than female cougars to depredate livestock,⁵⁸ and trophy males may be a more attractive target for poachers, human-caused mortality may be higher for male than female cougars in Mendocino County. Ordinarily, the removal of territorial male cougars from a population is offset by immigration into the area by young males.⁵⁹

Under FGC Section 4800, cougars in California are considered a “specially protected mammal,” and are subject to special provisions under the FGC. Due to the status of cougars as a specially protected mammal, take of the species is tightly controlled as sport take is not allowed in California. FGC Section 4801 authorizes CDFW or an approved local agency with public safety responsibility to remove or take an individual cougar that poses a public safety threat, but Section 4801.5 states that “...nonlethal procedures shall be used when removing or taking any mountain lion that has not been designated as an imminent threat to public health or safety.” Approved sport hunt of cougars has not occurred anywhere in California since 1972, due to a series of legislative moratoriums and lawsuits.

Baseline Population Estimate and Take Data

The calculation of the cougar population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for cougar reproduction, cover, and/or feeding: alpine-dwarf shrub, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, Douglas-fir, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, Ponderosa pine, red fir, redwood, Sierran mixed conifer, subalpine conifer, valley foothill riparian, valley oak woodland, wet meadow, and white fir.⁶⁰ The total area of CWHR habitats in Mendocino County that are of medium to high suitability for cougar is 2,992 square miles (see Table 4.2-1).

The Mountain Lion Foundation reports a typical cougar population density of 1.7 animals per 38.6 square miles of habitat, based on peer-reviewed studies from around the United States.⁶¹ However, cougar densities may vary substantially depending on local conditions.⁶² Given the

spatial variability of cougar densities, the use of data obtained from the study population of concern, or from within the area of concern, is preferable. An exhaustive search of peer-reviewed literature conducted by Live Oak Associates revealed a single cougar study in the North Coast region, which included population data.⁶³ That study reported a density of 0.68 cougars per 38.6 square miles in a Mendocino National Forest study area in which every resident cougar was believed to be accounted for.⁶⁴ Assuming that cougars occur at this density in medium to high suitability habitats throughout the County, the County's cougar population could be as low as 55 individuals. This low estimate of 55 individuals within the County breaks down into an assumed 43 adults and 12 juveniles/subadults. Using the average density of 1.7 cougars per 38.6 square miles reported by the Mountain Lion Foundation for a high population estimate, up to 130 cougars could occur in the County. Based on the foregoing population estimates, the County's cougar population would account for 2 to 4 percent of the California low population estimate (see Appendix G of the Biological Evaluation prepared for the proposed project).

A limited number of additional cougar studies have been conducted in California, which have yielded a range of cougar densities that are different from, but not dissimilar to, the densities presented above.⁶⁵ Additionally, the CDFW is in the process of conducting a statewide population study of cougars. Although the CDFW's statewide population estimate will provide reliable data for the estimation of cougars in Mendocino County, such data is not yet available from the CDFW.⁶⁶ Considering the range of population estimates available for cougar, the lack of available data from CDFW, and to provide a conservative basis for the analysis within this EIR using local data (i.e., North Coast region), the population density estimate determined by Allen et al. will be used as the basis of the analysis presented within this EIR.⁶⁷ It is recognized, however, that the study area for Allen et al.'s study encompassed approximately 1,000 km² and included portions of Tehama, Glenn, and Lake Counties, in addition to a portion of Mendocino County. Furthermore, the trapping area, which was used to estimate minimum cougar population density, encompassed 402 km² of the 1,000 km² total study area, whereas the County of Mendocino encompasses approximately 10,000 km². Notwithstanding these potential limitations, Allen et al.'s study is considered the best available data for purposes of this analysis.

A study prepared in 2003 contended that cougars in California's coastal regions may already be somewhat impaired, having the lowest genetic diversity in the state.⁶⁸ A separate study demonstrated that the state's overall cougar population exhibits 73 percent fewer alleles than those in South America, indicating that the statewide cougar population is less genetically diverse than the population in South America.⁶⁹ Interestingly, the study prepared in 2003 concluded that the southern three-quarters of the North Coast region, where the County is situated, is genetically differentiated from the northern one-quarter of this region despite apparently contiguous habitat and no obvious landscape barriers.⁷⁰ Despite the conclusions of the 2003 study, the same author prepared a subsequent study, which concluded differently based on updated genetic markers.⁷¹ The more recent study used genetic analysis of cougars throughout California and Nevada to identify cougar populations. In contrast to the 2003 study, the 2019 study did not divide the North Coast cougar population into a northern and southern sub-population. Furthermore, the North Coast population appeared large, genetically diverse, and well-connected to other populations. As discussed in the 2019 study, gene flow occurs primarily between the North Coast population and the Eastern and Western Sierra Nevada populations.⁷² Based on the recent study results, while a demographic imbalance between male and female

cougars in the County may exist,⁷³ the North Coast population does not appear to experience inhibited or substantially limited genetic diversity.⁷⁴

With respect to take date, in Mendocino County, two to fifteen cougars were taken by WS-CA every year from 1997 to 2017, with an average of 9 individuals per year (see Table 3-7 of the Project Description Chapter of this EIR). WS-CA did not record any unintentional take of cougars during years for which data is available (see Table 4.2-7).

Coyote

The general ecology of coyotes and the methods used to estimate the population of coyotes within the County are discussed in the following sections.

Ecology of the Species

Historically restricted to arid regions of western North America, the coyote underwent a dramatic range expansion beginning around 1900, and now occurs across most of the continent. The species' range has increased by an estimated 40 percent since the 1950s.⁷⁵ Factors thought to have influenced the coyote's range expansion include the extirpation of apex predators, conversion of once-forested areas to agricultural land more favorable to the coyote, and, in the eastern U.S., robust new genes acquired through hybridization with wolves and dogs.⁷⁶

Coyotes occurred in California well before European settlement; prior to European settlement the species' range within California likely excluded only the most heavily forested regions along the coast.⁷⁷ Today, coyotes occupy virtually every California habitat, and can even be found in cities. The species' preferred environs, however, include open scrub, shrub, and herbaceous habitats. Coyotes are also often found in association with cropland.⁷⁸

Coyotes are opportunistic omnivores, hunting for rodents, rabbits, frogs, snakes, insects, birds, and eggs, and also eating fruit, grass, and carrion. Coyotes are occasionally known to take deer fawns, and, in an anthropogenic landscape, may kill and consume lambs, calves, fowl, and domestic pets.⁷⁹ Between 2007 and 2017, coyotes caused \$143,524.89 worth of reported damage, which includes the predation, harassment, and injury of 1,106 livestock, within Mendocino County.

The coyote's capacity for stock depredation has led to intensive population control efforts. In 1931, the federal government formally expressed its intent to eradicate the coyote and other predators with the Animal Damage Control Act, which resulted in the take of millions of coyotes by federal officials and citizens alike. The eradication campaign was discontinued in the 1970s, but all states in the continental U.S. allow coyotes to be hunted, and most states do not impose seasonal restrictions or daily bag limits. Although California prohibits the coyote killing contests commonly held in other states, coyotes may be taken at any time of the year and in any number. Coyotes are also commercially trapped in California.

The coyote has responded to population control efforts, in many cases, by becoming more plentiful. Some authors have suggested coyotes compensate for increased human caused

mortality through increased litter size and juvenile survival⁸⁰ and increased pregnancy rates.⁸¹ However, Kilgo et al found only weak evidence for compensatory reproduction, and showed that juvenile population increase in an exploited coyote population in South Carolina was primarily due to juvenile immigration.⁸²

Historically a mesopredator controlled by wolves, bears, and cougars, the modern coyote functions as an apex predator in ecosystems where larger predators are absent.⁸³ As such, changes in coyote abundance can promote cascading effects throughout the food web. For example, in a review of previous studies, Mezquida et al. found that, where coyotes and greater sage-grouse (*Centrocercus urophasianus*) co-occur, coyotes are likely to indirectly aid sage-grouse by (1) suppressing American badgers (*Taxidea taxus*), red foxes (*Vulpes vulpes*) and common ravens, all of which are important sage-grouse nest predators, and (2) limiting the abundance of jackrabbits (*Lepus* sp.), which should lead to declines in local populations of golden eagles (*Aquila chrysaetos*), the main predator of adult sage-grouse, and increase the availability of forage for which jackrabbits and sage-grouse directly compete.⁸⁴

In California, coyotes appear to exert local control over non-native red fox populations. When coyotes temporarily disappeared from Mugu Lagoon in Ventura County in the late 1970s, red foxes moved into the area, and began preying so heavily on a population of California least terns (*Sterna antillarum browni*) that the endangered birds were not able to raise any young for several years. Coyotes returned to the area in the early 1980s; by 1985, the coyotes had nearly eliminated red foxes, and the terns were once again raising large numbers of young.⁸⁵

Coyotes are not listed under CESA or FESA, nor is the species considered a special-status species under CEQA.

Baseline Population Estimate and Take Data

The calculation of the coyote population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for coyote reproduction, cover, and/or feeding: alpine-dwarf shrub, annual grassland, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, deciduous orchard, Douglas-fir, eucalyptus, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, red fir, redwood, saline emergent wetland, Sierran mixed conifer, subalpine conifer, urban, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir.⁸⁶ The total area of CWHR habitats in Mendocino County that are of medium to high suitability for coyote is 3,472 square miles (see Table 4.2-1). CDFW estimates that there are between one and five coyotes per square mile in California.⁸⁷ Applying the CDFW's density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality,⁸⁸ Live Oak Associates calculated that there are between 6,500 and 32,500 coyotes in the County, which may account for 2.9 percent of the California low population estimate (see Appendix H of the Biological Evaluation prepared for the proposed project).

In Mendocino County, 127 to 272 coyotes were taken by WS-CA every year from 1997 to 2017, with an average of 197 individuals taken per year (see Table 3-7 of the Project Description Chapter of this EIR). WS-CA did not record any unintentional take of coyotes during years for which data is available (see Table 4.2-7).

Feral Swine

The general ecology of feral swine and the methods used to estimate the population of feral swine within the County are discussed in the following sections.

Ecology of the Species

The feral swine is an invasive species that has been experiencing range expansion across North America. The species is descended from domestic pigs and, to a lesser degree, Eurasian and Russian wild hogs brought to the New World for sport hunting. Feral swine have been present in California since the 1700s, when domestic pigs (*Sus scrofa domesticus*) imported for livestock use began escaping into the wild. In the 1920s, a Monterey County landowner introduced European wild hogs (*Sus scrofa ssp.*) to the state. California's modern feral swine is a hybrid between the domestic pig and European wild hog, and occurs in 56 of the state's 58 counties.⁸⁹ Continent-wide, the feral swine is present in at least 40 U.S. states and portions of Mexico and Canada.⁹⁰

An extreme habitat generalist, feral swine occur in a wide range of environments including woodlands, grasslands, meadows, and chaparral. The diet of feral swine is composed mostly of plant matter such as acorns and other mast, roots, tubers, grasses, and forbs. The species may consume a variety of invertebrate species, and will catch and eat reptiles, amphibians, birds, and mammals, particularly those that are young or less mobile. Feral swine may also forage in agricultural fields and orchards, consuming cereal crops, vegetables, fruits, nuts, and even cotton. Because the feral swine tends to maximize intake of a preferred resource when the resource is first encountered in the environment, the diet of feral swine can shift radically from day to day and season to season.⁹¹

The feral swine's success in North America can be attributed, in part, to the outsized reproductive capacity of the species. Females can begin breeding as juveniles and are physiologically capable of producing two litters a year. Although most litters average three to eight individuals, litter sizes of more than 10 are possible. Feral swine also experience a low natural mortality rate. The result of the feral swine's reproductive flexibility and low natural mortality rate is that, in a single year, local populations of feral swine can triple in size.⁹²

Like many invasive species, feral swine can severely degrade the ecosystems they inhabit. Siemann et al. found that riparian habitats used by feral swine had twice as much invasive Chinese tallow (*Triadica sebifera*) and half as many native oaks (*Quercus sp.*) and hickories (*Carya sp.*) as plots from which swine were experimentally excluded, with lower plant diversity overall.⁹³ Feral swine have also been shown to increase soil nitrogen and concomitant nutrient runoff into streams and rivers, contribute fecal coliforms to stream systems to the potential detriment of aquatic life, eliminate habitat for ground-dwelling small mammals, disperse the

seeds of invasive plants, and alter microbial communities in streams, with an increase in pathogens.⁹⁴

Feral swine can also have profound effects on food webs. For example, the introduction of feral swine to the Channel Islands of California provided a new, ample food source enabling golden eagles to recolonize the islands. The return of eagles caused a drastic decline in populations of the island fox (*Urocyon littoralis*), which in turn caused an increase in one of the fox's competitors, the island spotted skunk (*Spilogale gracilis amphiala*).⁹⁵

The feral swine is a popular big game species among hunters in the United States, second only to the white-tailed deer.⁹⁶ However, the increasing prevalence of the feral swine in the U.S. has led to an estimated \$1 billion worth of damage each year, including destruction of livestock fencing, predation on young livestock, crop depredation, and aggressive rooting behavior. Between 2007 and 2017 feral swine were responsible for \$492,326.89 worth of damage as well as the reported harassment of four adult swine within Mendocino County.

Feral swine are not listed under the CESA or FESA, and are not considered a special-status species under CEQA.

Baseline Population Estimate and Take Data

The calculation of the feral swine population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for feral swine reproduction, cover, and/or feeding: annual grassland, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, deciduous orchard, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir.⁹⁷ The total area of CWHR habitats in Mendocino County that are of medium to high suitability for feral swine is 2,346 square miles (see Table 4.2-1). Sweitzer et al. estimated that there are between 1.81 and 9.84 feral pigs per square mile in California.⁹⁸ Applying this density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality,⁹⁹ Live Oak Associates calculate that between 18,890 and 102,640 feral swine occur in the County, which may account for 9 percent of the California low population estimate (see Appendix I of the Biological Evaluation prepared for the proposed project). According to CDFW, Mendocino is regularly one of the top five counties for feral swine hunting tag returns, which may imply that it has one of the highest populations of feral swine in the state.¹⁰⁰

In Mendocino County, a maximum of 91 feral swine were intentionally taken by WS-CA from 1997 to 2017, with an average of 24 individuals taken per year (see Table 3-7 of the Project Description Chapter of this EIR). From 2007 through 2017, two feral swine were unintentionally taken by WS-CA (see Table 4.2-7).

Gray Fox

The general ecology of gray fox and the methods used to estimate the population of gray fox within the County are discussed in the following sections.

Ecology of the Species

The gray fox occupies a large swath of the Americas encompassing southeastern Canada, all of the contiguous United States, except the northern Rockies, and the Pacific Northwest, as well as the entirety of Latin America south through western Venezuela. The species is one of only two members of the genus *Urocyon*, the other being the island fox of California's Channel Islands. Throughout the range of the gray fox, the species is most often associated with forest and woodland habitats, generally with a source of water nearby.¹⁰¹ Gray foxes may also occur in shrublands, meadows, fallow fields, and agricultural lands. Where gray fox co-occurs with the larger red fox, the gray fox prefers habitats with dense underbrush.¹⁰²

The gray fox primarily preys on rabbits and rodents, but as an omnivore, will also consume insects, carrion, fruits, nuts, grains, and some herbage. The species may occasionally depredate domestic poultry, although there is some indication these damages are overstated, and that the gray fox primarily benefits agriculture by controlling rodent and rabbit populations.¹⁰³ While the net effect of gray foxes on agriculture is a subject of debate, between 2007 and 2017, gray foxes were reported to have caused \$1,489.60 worth of damage, which includes predation and harassment of 87 livestock, within Mendocino County.

Adult gray foxes have few predators, but are occasionally taken by golden eagles, coyotes, and bobcats.¹⁰⁴ Gray fox pups are more widely preyed upon, taken by golden eagles, bobcats, domestic dogs, great horned owls (*Bubo virginianus*), and large hawks.¹⁰⁵ The gray fox generally escapes enemies by finding cover rather than running. Gray foxes may also climb trees, a distinction the species shares with only two other canids, the congeneric island fox and the tanuki (*Nyctereutes procyonoides*) of east Asia.

Gray foxes are known to carry rabies and may be impacted at the population level by this disease.¹⁰⁶ However, rabies in wild canids has had a relatively low observed incidence in California for the past 30 years.¹⁰⁷ Rabid gray foxes in California tend to be infected with the skunk variant as opposed to the bat variant of the disease; the prevalence of the skunk variant may be attributed to the fact that gray foxes and skunks occupy similar ecological niches.¹⁰⁸ A rabid gray fox was recently identified outside Ukiah in Mendocino County.¹⁰⁹

In California, the gray fox is classified as a fur-bearing mammal that can be hunted or trapped, without any bag or possession limits, during the regulated season for the species. The gray fox is not listed under CESA or FESA and is not considered a special-status species under CEQA.

Baseline Population Estimate and Take Data

The calculation of the gray fox population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for gray fox reproduction, cover,

and/or feeding: annual grassland, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, Douglas-fir, eucalyptus, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, redwood, saline emergent wetland, Sierran mixed conifer, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir.¹¹⁰ The total area of CWHR habitats in Mendocino County that are of medium to high suitability for gray fox is 3,459 square miles (see Table 4.2-1). CDFW estimates that there are between one and 3.04 gray fox per square mile in California.¹¹¹ Applying the CDFW density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality,¹¹² Live Oak Associates calculated that there are approximately 4,785 to 14,540 gray fox in the County, which may account for approximately three percent of the California low population estimate (see Appendix J of the Biological Evaluation prepared for the proposed project).

In Mendocino County one to 29 gray foxes were taken by WS-CA every year from 1997 to 2017, with an average of 12 individuals intentionally taken per year (see Table 3-7 of the Project Description Chapter of this EIR). Seven gray fox were unintentionally taken by WS-CA from 2007-2017 (see Table 4.2-7).

Raccoon

The general ecology of raccoons and the methods used to estimate the population of raccoons within the County are discussed in the following sections.

Ecology of the Species

The native range of the raccoon extends from Canada to the tip of Latin America, excluding only desert regions and portions of the Rocky Mountains. A highly adaptable species, the species range of the raccoon has expanded in North America by an estimated 18 percent since the 18th century,¹¹³ spreading from forested landscapes into a variety of ecosystems, including urban areas and cropland. The species has also been introduced to other parts of the globe, and now has an extensive presence in Germany, Russia, and Japan.

Although the raccoon can be found in most of California's natural communities, the species' preferred habitats are riparian and wetland areas at low to mid-range elevations.¹¹⁴ Raccoons have an omnivorous diet that varies by season, emphasizing animals in the spring and plant matter in the summer and fall. The species' prey include crayfish, fish, arthropods, amphibians, a few small mammals, and birds; raccoons also hunts for bird eggs. For plant matter, the species takes grains, acorns, other nuts, and fruits. In urban areas, raccoons feed on backyard fruits and vegetables, garbage, compost, pet food, and birdseed.

The raccoon is a mesopredator, but raccoons are preyed upon by coyotes, bobcats, domestic dogs, great-horned owls, and large hawks.¹¹⁵ The species may also exert top-down pressure on smaller mesopredators. For example, control of raccoons in Florida to protect sea turtle eggs paradoxically resulted in increased egg predation because the ghost crab, another egg predator, had reduced predation by the raccoon.¹¹⁶

The raccoon's capacity to thrive in the human environment has led to conflict with humans. Damage often centers on the tendency of this species to den in buildings. Raccoons have been known to rip off shingles, fascia boards, and vents to access attic spaces; damage crawl space doors to attempt denning beneath homes; and enter uncapped chimneys. Once inside a building, raccoons can cause considerable damage at their latrine sites and by promoting infestation with ectoparasites.¹¹⁷ Raccoons can also cause considerable damage in cropland, particularly in corn fields where the species is known to partially eat many ears of corn at once.

Between 2007 and 2017 raccoons were responsible for \$44,709.54 worth of damage, which includes predation of 75 livestock, within Mendocino County.

Although raccoons account for 29.7 percent of confirmed rabies cases in wild animals nationwide, raccoon rabies is presently limited to the eastern U.S.; there have not been any confirmed cases in California.¹¹⁸ Although raccoon rabies has not been confirmed in California, raccoons in California carry other diseases. Raccoon roundworm (*Baylisascaris procyonis*) is thought to be especially prevalent in the state, and is of particular concern because raccoon roundworm can be transmitted to humans and sometimes be fatal.

The raccoon is classified as a fur-bearing mammal in California, and can be hunted or trapped, without any bag or possession limits, during its regulated season. The raccoon is not listed under CESA or FESA and is not considered a special-status species under CEQA.

Baseline Population Estimate and Take Data

The calculation of the raccoon population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for raccoon reproduction, cover, and/or feeding: blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, Douglas-fir, eucalyptus, Jeffrey pine, Klamath mixed conifer, lacustrine, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, red fir, redwood, riverine, saline emergent wetland, Sierran mixed conifer, subalpine conifer, urban, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir.¹¹⁹ The total area of CWHR habitats in Mendocino County that are of medium to high suitability for raccoon is 3,108 square miles (see Table 4.2-1).

In researching population estimates for racoons in Mendocino County, Live Oak Associates only identified one population density study of raccoons that had been conducted in California. The study was conducted in the Livermore area in 1980, based on an observation by an experienced houndsman in that area that raccoon numbers had been declining. Density estimates of 0.45 and 0.70 raccoons per square mile were obtained for the project's two study areas, located on open space preserves in Alameda and Contra Costa counties, respectively.¹²⁰ The population estimates from the Livermore area study are the lowest raccoon population density estimates readily available in the literature,¹²¹ and may substantially underestimate California's raccoon population when extrapolated statewide.¹²² Nevertheless, conservatively following the methods of CDFW 2004,¹²³ Live Oak Associates applied the estimates from the Livermore area study to suitable habitats in Mendocino County, and after accounting for annual reproduction and

mortality, obtained an estimate of 2,205 to 3,435 raccoons in the County. Such a population range may account for approximately 6 percent of the California low population estimate (see Appendix K of the Biological Evaluation prepared for the proposed project).

In Mendocino County, 10 to 73 raccoons were taken by WS-CA every year from 1997 to 2017, with an average of 42 individuals intentionally taken per year (see Table 3-7 of the Project Description Chapter of this EIR). Ten raccoons were unintentionally taken by WS-CA from 2007-2017 (see Table 4.2-7).

Striped Skunk

The general ecology of striped skunk and the methods used to estimate the population of striped skunk within the County are discussed in the following sections.

Ecology of the Species

The range of the striped skunk spans the contiguous United States, extending into southern Canada and northern Mexico. The species is associated with a variety of habitats including forests, woodlands, and grasslands, and has increasingly been found in urban areas, suburban neighborhoods, and agricultural lands. Striped skunks are most common at elevations below 6,800 feet, but have been documented as high as 13,700 feet. In California, the species occurs in virtually every habitat type from sea level to timberline, excluding portions of the Mojave and Colorado Deserts.

The striped skunk is an opportunistic feeder and will change diets to exploit resources as different resources become available. In the spring and summer, the species is primarily insectivorous, consuming grasshoppers, crickets, and beetles and occasionally other invertebrates such as worms and crayfish. In the wintertime the species relies more heavily on small mammals such as voles (*Microtis sp.*). The species is also known to consume amphibians, reptiles, fish, the eggs and young of ground-nesting birds, and plant matter including fruits, seeds, and corn. Skunks in residential areas commonly scavenge on garbage and pet food.

In suburban and urban environments, skunks frequently take shelter under homes, porches, and sheds, drawing concerns from residents due to odor, landscaping damage, and disease. Although most wildlife rabies cases in California are associated with bats, skunks are the second most common carrier, representing 12.7 percent of confirmed cases in 2015.¹²⁴ Skunks can also carry leptospirosis, listeriosis, canine distemper, and various other diseases.

Despite their scent weapon, skunks are hunted by a variety of larger mammalian predators including cougars, bobcats, coyotes, foxes, and badgers. The species may also be taken by the great horned owl and golden eagle, which are unaffected by the skunk's musk.¹²⁵

In terms of ecosystem services, skunks are an important source of insect control in both natural communities and anthropogenic landscapes. Nevertheless, skunks are considered a pest species in California and may be taken at any time of year and in any number. Skunks may also be

trapped for their pelts; however, market demand for skunk pelts is presently low and trapping is relatively uncommon.

Between 2007 and 2017 skunks were responsible for \$61,923.60 worth of damage, which includes causing a fatality, predating, or resulting in a disease threat to 25 livestock, within Mendocino County.

Striped skunks are not listed under CESA or FESA and are not considered a special-status species under CEQA.

Baseline Population Estimate and Take Data

The calculation of the striped skunk population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for striped skunk reproduction, cover, and/or feeding: annual grassland, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, deciduous orchard, Douglas-fir, eucalyptus, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, red fir, redwood, saline emergent wetland, Sierran mixed conifer, subalpine conifer, urban, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir.¹²⁶ The total area of CWHR habitats in Mendocino County that are of medium to high suitability for striped skunk is 3,472 square miles (see Table 4.2-1). CDFW calculates that there are between 1.3 and 6.2 striped skunks per square mile in California. Applying the CDFW density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality (CDFG 2004),¹²⁷ Live Oak Associates calculated that there are approximately 6,495 to 30,985 striped skunks in Mendocino County, which may account for up to approximately 4.5 percent of the California low population estimate (see Appendix L of the Biological Evaluation prepared for the proposed project).

In Mendocino County, 28 to 101 striped skunks were taken by WS-CA every year from 1997 to 2017, with an average of 62 individuals intentionally taken per year (see Table 3-7 of the Project Description Chapter of this EIR). Five striped skunks were unintentionally taken by WS-CA from 2007-2017 (see Table 4.2-7).

Virginia Opossum

The general ecology of Virginia Opossum and the methods used to estimate the population of Virginia Opossum within the County are discussed in the following sections.

Ecology of the Species

The Virginia opossum is a marsupial native to portions of North America and Central America, but not native to California. At the time of European settlement, the species' range in North America was limited to what is now Mexico and the southeastern United States. Virginia opossums gradually moved northward and westward, and in the early 1900s was introduced to several western states, including California.¹²⁸ Today, the species' natural range sweeps across

the continent from Ontario to Colorado, taking in all points south and east through Costa Rica. The species' introduced range includes California west of the Sierra Nevada, northern Oregon, and southern Washington.

Preferred opossum habitats include stream banks, swamps, and wetlands; however, the species can be found in a wide range of habitats and readily adapts to and thrives in anthropogenic landscapes. In California, opossums are most often associated with riparian woodlands, brushy habitats, wetlands, and agricultural and residential areas.

A highly opportunistic omnivore, the opossum eats a wide variety of plant and animal matter. Depending on location and season, the opossum may hunt for slugs, snails, insects, earthworms, mice, and snakes, may forage for fruits, grains, green vegetation, and fungi, and may scavenge carrion and anthropogenic foods. In urban or suburban environments, pet food figures prominently into the opossum's diet.

The opossum is a prolific breeder, producing two litters per year in California and up to three annual litters in warmer parts of the species' range, with an average litter size of six to 10.¹²⁹ However, reproductive viability is short-lived, corresponding to a short overall lifespan. Males typically only participate in a single year of breeding and females are viable for two years. Opossum life expectancy has been estimated at 1.3 years or less in the wild,¹³⁰ with annual mortality of 90 to 100 percent reported in a number of studies.¹³¹ In any given area, the young of the year comprise the bulk of the population, and adult males are virtually absent, their lives truncated by elevated stress hormone levels¹³² in addition to factors affecting the remainder of the population, like predation and roadkill.¹³³ In a trapping study in Oklahoma and Texas, no adult males were captured after more than 12,000 trap-nights spanning two years.¹³⁴

The opossum has the potential to benefit humans by functioning as an ecological trap for tick species that carry Lyme disease. Keesing et al. found that, while the opossum appears to be a preferred host for ticks, the opossum kills an estimated 96.5 percent of its tick burden, translating to more than 5,000 ticks per week, per individual.¹³⁵

Notwithstanding these and other potential benefits, opossums are generally considered a nuisance due to their depredation of poultry and agricultural and garden crops, antagonistic behavior toward pets, and potential to spread diseases and ectoparasites. Opossums may carry leptospirosis, bovine tuberculosis, toxoplasmosis, and various other pathogens,¹³⁶ some of which may infect domesticated animals. Horses are known to contract a type of myeloencephalitis from exposure to a protozoan passed in opossum feces. Owing to aforementioned and other potential conflicts with humans, the opossum is considered a pest species in California and may be taken at any time of the year and in any number. The opossum is also a commercially trapped species.

Between 2007 and 2017 opossum were responsible for \$1,399.50 worth of damage, which includes predation of two livestock, within Mendocino County.

Opossum are not listed under CESA or FESA and are not considered a special-status species under CEQA.

Baseline Population Estimate and Take Data

The calculation of the Virginia opossum population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for opossum reproduction, cover, and/or feeding: blue oak woodland, blue oak-foothill pine, coastal oak woodland, coastal scrub, cropland, Douglas-fir, eucalyptus, mixed chaparral, montane hardwood, montane hardwood-conifer, montane riparian, Ponderosa pine, redwood, urban, valley foothill riparian, valley oak woodland, vineyard, and wet meadow.¹³⁷ The total area of CWHR habitats in Mendocino County that are of medium to high suitability for Virginia opossum is 2,765 square miles (see Table 4.2-1). CDFW estimates that there are between 1.3 and 20.2 opossums per square mile in California.¹³⁸ Applying the CDFW density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality,¹³⁹ Live Oak Associates calculated that approximately 4,670 to 72,625 Virginia opossums occur in the County, which may account for approximately 11.5 percent of the California low population estimate (see Appendix M of the Biological Evaluation prepared for the proposed project).

In Mendocino County, three to 19 opossums were taken by WS-CA every year from 1997 to 2017, with an average of 12 individuals intentionally taken per year (see Table 3-7 of the Project Description Chapter of this EIR as well as Table 4.2-8). Two Virginia opossums were unintentionally taken by WS-CA from 2007-2017 (see Table 4.2-7).

4.2.3 REGULATORY CONTEXT

A number of Federal, State, and local policies provide the regulatory framework that guides the protection of biological resources. The following discussion summarizes those laws that are most relevant to biological resources in the County.

Federal Regulations

The following are the Federal environmental laws and policies relevant to biological resources.

FESA

Under the FESA, the Secretary of the Interior and the Secretary of Commerce have joint authority to list a species as threatened or endangered (16 USC § 1533(c)). Two federal agencies oversee the FESA: the USFWS has jurisdiction over plants, wildlife, and resident fish, while the NMFS has jurisdiction over anadromous fish and marine fish and mammals. Section 7 of the FESA mandates that federal agencies consult with the USFWS and NMFS to ensure that federal agency actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. The FESA prohibits the ‘take’ of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery. Take is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct.

Section 10 requires the issuance of an “incidental take” permit before any public or private action may be taken that could take an endangered or threatened species. The permit requires

preparation and implementation of a habitat conservation plan (HCP) that would offset the take of individuals that may occur, incidental to implementation of a proposed project, by providing for the protection of the affected species. HCPs are discussed in further depth below.

Pursuant to the requirements of the FESA, a federal agency reviewing a project within the jurisdiction of the agency must determine whether any federally listed threatened or endangered species may be present in the project area and whether the proposed project will have a potentially significant impact on such species. In addition, the agency is required to determine whether the proposed action is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC § 1536(3), (4)).

Habitat Conservation Plans and Natural Community Conservation Plans

Section 10 of FESA establishes a process by which non-federal projects can obtain authorization to incidentally take listed species, provided take is minimized and thoroughly mitigated. A HCP, developed by the project applicant in collaboration with the USFWS and/or NMFS, ensures that such minimization and mitigation will occur, and is a prerequisite to the issuance of a federal incidental take permit. Similarly, a Natural Community Conservation Plan (NCCP), developed by the project applicant in collaboration with CDFW, provides for the conservation of biodiversity within a project area, and permits limited incidental take of state-listed species.

One HCP is in effect in Mendocino County, and a combined HCP/NCCP that is currently under development. The Fisher Family HCP was adopted in 2007. The Fisher Family HCP covers approximately 24 acres of coastal scrub in Point Arena, and authorizes limited incidental take of the federally endangered Behren's silverspot butterfly (*Speyeria zerene behrensii*) and Point Arena mountain beaver (*Aplodontia rufa nigra*) associated with development and occupancy of a home site. The Fisher Family HCP establishes two conservation areas totaling 7.75 acres that are designed to protect, in perpetuity, occupied and potential habitat for the covered species. The Fisher Family HCP also requires implementation of certain measures to minimize take of the covered species. Minimization measures included in the Fisher Family HCP that may be relevant to the IWDM Program and alternatives are as follows:

- No rodenticide use is allowed within the conservation areas.
- Pesticide use elsewhere on the property must be conducted in accordance with the Environmental Protection Agency (EPA)'s 1998 *Interim Measures for Use of Rodenticides in Mendocino County* (EPA 1998). Specifically:
 - (1) Application of burrow fumigants must be supervised by a person trained to distinguish the dens and burrows of target species from those of non-target species
 - (2) Use of burrow fumigants is restricted to the active burrows of target species
 - (3) Use of burrow fumigants is prohibited within 500 feet of water courses except in cultivated areas
 - (4) Rodent baits must be placed in tamper-resistant bait boxes in areas inaccessible to wildlife.
- No vehicles of any kind will be allowed within the conservation areas.

- No domestic or feral animals of any kind will be allowed in the conservation areas including domestic cats, dogs, horses, cattle, or other livestock.

It should be noted that the IWDM Program, Non-Lethal Program Alternative, and variation to the Non-Lethal Program Alternative would not involve the use of rodenticides or pesticides.

The Mendocino Redwood Company (MRC) HCP/NCCP, is being developed by MRC, CDFW, USFWS, NMFS, and other stakeholders for approximately 232,000 acres of coastal forest that is in timber production. The MRC HCP/NCCP is anticipated to cover 42 special-status plants and animals, many of which are listed under the CESA and/or FESA.

Designated Critical Habitat

As discussed above in Section 4.2.2, the USFWS often designates areas of “critical habitat” when the USFWS lists species as threatened or endangered. Critical habitat is defined by section 3(5)(A) of FESA as “(i) The specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.” FESA goes on to define “conservation” as “the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which listing under the Act is no longer necessary.” It should be noted that a recent decision by the U.S. Supreme Court in the case *Weyerhaeuser Co. v. U.S. Fish and Wildlife Service* clarified that areas designated as critical habitat under FESA must represent habitat for the relevant listed species at the time of designation. That is, the potential for areas to provide habitat in the future is not sufficient evidence for an area to be deemed critical habitat if the area to be designated is not currently used by the listed species as habitat.

The designation of a specific area as critical habitat does not directly affect the ownership of that area. Federal actions that result in destruction or adverse modification of critical habitat are, however, prohibited in the absence of prior consultation with the USFWS according to provisions of FESA. Furthermore, recent appellate court cases require that federal actions affecting critical habitat promote the recovery of the listed species protected by the critical habitat designation.

The USFWS designates critical habitat for a species by identifying general areas likely to contain the species’ “primary constituent elements,” or physical or biological features of the landscape that the species needs to survive and reproduce. Although a unit of critical habitat for a particular species may be quite large, only the lands within the unit that contain the species’ primary constituent elements are actually considered critical habitat by the USFWS.

Migratory Bird Treaty Act (MBTA)

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of State and federal laws. The federal MBTA prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Section 3503.5 of the California Fish and Wildlife Code states, “It is unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.”

Although the USFWS and the USFWS’s parent administration, the U.S. Department of the Interior, have traditionally interpreted the MBTA as prohibiting incidental as well as intentional take of birds, a January 2018 legal opinion issued by the Department of the Interior now states that incidental take of migratory birds while engaging in otherwise lawful activities is permissible under the MBTA. However, the California FGC clarifies that taking or possessing any non-game bird covered by the MBTA (Section 3513), as well as any other native non-game bird (Section 3800), is unlawful, even if incidental to lawful activities.

Clean Water Act (CWA)

The USACE regulates discharge of dredged or fill material into Waters of the U.S. under Section 404 of the CWA. “Discharge of fill material” is defined as the addition of fill material into Waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 C.F.R. §328.2[f]). In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 C.F.R. §328.3[b]).

Furthermore, Jurisdictional Waters of the U.S. can be defined by exhibiting a defined bed and bank and an ordinary high water mark (OHWM). The OHWM is defined by the USACE as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (33 C.F.R. §328.3[e]).

State Regulations

The following are the State environmental laws and policies relevant to biological resources.

California Department of Fish and Wildlife

CDFW administers a number of laws and programs designed to protect fish and wildlife resources under the FGC, such as CESA (FGC Section 2050, et seq.), Fully Protected Species (FGC Section 3511), and the Lake or Streambed Alteration Agreement Program (FGC Sections 1600 to 1616). Such regulations are summarized in the following sections.

California Endangered Species Act

The State of California enacted CESA in 1984. CESA is similar to the FESA but pertains to State-listed endangered and threatened species. CESA requires State agencies to consult with CDFW when preparing CEQA documents to ensure that the State lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify “reasonable and prudent alternatives” to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that “overriding considerations” exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

CESA prohibits the taking of State-listed endangered or threatened plant and wildlife species. CDFW exercises authority over mitigation projects involving State-listed species, including those resulting from CEQA mitigation requirements. CDFW may authorize taking if an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy is implemented. CDFW requires preparation of mitigation plans in accordance with published guidelines.

Fish and Game Code Section 3505

Birds of prey are protected in California under provisions of the California FGC, Section 3503.5, (1992), which states, “it is unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” California FGC Section 3503 further extends the protection of nests and eggs to all birds, not just the nests and eggs of birds of prey. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “taking” by CDFW.

Lake or Streambed Alteration Program

CDFW exercises jurisdiction over wetland and riparian resources associated with rivers, streams, and lakes under California FGC Section 1600 to 1607. CDFW has the authority to regulate work that will do any one or more of the following:

- 1) Divert, obstruct, or change the natural flow of a river, stream, or lake;
- 2) Change the bed, channel, or bank of a river, stream, or lake; or

3) Use material from a streambed.

CDFW's jurisdictional area along a river, stream or creek is usually bounded by the top-of-bank or the outermost edges of riparian vegetation. Typical activities regulated by CDFW under Section 1600-1616 authority include installing outfalls, stabilizing banks, implementing flood control projects, constructing river and stream crossings, diverting water, damming streams, gravel mining, and logging.

Section 1602 of the California FGC requires notification of CDFW for lake or stream alteration activities. If, after notification is complete, CDFW determines that the activity may substantially adversely affect an existing fish and wildlife resource, CDFW has authority to issue a Streambed Alteration Agreement under Section 1603 of the California FGC. Requirements to protect the integrity of biological resources and water quality are often conditions of Streambed Alteration Agreements. Such requirements may include avoidance or minimization of heavy equipment use within stream zones, limitations on work periods to avoid impacts to wildlife and fisheries resources, and measures to restore degraded sites or compensate for permanent habitat losses.

Waters of the State, including wetlands, are considered sensitive biological resources and fall under the jurisdiction of CDFW and California's Regional Water Quality Control Boards (RWQCBs).

CDFW Species of Special Concern

In addition to formal listings under FESA and CESA, plant and wildlife species receive additional consideration during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern" developed by CDFW. Species whose numbers, reproductive success, or habitat may be threatened are tracked by CDFW in California.

California Fully Protected Species

The classification of certain animal species as "fully protected" was the State of California's initial effort in the 1960s, prior to the passage of CESA, to identify and provide additional protection to those species that were rare or faced possible extinction. Following CESA enactment in 1970, many fully protected species were also listed as California threatened or endangered. Fully protected species are identified, and their protections stipulated, in California FGC Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and fish (5515). Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take, except in conjunction with necessary scientific research and protection of livestock.

CEQA Guidelines Section 15380

Section 15380 of the CEQA Guidelines defines endangered, rare, or threatened species that constitute special-status species under CEQA. Section 15380 specifies that plants or animals listed under CESA or FESA constitute endangered, rare, or threatened species. In addition, Section 15380(b) states that species may be considered rare if the species exists in sufficiently

small numbers throughout all or a significant portion of the species' range that the species could become endangered if environmental conditions worsen in the species' habitat.

Depredation Permits

In certain situations, CDFW may issue depredation permits to individuals reporting property damage or loss caused by wildlife. Depredation permits allow the permit holder to lawfully take the problematic animal regardless of time of year or the species' legal status. For example, cougars may not be legally hunted in California, but may be taken under the authority of a depredation permit issued pursuant to FGC Section 4802. Depredation permits may also be issued for elk (FGC Section 4181), deer (FGC Section 4181.5), wild turkeys (FGC Section 4181), feral swine (FGC Section 4181), and black bears (FGC Section 4181). Depredation take by WS-CA requires a depredation permit from CDFW.

Certain animals may be taken immediately, without the need for a depredation permit, if the animals are in the act of damaging property. Animals that may be taken without a depredation permit include black bears (Section 4181.1), feral swine (Section 4181.1), fur-bearing mammals (Section 4180), and nongame mammals (Section 4152). Depending on the species, the method of taking may be regulated and/or CDFW may need to be notified following the taking.

Specially Protected Mammals

Under FGC Section 4800, cougars in California are considered a "specially protected mammal," and are subject to special provisions under FGC Sections 4800-4810. Cougars are the only species currently identified as a specially protected mammal under FGC Section 4800. Due to the status of cougars as a specially protected mammal, take of the species is tightly controlled as sport take is not allowed in California. FGC Section 4801 authorizes CDFW or an approved local agency with public safety responsibility to remove or take an individual cougar that poses a public safety threat, but Section 4801.5 states that "...nonlethal procedures shall be used when removing or taking any mountain lion that has not been designated as an imminent threat to public health or safety." Cougars that have depredated, or are in the act of depredating, livestock or other property may be taken as provided for under Sections 4802-4809, but only in accordance with provisions designed to ensure that the correct animal is taken, and as authorized by a depredation permit issued by CDFW. Approved sport hunt of cougars has not occurred anywhere in California since 1972, due to a series of legislative moratoriums and lawsuits.

In March 2013, the CDFW updated the department's policies regarding cougar sightings, depredation, potential human conflict, and public safety concerns. The updated policies included standardized reporting requirements for cougar sightings, as well as reporting and procedural requirements for depredation responses. In particular, the March 2013 policy specified that only one cougar may be taken under a depredation permit, while also placing limitations on the initiation of pursuit of the cougar and the distance a cougar can be pursued. Upon conclusion of the depredation response, the responder is required to complete specified reporting procedures within three business days. The policy further states that the CDFW shall recommend non-lethal means of managing cougars whenever possible.

Regional Water Quality Control Board

Pursuant to Section 401 of the CWA and EPA 404(b)(1) guidelines, in order for a USACE federal permit applicant to conduct any activity which may result in discharge into navigable waters, they must provide a certification from the RWQCB that such discharge will comply with the State water quality standards. The RWQCB has a policy of no-net-loss of wetlands in effect and typically requires mitigation for all impacts to wetlands before the RWQCB will issue water quality certification.

Under the Porter-Cologne Water Quality Control Act (Cal. Water Code Section 13000-14920), the RWQCB is authorized to regulate the discharge of waste that could affect the quality of the State's waters. Therefore, even if a project does not require a federal permit (i.e., a Nationwide Permit from the USACE), the project may still require review and approval by the RWQCB, in light of the approval of new NWP's on March 9, 2000 and the Supreme Court's decision in the case of the Solid Waste Agency of Northern Cook County (SWANCC) vs. USACE. The RWQCB in response to the foregoing court case, issued guidance for regulation of discharges to "isolated" water on June 25, 2004. The guidance states:

Discharges subject to Clean Water Act section 404 receive a level of regulatory review and protection by the USACE and are also subject to streambed alteration agreements issued by the CDFW; whereas discharges to waters of the State subject to SWANCC receive no federal oversight and usually fall out of CDFW jurisdiction. Absent of RWQCB attention, such discharges will generally go entirely unregulated. Therefore, to the extent that staffing constraints require the RWQCB to regulate some dredge and fill discharges less closely than others and consistent with other RWQCB priorities, RWQCBs should consider setting a higher regulatory priority on discharges to "isolated" waters than to discharges of similar extent, severity, and permanence to federally-protected waters of similar value. Dredging, filling, or excavation of "isolated" waters constitutes a discharge of waste to waters of the State, and prospective dischargers are required to submit a report of waste discharge to the RWQCB and comply with other requirements of Porter-Cologne.

When reviewing applications, the RWQCB focuses on ensuring that projects do not adversely affect the "beneficial uses" associated with waters of the State. Generally, the RWQCB defines beneficial uses to include all of the resources, services and qualities of aquatic ecosystems and underground aquifers that benefit the State. In most cases, the RWQCB seeks to protect these beneficial uses by requiring the integration of water quality control measures into projects that will result in discharge into waters of the State. For most construction projects, RWQCB requires the use of construction and post-construction Best Management Practices (BMPs). In many cases, proper use of BMPs, including bioengineering detention ponds, grassy swales, sand filters, modified roof techniques, drains, and other features, will speed project approval from RWQCB. Development setbacks from creeks are also requested by RWQCB as they often lead to less creek-related impacts in the future.

California Native Plant Society

CNPS maintains a list of plant species native to California that has low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following identifies the definitions of the CNPS listings:

- List 1A: Plants believed extinct.
- List 1B: Plants rare, threatened, or endangered in California and elsewhere.
- List 2: Plants rare, threatened, or endangered in California, but more numerous elsewhere.
- List 3: Plants about which we need more information - a review list.
- List 4: Plants of limited distribution - a watch list.

Local Regulations

The following are the local environmental laws and policies relevant to biological resources.

County of Mendocino General Plan

The following goals and policies related to biological resources from the Mendocino County General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

- Goal RM-1 Land uses, development patterns and practices that facilitate functional and healthy watershed ecosystems.
 - Policy RM-1 Protect stream corridors and associated riparian habitat.
 - Policy DE-219 Encourage fire protection districts to determine and report capabilities to adequately serve existing and potential development.
- Goal RM-4 Protection and enhancement of the county's natural ecosystems and valuable resources.
- Goal RM-5 Prevent fragmentation and loss of the county's oak woodlands, forests, and wildlands and preserve their economic and ecological values and benefits.
 - Policy RM-26 Protect, use and manage the county's farmlands, forests, water, air, soils, energy, and other natural resources in an environmentally sound and sustainable manner.
 - Policy RM-27 Conserve, restore and enhance natural resources, sensitive environments, and ecological integrity.

Policy RM-28

All discretionary public and private projects that identify special-status species in a biological resources evaluation (where natural conditions of the site suggest the potential presence of special-status species) shall avoid impacts to special-status species and their habitat to the maximum extent feasible. Where impacts cannot be avoided, projects shall include the implementation of site-specific or project-specific effective mitigation strategies developed by a qualified professional in consultation with state or federal resource agencies with jurisdiction (if applicable) including, but not limited to, the following strategies:

- Preservation of habitat and connectivity of adequate size, quality, and configuration to support the special-status species. Connectivity shall be determined based on the specifics of the species' needs.
- Provision of supplemental planting and maintenance of grasses, shrubs, and trees of similar quality and quantity to provide adequate vegetation cover to enhance water quality, minimize sedimentation and soil transport, and provide adequate shelter and food for wildlife.
- Provide protection for habitat and the known locations of special-status species through adequate buffering or other means.
- Provide replacement habitat of like quantity and quality on- or off-site for special-status species.
- Enhance existing special-status species habitat values through restoration and replanting of native plant species.
- Provision of temporary or permanent buffers of adequate size (based on the specifics of the special-status species) to avoid nest abandonment by nesting migratory birds and raptors associated with construction and site development activities.
- Incorporation of the provisions or demonstration of compliance with applicable recovery plans for federally listed species.

Policy RM-29

All public and private discretionary projects shall avoid impacts to wetlands if feasible. If avoidance is not feasible, projects shall achieve no net loss of wetlands, consistent with state and federal regulations.

- Policy RM-30 Individual development projects and conversions from rangeland to intensive agriculture should retain movement corridor(s) adequate (both in size and in habitat quality) to allow for continued wildlife use based on the species anticipated to use the corridor and maintain compatibility with adjacent uses.
- Goal RM-7 Protection, enhancement and management of the biological resources of Mendocino County and the resources upon which they depend in a sustainable manner.
- Policy RM-71 Promote land uses and management practices that protect biological diversity and productivity. Conserve native vegetation, critical habitats, and soil resources.
- Policy RM-79 Encourage farmers, land owners and property managers to protect sensitive environments, and minimize the effects of recreation, tourism, agriculture and development on these resources. Promote techniques and features such as:
- Habitat contiguity,
 - Wildlife corridors,
 - Maintaining compatibility with adjacent uses,
 - Maintaining habitat for sensitive plant and animal species.
- Policy RM-83 In rural areas, promote vegetation and landscape management programs that protect wildlife and livestock habitat, discourage pest species and non-native species, reduce wildfire risk, and conserve water resources.
- Policy RM-84 Protect “pygmy” ecosystems (“pygmy” and “transitional pygmy” vegetation and soils) through the use of measures that include minimizing:
- Vegetation removal,
 - Disruption of vegetation continuity, and
 - The introduction of water and nutrients due to human activity, sewage disposal systems, animals or agricultural uses.
- Also:
- Limit subdivision of land on agricultural lands adjacent to “pygmy” ecosystems, and

- Promote best management practices to minimize impacts.

Policy RM-88 Protect wildlife and livestock from depredation by domestic animals.

Goal RM-11 To protect and enhance the county's diverse forest resources for all uses including timber harvest.

Policy RM-116 Promote sustainable forest management practices (e.g., reforestation, timber stand improvement, stream corridor and water quality protection).

Mendocino County Coastal Element

The Mendocino County Coastal Element is a component of the Mendocino County General Plan that was prepared pursuant to the California Coastal Act of 1976. The Coastal Element includes the Mendocino Town Plan, which provides specific policies for new and existing development within the Town of Mendocino. The following policies related to biological resources from the Mendocino County Coastal Element are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Policy 3.1-30 Vehicle traffic shall be prohibited from all public beach areas except for emergency purposes and maintenance unless specifically designated for vehicular use.

Policy 3.2-8 The County should implement an effective dog and coyote control program to reduce predation levels. Stringent regulations applying to public and private development proposals and signs designating special dog control zones shall be used as necessary.

CNS-7 (a) Environmentally sensitive habitat areas, as defined in Mendocino Town Plan Section 2.29, shall be protected against any significant disruption of habitat values. (b) Only uses dependent on environmentally sensitive habitat area resources, and for which there is no less environmentally damaging location, shall be allowed within those areas. (c) Development in areas adjacent to (1) an environmentally sensitive habitat area, (2) Mendocino Headlands State Park, or (3) other public parks and public recreation areas in the Town shall be sited and designed to avoid any significant adverse impacts that would significantly degrade those areas, and shall be compatible with the continuance of such habitat and recreation areas.

Ukiah Valley Area Plan

The Ukiah Valley Area Plan is a component of the Mendocino County General Plan that governs land use and development within unincorporated areas in the Ukiah Valley. All elements in the Mendocino County General Plan and Ukiah Valley Area Plan generally rank in equal importance; however, if a policy or implementing action is in conflict with the adopted General Plan, the policy or implementing action from the Ukiah Valley Area Plan takes precedence over the General Plan.

Open Space and Conservation (OC)

Goal OC 1 Maintain and enhance the area's natural resources by balancing protection, conservation, replenishment and sustainable use.

Policy OC 1.1 Protect the river corridor and riparian habitat while accommodating responsible development.

Policy OC 3.2c Integrated Pest Management. Promote and encourage farmers to use integrated pest management programs as recommended by the University of California Cooperative Extension Farm Advisors office.

City of Ukiah General Plan

The following goals and policies related to biological resources from the City of Ukiah General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal OC-7 Ensure the health and viability of the Russian River and its tributaries.

Policy OC-7.1 Maintain river bed and banks for flood control, water delivery, and fish habitat.

Policy OC-7.4 Maintain the Russian River as a natural riparian corridor.

Goal OC-11 Conserve coastal oak woodlands in the hills.

Policy OC-11.2 Provide areas for development and areas for conservation in the hills.

Policy OC-11.2 Development shall incorporate open space reserved for wildlife habitat and hiking.

Goal OC-22 Conserve and replenish Valley Oaks in the valley.

Policy OC-22.1 Maintain, protect, and replant stands of Valley Oaks.

Goal OC-27 Limit public access where necessary to protect important fish habitat.

Policy OC-27.1 Establish preserves for typical or endangered fish species and habitats.

City of Point Arena General Plan

The following goal and policies related to biological resources from the City of Point Arena General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal III-2 To maintain the city's small-town, open and rural character through low residential densities and building intensities, and through the preservation of open spaces.

Policy III.7.5 Sensitive habitat areas shall be preserved.

Goal III-4 To adopt land-use and development policies that welcome and encourage economic development and growth, job formations, a variety of new housing opportunities, infilling of new development within the Downtown area, increased but limited development at the Cove, and industrial-type uses in the City's industrial area.

Policy III.7.6 No development and no activity on any property, including site preparation work, earth moving and grading, shall be allowed to discharge harmful pollutants or untreated runoff into waters at the Cove, or into any creek, or into the air.

Policy III.7.3.8 North-facing slopes south of Point Arena Creek in the annexation area is confirmed Point Arena Mountain Beaver habitat that shall be set aside for protection of the small populations of this sensitive species. Development proposed in this area, zoned for residential agriculture (two-acre lots), shall be reviewed vigorously to ensure conformance with policies of the General Plan and preservation of the populations of Point Arena mountain beaver that inhabit the area.

Goal VI-4 To preserve identifiable open space and conservation resources, as well as the "sense of open space" that now contributes to the town's character.

Policy VI.5.3 Every effort should be made to enhance wildlife habitats and maintain wildlife travel corridors along waterways and within riparian corridors, within the city and its environs.

Policy VI.5.4 The City shall protect the non-developed flat areas of Arena Cove as a flood basin, wildlife habitat, and critical link in the Arena Creek life-chain...insofar as possible given the objective of enhancing the area's economic development potential. Any portions of this area that are environmentally sensitive habitat areas (ESHAs) as defined in Section 30107.5 of the Coastal Act shall be subject to the policies and standards of the certified LCP regarding the protection of ESHA.

Goal VI-6 To retain waterways and associated riparian buffer areas, marshes and wetlands, and beaches, in as close to a natural state as possible.

Policy VI.5.6 The City shall protect water resources and quality, both of which are vital to the health of the city's residents and important to the area's ecology, and shall allow no discharging of harmful pollutants into any waterway.

Policy VI.5.13 Riparian buffer areas shall be maintained to preserve and protect the valuable wildlife habitats provided by riparian areas (riparian corridors) along streams and creeks shown on the official General Plan maps, as well as unmapped streams and creeks that meet the definition of an environmentally sensitive habitat area (ESHA). Uses and use restrictions pertaining to riparian buffers shall be regulated by Sections 5.22 and 5.23 of the Zoning Ordinance, and pre-existing non-conforming uses and structures may continue in the buffer area, but no additions that may encroach upon the buffer area shall be permitted, with the following exception:

- a. accessory structures located at the City's waste water reclamation facility situated entirely within the developed, fenced area subject to securing a coastal development permit consistent with all other applicable provisions of the certified LCP.

Policy VI.5.14 Since the Point Arena Mountain Beaver was listed as an endangered species on December 12, 1991, with beaver habitat potentially located along Point Arena Creek, the City shall establish a 500 feet riparian setback area ("Mountain Beaver Buffer Area") from the centerline of the stream as recommended by the United States Fish and Wildlife Service (USFWS). In addition, fences are prohibited within 15 feet of the center line to allow for wildlife migration along the travel corridor. Disturbance of

the streambed is prohibited. Through zoning and subdivision regulations, the City shall restrict development in areas which contain identified rare or endangered species of plants and animals, including the Point Arena Mountain Beaver.

City of Fort Bragg Inland General Plan

The following goal and policies related to biological resources from the City of Fort Bragg Inland General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

- Goal OS-1 Preserve areas with important biotic resources.
- Policy OS-1.1 Special Review Areas: Areas in the City containing watercourses, wetlands, sensitive plant and wildlife habitat, and forested land shall be designated as Special Review Areas.
- Policy OS-1.2 Preserve Natural Resources: Require that sensitive natural resources in Special Review Areas be preserved and protected to the maximum degree feasible.
- Goal OS-5 Protect, enhance, and restore riparian areas and wetlands.
- Policy OS-5.1 Streams and Creeks: To the maximum extent feasible, preserve, protect, and restore streams and creeks to their natural state.
- Program OS-5.1.1 Work with organizations and private property owners to enhance the City's watercourses for habitat preservation and recreation.
- Program OS-5.1.2 Develop additional guidelines for the maintenance of watercourses to further assure that native vegetation is not unnecessarily removed and that maintenance minimizes disruption of wildlife breeding activities and wildlife movement. Incorporate these guidelines, where appropriate, into the City's maintenance procedures.
- Goal OS-6 Improve water quality.
- Policy OS-6.1 Pollution in Runoff: Ensure protection of water resources from pollution and sedimentation.

Goal OS-8 Conserve and enhance a variety of open space features including creeks, wildlife habitats, scenic view corridors, and other amenities.

City of Fort Bragg Coastal General Plan

The following goal and policies related to biological resources from the City of Fort Bragg Coastal General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal OS-1 Preserve and Enhance the City's Environmentally Sensitive Habitat Areas.

Policy OS-1.14: Vegetation Removal in ESHA. Prohibit vegetation removal in Environmentally Sensitive Habitat Areas and buffer areas except for: a) Vegetation removal authorized through coastal development permit approval to accommodate permissible development, b) Removal of trees for disease control, c) Vegetation removal for public safety purposes to abate a nuisance consistent with Coastal Act Section 30005, or d) Removal of firewood for the personal use of the property owner at his or her residence to the extent that such removal does not constitute development pursuant to Coastal Act Section 30106. Such activities shall be subject to restrictions to protect sensitive habitat values.

Goal OS-5 Preserve areas with other biotic resources.

Policy OS-5.1 Native Species: Preserve native plant and animal species and their habitat.

City of Willits General Plan

The following goal and policies related to biological resources from the City of Willits General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal 3.100 Conservation and Open Space Goal: To ensure that the future growth of Willits occurs in a manner which minimizes adverse impacts on the City's existing plants, wildlife, open space, and natural resources.

Policy 3.210 Conserve, to the greatest feasible extent, the City's existing natural resources, with particular emphasis on air and water quality, open space, tree preservation and riparian habitat maintenance and enhancement.

4.2.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project's potential impacts related to noise and vibration. A discussion of the project's impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines and professional judgment, a significant impact would occur if the IWDM Program, the Non-Lethal Program Alternative, or the proposed variation to the Non-Lethal Program Alternative would result in the following:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- Have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

In regard to the first standard of significance presented in the bullet list above, with the exception of cougars, the most common target species under the IWDM Program are not considered special-status species under CEQA. Thus, this chapter of the EIR is not required to evaluate potential impacts to the most common target species under the IWDM Program, with the exception of cougars, which are considered special-status species within Mendocino County under CEQA Guidelines Section 15380. Nevertheless, for informational and disclosure purposes, and given the concerns regarding the IWDM Program as expressed by several organizations, a separate section has been included at the end of the chapter discussing effects of the IWDM Program and alternatives on common wildlife species.

Method of Analysis

The information contained in this analysis is based on the Biological Evaluation prepared for the IWDM Program by Live Oak Associates.¹⁴⁰ In general, Live Oak Associates evaluated the

potential impacts to biological resources associated with the proposed project and alternatives by comparing expected environmental conditions after project/alternative implementation to conditions at the environmental baseline period.

Live Oak Associates used a variety of sources and methods to characterize the County's biological resources and evaluate impacts to such resources that could result from implementation of the proposed project. As discussed above in Section 4.2.2, the County's biotic habitat types were inventoried using the CWHR classifications available through the USFS's CALVEG database. Based on the biotic habitat types present in the County, Live Oak Associates compiled a list and description of all the flora and fauna that could occur within each biotic habitat type and calculated the amount of habitat available for various species.

A list of special-status plant and animal species with documented occurrences in Mendocino County was obtained using the CNDDDB Rarefind 5 program,¹⁴¹ and a list of federally threatened and endangered plant and animal species with the potential to occur within the County was obtained using the USFWS's IPaC system.¹⁴² Additional information on the County's flora was obtained using the *Online Inventory of Rare and Endangered Vascular Plants of California*¹⁴³ and *The Calflora Database*.¹⁴⁴ County-wide population estimates for the wildlife species most often targeted by the County's IWDM Program were calculated using the population models of the CDFW's *Furbearing and Nongame Mammal Hunting and Trapping* (it should be noted that at the time of publication of the foregoing document, the CDFW was known as the California Department of Fish and Game),¹⁴⁵ and by a variety of other sources.¹⁴⁶ Target species take data were obtained from WS-CA and USDA.¹⁴⁷ A variety of literature sources were used to characterize the ecology and life history requirements of the County's special-status species and the IWDM Program's target wildlife species. The information obtained from the extensive research and data collection conducted by Live Oak Associates was used to produce population estimates for the nine wildlife species with the highest level of reported take by WS-CA during the environmental baseline period. Results of the population estimates prepared by Live Oak Associates are discussed in-depth above, in Section 4.2.2.

Project-Specific Impacts and Mitigation Measures

The proposed project would include implementation of a variety of wildlife control methods by WS-CA staff, some of which may result in impacts to biological resources. The Non-Lethal Program Alternative would involve the use of wildlife control methods that would be implemented under the proposed project, with the exception of the lethal control methods and live capture methods, as their outcome typically results in euthanizing the animal. In addition, this analysis includes consideration of a variation to the Non-Lethal Program Alternative, which would include the limited use of lethal control (i.e., restricted to gunshot) only in instances where wildlife poses a threat to public health or safety.

Impacts to biological resources due to the implementation of wildlife control methods of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative are assessed relative to the applicable local, State, federal, and CEQA Appendix G checklist criteria. For each impact statement, two baseline scenarios are evaluated: a "CEQA Baseline" and a "No Program Baseline". Additional information related to the baseline

scenarios is included in Chapter 1, Introduction, of this EIR, and in the Method of Analysis section above. The impact statements presented below are organized as follows:

CEQA Baseline

This baseline scenario recognizes the fact that the County has had a wildlife damage management program since 1989, and as such, it is part of the environmental baseline pursuant to CEQA Guidelines Section 15125. While the County's most recent Work Plan with WS-CA expired in June of 2015, WS-CA has continued to implement the IWDM Program in Mendocino County without funding from the County. For any significant impacts identified under the CEQA Baseline, this chapter provides mitigation measures to reduce the impacts to the maximum extent feasible.

No Program Baseline

The No Program Baseline treats the IWDM Program as a new program and, thus, does not account for the fact that such a program is currently occurring. This approach enables the County to provide an informational analysis as to the potential environmental effects of the IWDM Program. For any significant effects identified under the No Program Baseline, this chapter provides improvement measures to reduce the effects to the maximum extent feasible.

4.2-1 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Wildlife, U.S. Fish & Wildlife Service or National Oceanic and Atmospheric Administration Fisheries. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. No impact would occur under the IWDM Program. The Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative would result in a *less-than-significant* impact to special-status species.**
- **No Program Baseline. Even with improvement measures, the effect is conservatively identified as *significant and unavoidable* for cougars in Mendocino County under the IWDM Program. A *less-than-significant* effect would occur for the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative.**

CEQA Baseline

IWDM Program

Approval of the IWDM Program would enable WS-CA to provide assistance to landowners to protect livestock, crops, human health and safety, and property from wildlife damage using a variety of methods, which have been historically carried out by WS-CA in Mendocino County since 1989. As such, the lethal and non-lethal control of wildlife damage within the County, and any associated activities, are part of the environmental baseline, and continued implementation of the IWDM Program would not

result in any changes to wildlife damage management activities in the County. Considering that the IWDM Program would represent a continuation of the existing environmental baseline conditions, no impact to special-status species would occur.

Non-Lethal Program Alternative

Unlike the IWDM Program that has been implemented historically in the County, the Non-Lethal Program Alternative is anticipated to include a cost-share/reimbursement mechanism for the use of various non-lethal control methods. The non-lethal methods that could be subject to reimbursement and could have implications for ground disturbance, thus warranting discussion here, include LPDs, fencing, and fladry/turbo fladry. As a result, compared to the IWDM Program, provision of funding for these non-lethal methods is considered a new control method requiring analysis under this baseline scenario.

Although the construction of fencing financed through Non-Lethal Program Alternative cost-share/reimbursement would result in ground disturbance, such ground disturbance would not result in extensive vegetation clearing, would not be concentrated in any given portion of the County, and would be spatially limited. Thus, fencing installation would not be anticipated to result in any impacts to special-status plant species.

Some wildlife take may occur indirectly through the use of LPDs funded under the Non-Lethal Program Alternative. Studies of LPD use have found that LPDs occasionally harass and kill wildlife; in particular, studies have shown that LPDs have killed coyotes in Arizona and Utah;¹⁴⁸ black-backed jackals (*Canis mesomelas*); Chacma baboons (*Papio ursinus*); the calves of several ungulate species (*Tragelaphus sp.* and *Oryx gazella*) in Namibia;¹⁴⁹ and Lapland marmots (*Marmota sp.*) in Norway.¹⁵⁰ Harassment of wildlife by LPDs in Namibia declined as farmers were advised on dog training techniques to correct the behavior.¹⁵¹ Hansen and Smith partially attributed wildlife chasing behavior in their study dogs to improper imprinting; the dogs were introduced to sheep later in puppyhood than what is recommended, and likely roamed because the LPDs were not strongly bonded with the sheep.¹⁵² For the purposes of this analysis, it is assumed that if LPDs are funded under the Non-Lethal Program Alternative, assistance with LPD imprinting and training would also be provided to minimize these unwanted behaviors. However, even if such assistance is not provided, based on previous research, wildlife take by LPDs is not anticipated to occur at levels that would be expected to significantly affect predator-prey dynamics or other ecosystem processes that may result in indirect impacts to special-status species.

Based on the above, some potential exists for LPDs funded under the Non-Lethal Program Alternative to harass or kill wildlife. Harassment or take of wildlife by LPDs could include special-status animal species. In general, LPDs are more likely to harass medium- to large-sized animals that are easily detected, and predators that might be perceived as threatening to livestock.¹⁵³ Special-status animals meeting such criteria in Mendocino County might include the Point Arena mountain beaver, fisher, and badger; as discussed previously, the California wolverine has been extirpated from the County

and, thus, LPDs funded under the Non-Lethal Program Alternative would not have the potential to impact California wolverine. The fisher is associated with forest habitats and would rarely, if ever, venture into livestock operations where fishers would be at risk of harassment by LPDs. Badgers may occur in pastures and other agricultural lands and could conceivably be harassed by LPDs from time to time. However, because badgers sometimes damage agricultural property, and because “fur-bearing mammals that are injuring property may be taken at any time and in any manner” pursuant to Section 4180 of California FGC, harassment by LPDs may paradoxically help protect badgers from the more serious threat of being taken by property owners. Gehring et al. found reduced occurrence of mesopredators in pastures protected by LPDs.¹⁵⁴

The Point Arena mountain beaver may occasionally be killed by domestic dogs; USFWS indicated that the Point Arena mountain beaver population at Irish Beach may have been affected by “an increase in predation by feral and nonferal house pets.”¹⁵⁵ LPDs are sometimes known to kill large rodents; for example, Hanson and Smith found that the LPDs in their study, which had not undergone proper imprinting, routinely chased marmots and killed about half of the marmots they encountered.¹⁵⁶ For the purposes of this analysis, it is assumed that if LPDs are funded under the Non-Lethal Program Alternative, assistance with LPD imprinting and training would also be provided to minimize the risk of harassment and mortality of wildlife including special-status animals.

Any harassment of Point Arena mountain beavers by LPDs would be expected to occur on or near pastures, where LPDs would primarily be used. Pasture land mapped using the CWHR system account for only about two percent of the Point Arena mountain beaver’s range. Even if LPDs were to be placed on all such lands under the Non-Lethal Program Alternative, which is unlikely, resulting harassment or take of Point Arena mountain beavers by LPDs is not expected to have a significant effect on this species because LPDs funded by the Non-Lethal Program Alternative would be properly imprinted and trained to minimize wildlife harassment behavior, and any harassment or mortality of mountain beavers that does occur due to LPDs funded by the Non-Lethal Program Alternative would affect a very small proportion of the population. Overall, the Non-Lethal Program Alternative is not expected to substantially affect special-status animal species through injury or mortality. Direct impacts to special-status animal species associated with the Non-Lethal Program Alternative are considered less than significant.

As discussed in Chapter 3, Project Description, of this EIR, there is also limited potential for the use of fladry/turbo fladry in the County, and cost share with landowners under the Non-Lethal Program Alternative. Fladry/turbo fladry is currently only used in California where wolf conflicts occur, due to the efficacy of fladry/turbo fladry in deterring wolf movements into pastures. Given that wolves are not known to exist within Mendocino County at this time, use of fladry/turbo fladry under this Alternative would likely be rare or nonexistent. Nonetheless, research projects are currently underway to investigate potential modifications to existing fladry/turbo fladry designs to improve efficacy for use with coyotes. Thus, the potential exists that a future modified fladry/turbo fladry design

could be used under the alternative to deter movements of other target wildlife species, such as coyote, thus minimizing risk of predation within the County.

Fladry is typically used in open areas, such as pastures, with low growing vegetation. With respect to turbo fladry, in order to avoid the potential for vegetation to contact the turbo fladry and cause possible ignition of the vegetation, the implementing entity for this alternative would advise property owners to clear vegetation away from the location of the turbo fladry. Vegetation clearing for fire suppression is not required for non-electrified fladry. Although the use of turbo fladry may require some vegetation clearing in certain scenarios, vegetation clearing would be limited to the immediate area of the fladry and would only be conducted as needed for fire suppression purposes. For the purposes of fire suppression, only the portions of vegetation with the potential to contact the turbo fladry would need to be removed, and extensive ground clearing or vegetation removal would not be required to achieve adequate fire safety. Considering the limited nature of vegetation clearing for fire suppression where turbo fladry is used, installation of turbo fladry is unlikely to result in the removal of any special-status plant and animal species.

Considering the above, the Non-Lethal Program Alternative would result in less-than-significant adverse indirect or direct impacts on special-status plants or animals in Mendocino County.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative, with the exception that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife posing a threat to public safety or health. Wildlife management within the County has allowed for lethal and non-lethal control of wildlife for public safety or health reasons, and, thus, the use of lethal control of wildlife to protect public safety or health under the variation to the Non-Lethal Program Alternative would not represent a change from the existing baseline conditions under the CEQA Baseline. Because the potential use of lethal methods under the variation to the Non-Lethal Program Alternative is part of the baseline conditions under the CEQA Baseline, the variation to the Non-Lethal Program Alternative would not result in any impacts to special-status species beyond what has previously occurred under the IWDM Program in the County.

Furthermore, for the reasons discussed under the Non-Lethal Program Alternative above, activities funded by cost-sharing/reimbursements within the variation to the Non-Lethal Program Alternative would not result in significant impacts to special-status plants or animals.

Therefore, the variation to the Non-Lethal Program Alternative would result in less-than-significant adverse indirect or direct impacts on special-status plants or animals in Mendocino County.

No Program Baseline

IWDM Program

The following section presents a discussion of the potential effects that could result from implementation of the IWDM Program on special-status plants and special-status animals. As noted previously, the No Program Baseline sections treat the IWDM Program as a new program and, thus, does not account for the fact that such a program is currently occurring. Consequently, the lethal and non-lethal control of wildlife damage in the County under the IWDM Program would be considered a net change from existing conditions. It should be noted that levels of special-status species take in the County unrelated to the IWDM Program, such as illegal hunting or depredation permits issued and filled independently from the IWDM Program are considered features of the environmental baseline, and any effects resulting from the IWDM Program or project alternatives would be in addition to the background levels of take unrelated to such programs.

Special-Status Plants

As discussed above in Section 4.2.2, 22 plants listed as threatened, endangered, or rare under the FESA and/or CESA (see Table 4.2-2), and 91 plants considered threatened, endangered, or rare by CNPS (see Table 4.2-3), have been documented in Mendocino County or have some potential to occur within the County.

WS-CA may conduct minor vegetation removal or ground clearing activities to place capture devices. Although WS-CA staff may remove some vegetation, the area of disturbance for the placement of such traps is small, and such devices would not be anticipated to be concentrated in any single habitat area or type. Considering the small area of disturbance that would occur with placement of capture devices and the dispersed nature of such devices, the placement of such devices would result in minimal effects that would not have the potential to substantially affect special-status plant species populations within the County. Other than the minor vegetation removal that may occur with installation of capture devices, implementation of the IWDM Program would not include other activities that would involve substantial amounts of vegetation removal.

Although the IWDM Program would not include direct vegetation removal other than that which is required for the placement of capture devices, off-road pedestrian and/or vehicle travel required for site access would have the potential to effect special-status plants or their habitats, including designated critical habitat. In any given area, such activities would be extremely limited in scale and of short duration. Although a limited potential exists for damage to special-status plants to occur as a result of such activities, any such effects would be minimal, and would not substantially affect special-status plant populations.

As discussed in Chapter 3, Project Description, of this EIR, implementation of the IWDM Program may involve WS-CA loaning out electrified fladry (turbo fladry) or consulting on the use of such non-lethal systems. While the use of turbo fladry would require minimal vegetation clearing, fladry/turbo fladry is currently only used by WS-CA in instances where wolf conflicts occur, due to the efficacy of fladry/turbo fladry in deterring wolf movements into pastures. Given that wolves are not known to exist within Mendocino County at this time, use of fladry/turbo fladry under the IWDM Program would likely be rare or nonexistent. Nonetheless, research projects are currently underway to investigate potential modifications to existing fladry/turbo fladry designs to improve efficacy for use with coyotes. Thus, the potential exists that a future modified fladry/turbo fladry design could be used under the IWDM Program to deter movements of other target wildlife species, such as coyote, thus minimizing risk of predation within the County.

In situations where WS-CA would loan out turbo fladry, WS-CA directs the property owner being loaned the equipment as to the proper installation and use of the turbo fladry. Turbo fladry is typically used in open areas, such as pastures, with low growing vegetation. However, to avoid the potential for vegetation to contact the turbo fladry and cause possible ignition of the vegetation, WS-CA advises property owners to clear vegetation away from the location of the turbo fladry. Vegetation clearing for fire suppression is not required for non-electrified fladry. Although the use of turbo fladry may require some vegetation clearing in certain scenarios, vegetation clearing would be limited to the immediate area of the fladry and would only be conducted as needed for fire suppression purposes. For the purposes of fire suppression, only the portions of vegetation with the potential to contact the turbo fladry would need to be removed, and extensive ground clearing or vegetation removal would not be required to achieve adequate fire safety. Considering the limited nature of vegetation clearing for fire suppression where turbo fladry is used, installation of turbo fladry is unlikely to result in the removal of any special-status plants.

Considering the analysis presented above, potential effects to special-status plant species under the IWDM Program would be considered less than significant.

Special-Status Animals

As discussed above in Section 4.2.2, 36 animal species listed as threatened, endangered, proposed, or candidate under FESA and/or CESA, and 46 animal species designated by CDFW as species of special concern and/or fully protected (see Table 4.2-4), have been documented in Mendocino County, or have some potential to occur in the County per the USFWS and/or NMFS, or because the County is located within the species' range and suitable habitat is present. Statewide, WS-CA has consulted with both the USFWS and CDFW regarding species listed under FESA and CESA, and has obtained written concurrence from both agencies that WS-CA actions are not likely to adversely affect the special-

status species within the County.¹⁵⁷ Nevertheless, the potential effects of the IWDM Program on federally- and State-listed species and other special-status species potentially occurring in Mendocino County are analyzed in this section.

The IWDM Program would not result in substantial loss or degradation of habitat, including designated critical habitat, for any special-status animal species, nor would the IWDM Program produce other substantial indirect effects to special-status animals. Land development, construction, or removal of substantial amounts of vegetation or soil would not be authorized under the IWDM Program.

The Program-related activities that could directly affect habitat would be the clearing of vegetation for installation of fladry/turbo fladry, off-road pedestrian travel and/or vehicular travel required for site access, and the placement of capture devices. As previously discussed, fladry/turbo fladry is used to prevent wolf conflicts, and, given the absence of wolves in Mendocino County, is unlikely to be widely implemented in the County. Should modified fladry/turbo fladry be designed in the future that is implemented for coyotes or other target wildlife in the county any vegetation removal associated with such potential future fladry/turbo fladry installation would be spatially limited to the areas surrounding turbo fladry, and would only include vegetation removal sufficient to ensure fire safety. Additionally, although off-road pedestrian travel and/or vehicular travel may occasionally be conducted in habitat suitable for special-status wildlife, any associated effects would be temporary and extremely limited in scale, and are not considered significant.

The IWDM Program would result in the take of apex predators including the black bear, cougar, and coyote that can function as “keystone species” with outsized influence over food webs and other ecosystem processes. When apex predators are removed from an ecosystem, cascading ecological effects are often observed as herbivores and mesopredators are released from control.¹⁵⁸ In some cases, the net effect of apex predator removal can be detrimental to special-status wildlife. For example, smaller animals or life stages may experience increased predation by mesopredators,¹⁵⁹ and habitats supporting special-status wildlife may be overbrowsed or otherwise physically altered.¹⁶⁰

However, based on historic take data for past iterations of the program within the County, under the IWDM Program, predators would not be taken at a level that would be expected to produce substantial cascading effects in the ecosystem. Average annual WS-CA take of the black bear and coyote in Mendocino County between 1997 and 2017 only accounted for about 0.5 percent and three percent of these species’ low population estimates in the County, respectively. Average annual WS-CA take of the cougar during the baseline period relative to that species’ low population estimate in the County was somewhat higher, constituting approximately 21 percent of adults; however, even with such levels of take, the cougar will continue to exert pressure on the species’ primary prey, the black-tailed deer, and, according to Live Oak Associates, cascading effects deleterious

to special-status wildlife are not anticipated. Substantial indirect effects on special-status wildlife in Mendocino County are not expected to result from WS-CA take of the County's apex predators.

Another keystone species that may be targeted for lethal control under the IWDM Program is the North American beaver (*Castor canadensis*). Beavers are often referred to as "ecosystem engineers" because of the profound influence that beavers have on the habitats the species occupies. Beaver dams create impoundments that expand sensitive wetland habitats, replenish groundwater, provide more consistent downstream flows, improve water quality, store nutrients for plants, and reduce stream bank erosion.¹⁶¹ Beaver-made ponds also provide food and habitat for a variety of fish species, including the special-status salmonids that occur in Mendocino County. Indirect effects to the special-status salmonids and other special-status aquatic animals would be expected if beaver populations were significantly reduced by activities implemented with the IWDM Program. However, lethal control of beavers under the proposed Program is expected to be minimal, if lethal management occurs at all. During the 1997 to 2017 baseline period, no beavers were taken by WS-CA in Mendocino County. Because few, if any, beavers would be killed under the IWDM Program, ecosystem-level effects from beaver declines are not expected to occur.

In terms of the potential for the IWDM Program to directly affect special-status wildlife, the 82 special-status animal species potentially occurring in Mendocino County can be placed into three broad categories: (1) species that would not experience substantial direct effects because the IWDM Program activities would not foreseeably occur in the habitats or range that such species occupy, (2) species that would not experience substantial direct effects because their life histories make them relatively invulnerable to the activities likely to be authorized under the IWDM Program, and (3) species that would not experience substantial direct effects notwithstanding some inherent vulnerability to activities likely to be authorized under the IWDM Program. Potential direct effects to the foregoing three categories of special-status animal species are discussed in the following sections.

Special-Status Animals that Occupy Habitats within which the IWDM Program Activities would Not Occur

Twenty of the 82 special-status animal species listed in Table 4.2-4 occupy habitats within which IWDM Program activities would not foreseeably be conducted or the special-status species have a current distribution entirely outside of Mendocino County. Seventeen species are found only in the Pacific Ocean, in the airspace above the ocean, on cliffs, rocks, or sandy beaches fronting the ocean, or on off-shore islands. The species confined to such habitats comprise the green sea turtle (*Chelonia mydas*), Olive Ridley sea turtle (*Lepidochelys olivacea*), leatherback sea turtle (*Dermochelys coriacea*), short-tailed albatross (*Phoebastria albatrus*), western snowy plover, blue whale (*Balaenoptera*

musculus), fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), southern resident killer whale (*Orcinus orca*), North Pacific right whale (*Balaena glacialis*), sei whale (*Balaenoptera borealis*), sperm whale (*Physeter macrocephalus*); Guadalupe fur seal (*Arctocephalus townsendi*), tufted puffin (*Fratercula cirrhata*), Cassin's auklet (*Ptychoramphus aleuticus*), ash storm-petrel (*Oceanodroma homochroa*), and California brown pelican (*Pelecanus occidentalis*). The Conservancy fairy shrimp (*Branchinecta conservatio*), is found only in vernal pools. Two species, the Humboldt marten (*Martes caurina humboldtensis*) and California wolverine (*Gulo gulo*), have been extirpated from Mendocino County. The current distribution of the Humboldt marten is limited to an area of approximately 267 square miles in Del Norte and Humboldt Counties,¹⁶² and there is only one known wolverine remaining in California, in the Tahoe region.

The IWDM Program does not have the potential to directly affect the 20 species discussed above through IWDM Program-related injury or mortality because activities included in the IWDM Program would not foreseeably occur in the areas that such species inhabit. Thus, IWDM Program-related effects to the 20 special-status animal species considered in this section would be less than significant.

Special-Status Animals that Occupy Habitats within which the IWDM Program Activities May Occur, But Would Be Relatively Invulnerable to IWDM Program Activities

Fifty-six of the 82 special-status animal species that potentially occur in Mendocino County are associated with habitats within which IWDM Program activities may be conducted, but have life histories that would make them relatively invulnerable to activities likely to be conducted under the IWDM Program. Such species comprise the Behren's silverspot butterfly (*Speyeria zerene behrensii*), lotis blue butterfly (*Plebejus idas lotis*), California freshwater shrimp (*Syncaris pacifica*), tidewater goby, delta smelt (*Hypomesus transpacificus*), chinook salmon – California Coastal ESU, coho salmon – Southern Oregon / Northern California ESU and Central California Coast ESU (populations 4 and 2, respectively), steelhead – Northern California DPS (population 16), green sturgeon – Southern DPS, foothill yellow-legged frog (*Rana boylei*), California red-legged frog, western yellow-billed cuckoo (*Coccyzus americanus*), marbled murrelet (*Brachyramphus marmoratus*), bald eagle (*Haliaeetus leucocephalus*), Swainson's hawk (*Buteo swainsoni*), northern spotted owl (*Strix occidentalis caurina*), willow flycatcher (*Empidonax traillii*), bank swallow (*Riparia riparia*), Pacific lamprey (*Entosphenus tridentatus*), Navarro roach (*Lavinia symmetricus navarroensis*), Gualala roach (*Lavinia symmetricus parvippinis*), summer-run steelhead (*Oncorhynchus mykiss irideus*, population 36), red-bellied newt (*Taricha rivularis*), southern torrent salamander (*Rhyacotriton variegatus*), California giant salamander (*Dicamptodon enatus*), northern red-legged frog (*Rana aurora*), Pacific tailed frog (*Ascaphus truei*),

western pond turtle (*Emys marmorata*), brant (*Branta bernicla*), redhead (*Aythya americana*), harlequin duck (*Histrionicus histrionicus*), Vaux's swift (*Chaetura vauxi*), black swift (*Cypseloides niger*), common loon (*Gavia immer*), American white pelican (*Pelecanus erythrorhynchos*), black skimmer (*Rhynchops niger*), golden eagle (*Aquila chrysaetos*), white-tailed kite (*Elanus leucurus*), northern goshawk (*Accipiter gentilis*), northern harrier (*Circus cyaneus*), American peregrine falcon (*Falco peregrinus anatum*), short-eared owl (*Asio flammeus*), long-eared owl (*Asio otus*), olive-sided flycatcher (*Contopus cooperi*), loggerhead shrike (*Lanius ludovicianus*), purple martin (*Progne subis*), grasshopper sparrow (*Ammodramus savannarum*), yellow-breasted chat (*Icteria virens*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), yellow warbler (*Setophaga petechia*), Sonoma tree vole (*Arborimus pomo*), western mastiff bat (*Eumops perotis californicus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), spotted bat (*Euderma maculatum*), and western red bat (*Lasiurus blossevillii*).

Although IWDM Program activities may be conducted in habitats supporting the two butterfly species listed above, activities included in the IWDM Program would not injure or kill butterflies. Potential IWDM Program effects to the two butterfly species are considered less than significant.

The fish, amphibians, a number of the birds listed above, as well as the California freshwater shrimp and western pond turtle, have the potential to occur in stream or marsh habitat within which lethal control of beavers and muskrats (*Ondatra zibethicus*) may conceivably be conducted under the IWDM Program. During the 1997 to 2017 baseline period, direct control assistance related to beavers or muskrats did not occur in Mendocino County; therefore, based on the lack of historic control activity for such species within the County, under the IWDM Program such activities would be extremely rare, if such control activities occur at all. Beaver and muskrat control by WS-CA statewide is overwhelmingly accomplished using firearms and is highly species-specific. Lethal control of beavers or muskrats via firearm in Mendocino County, if such control occurs, would not have the potential to injure or kill co-occurring special-status wildlife.

Statewide, WS-CA also takes beavers via trapping, generally with neck snares or body-grip (conibear) traps. Between 2015 and 2017, trapping methods accounted for 15 to 29 percent of beaver take by WS-CA. Given that lethal control of beavers is expected to be minimal to nonexistent under the IWDM Program, the use of trapping methods would likely never be employed. If trapping methods are employed under the IWDM Program, such methods would be conducted in strict accordance with state regulations and WS Directives governing the use of traps. Any traps deployed would be sized for beavers and other field precautions would be taken to minimize the risk of non-target take, including unintentional take of special-status species. For the foregoing reasons, injury or mortality of the special-status species considered in this section as a result of beaver trapping is extremely unlikely to occur under the IWDM Program.

The terrestrial birds and mammals considered in this section have minimal potential to be directly affected by implementation of the IWDM Program. Because WS-CA would not conduct tree removal or substantial amounts of vegetation removal, there would be minimal risk of Program-related injury or mortality of the tree-dwelling Sonoma tree vole, and minimal risk of Program-related damage or destruction of the active nests or roost locations of special-status birds and bats. Although off-road pedestrian and/or vehicular travel and placement of capture devices could theoretically affect ground-nesting birds such as the northern harrier and grasshopper sparrow, this is considered an extremely remote possibility given the limited scale and duration of such effects. Furthermore, WS-CA personnel implementing the IWDM Program are directed to consider environmental factors when choosing methods of control, such as the presence of ground-nesting birds, and choose control methods that pose the least amount of risk to non-target wildlife.

From time to time, birds may be caught in traps set by WS-CA for other species. Accidental entrapment of avian species was recorded three times in Mendocino County between 2007 and 2017, twice for turkey vultures (*Cathartes aura*) and once for common ravens. In all three instances, the entrapped birds survived and were released. Statewide, a number of avian species are accidentally entrapped by WS-CA each year; accidental entrapment occasionally includes special-status birds such as the yellow-headed blackbird, peregrine falcon, and loggerhead shrike. In most cases, entrapped birds are simply released; between 2015 and 2017, only 12 birds were killed statewide as a result of accidental entrapment, none of which were special-status species. Given that accidental entrapment of birds by WS-CA is rare in Mendocino County and elsewhere in California, and that entrapped birds generally survive, the likelihood that non-target special-status species would be injured or killed by entering traps set for other species would be low.

In summary, the special-status animal species considered in this section have little potential to be directly affected by the IWDM Program. Potential effects from implementation of the IWDM Program on the species discussed above are considered less than significant.

Special-Status Animals that Occupy Habitats within which the IWDM Program Activities May Occur and May Be Vulnerable to Program Activities

Six of the 82 special-status animal species that potentially occur in Mendocino County have life history strategies and habitat preferences that could make them vulnerable to IWDM Program-related injury or mortality. The vulnerable species comprise the burrowing owl (*Athene cunicularia*), tricolored blackbird (*Agelaius tricolor*), Point Arena mountain beaver, fisher, ringtail, and American badger. As discussed above, the IWDM Program does not have the potential to produce substantial indirect effects for any of the foregoing species through habitat loss,

habitat degradation, or altered ecosystem dynamics. Potential direct affects to the six species listed above resulting from the IWDM Program are discussed below.

In addition, based on the conservative estimates prepared by Live Oak Associates for cougar populations within Mendocino County, for the purposes of this environmental analysis, cougars are considered “rare” in Mendocino County under CEQA Guidelines Section 15380. Thus, cougars are considered special-status species in Mendocino County and potential affects to cougars are analyzed in the section below.

- Burrowing Owl

The burrowing owl is primarily a grassland species, but may also occur in open shrub lands, grazed pastures, and occasionally agricultural lands. A rare wintertime visitor to the North Coast, the burrowing owl is occasionally sighted on beaches and coastal prairies within Mendocino County. The burrowing owl makes secondary use of small mammal burrows, most notably burrows of the California ground squirrel, for roosting and nesting.

Although California ground squirrels may occasionally be targeted under the IWDM Program, the level of ground squirrel take in Mendocino County has traditionally been so low that any associated risk to the burrowing owl would be negligible. Between 1997 and 2017, WS-CA in Mendocino County took ground squirrels in only a single year. Lethal control of California ground squirrels by WS-CA is more common elsewhere in the state; however, control of ground squirrels is generally accomplished via gunshot, which is highly species-specific and does not have the potential to result in accidental injury or mortality of burrowing owls. If lethal control of ground squirrels is required under the IWDM Program, lethal control would likely be carried out through the use of firearms or another species-specific method as is the case elsewhere in California, and will pose minimal risk to this species. Use of burrow fumigants would not be authorized under the IWDM Program. Given the limited amount of historic ground squirrel take within the County, and the use of species-specific methods for control of ground squirrels, implementation of the IWDM Program would result in a less-than-significant effect to burrowing owls.

- Tricolored Blackbird

Male tricolored blackbirds are similarly patterned to male red-winged blackbirds (*Agelaius phoenicius*), which can make identification difficult in some cases. Tricolored blackbirds and red-winged blackbirds both forage in agricultural fields, feed lots, and pastures, and in the wintertime may co-occur in mixed flocks. During the breeding season, the two

species segregate into pure flocks, but both nest in association with riparian areas, marshes, and fields of triticale (*Triticosecale* sp.), a robust wheat-rye hybrid. Red-winged blackbirds are commonly subjected to lethal control by WS-CA statewide, with an average of approximately 12,000 individuals taken per year between 2015 and 2017, generally by firearm. Due to the substantial overlap between tricolored blackbird and red-winged blackbird appearance and habitat preferences, there is some potential for tricolored blackbirds to be unintentionally taken during lethal control of red-winged blackbirds.

Although red-winged blackbirds are commonly taken in other parts of California, WS-CA did not record any take of red-winged blackbirds within Mendocino County between 1997 and 2017. Red-winged blackbirds were not the subject of any technical assistance provided by WS-CA in the County during the 11 years that technical assistance data is available, 2007 to 2017. Moreover, statewide, although annual take of red-winged blackbirds by WS-CA was considerable between 2015 and 2017, WS-CA did not record any tricolored blackbirds having been shot by mistake, and only two records exist of tricolored blackbirds having been caught in cage traps intended for other birds; in both cases of inadvertent trapping, the tricolored blackbirds survived. Because little, if any, direct control assistance related to the red-winged blackbird is anticipated in Mendocino County, and because statewide control of the red-winged blackbird appears to be adequately limiting unintentional effects to the tricolored blackbird, direct effects to the tricolored blackbird as a result of implementation of the IWDM Program are considered less than significant.

- Point Arena Mountain Beaver

The Point Arena mountain beaver is known to occur in an area of just 24 square miles in western Mendocino County. The species' current range extends from a point two miles north of Bridgeport Landing to a point five miles south of the town of Point Arena, within five miles of the Pacific Ocean.¹⁶³ The Point Arena mountain beaver occupies a variety of habitats including coastal scrub, coastal strand, conifer forest, and riparian communities; individuals spend most of their life in underground burrow systems. The Point Arena mountain beaver is a strict herbivore, feeding on a variety of plants, including a number of species that are unpalatable or toxic to other animals, such as bracken fern (*Pteridium aquilinum*), stinging nettle (*Urtica* sp.), thistles (*Cirsium* spp.), and larkspur (*Delphinium* sp.).

Because individual Point Arena mountain beavers do not venture far from their burrow systems and do not scavenge or consume meat, Point Arena Mountain beavers would be unlikely to be attracted to traps or snares that

may be set for target species under the IWDM Program. Although USFWS (1998) identified rodent control efforts such as poison baits and gopher traps as being potentially detrimental to the Point Arena mountain beaver,¹⁶⁴ the IWDM Program would not include the use of rodenticides, and WS-CA has not conducted any technical assistance or take of gophers in Mendocino County during the baseline period. Therefore, WS-CA is not likely to conduct management activity that would involve gopher traps that could pose a threat to the species. Considering the lack of previous control activities for the Point Arena mountain beaver within the County and the small area inhabited by the species, implementation of the IWDM Program would be unlikely to occur within the small area known to be occupied by the Point Arena mountain beaver and any activities undertaken within the species' habitat area would be unlikely to result in injury or mortality of individuals from the species. Consequently, direct effects to the Point Arena mountain beaver as a result of implementation of the IWDM Program are considered less than significant.

- Fisher and Ringtail

The fisher occupies low- to mid-elevation coniferous, mixed coniferous, and hardwood forests with complex physical structure. The ringtail is also found at low to moderate elevations, but ringtail habitat preferences emphasize shrubland as well as forest, and ringtail are often found in close association with rocky hillsides. Both species have the potential to occur throughout the County where suitable habitat exists.

The USFWS identifies a number of stressors linked to direct mortality of fishers; among such stressors are incidental trapping and exposure to rodenticides.¹⁶⁵ When fishers are incidentally captured in body-gripping or leghold traps, crippling injury or mortality can result; however, incidental capture of fishers on the West Coast appears to be rare based on mandatory annual harvest reports submitted by trappers in Oregon.¹⁶⁶ Anticoagulant rodenticides have increasingly been detected in fisher carcasses in California, likely due to the proliferation of illegal marijuana cultivation sites on public lands, where such rodenticides are heavily applied.¹⁶⁷ Toxicosis has been determined to be the direct cause of death for 15 California fishers to date.¹⁶⁸ Little is known about the threats facing the ringtail because the animal is understudied, but because ringtails have dietary and habitat overlap with the fisher, ringtails likely experience many of the same stressors.

The IWDM Program, as defined in the Project Description Chapter of this EIR, would not authorize the use of rodenticides; therefore, the potential for project-related direct effects on the fisher or ringtail from the use of rodenticides does not exist. The following discussion presents the potential

direct effects on the fisher and ringtail resulting from trapping activities under the IWDM Program.

California FGC Sections 4004(a) and 3003.1(c) prohibit the use of steel-jawed leghold traps, padded or otherwise, except by government agency personnel addressing public health and safety concerns. Such traps are used infrequently by WS-CA, and mortality of animals unintentionally captured using regulated devices is extremely low. Statewide between 2015 and 2017, an average of only two animals per year died in California as a result of unintentional capture in padded leghold traps. Use of body-grip (conibear) traps in California is subject to a number of restrictions imposed by California FGC and WS Directives. Statewide use of body-grip (conibear) traps by WS-CA is rare, generally limited to capture of beavers and California ground squirrels. According to WS-CA data, body-grip traps were not used by WS-CA in Mendocino County between 2007 and 2017.

In addition to the types of traps identified by USFWS as posing a risk to fishers,¹⁶⁹ fishers and ringtails also have some potential to be unintentionally captured in neck snares, foot snares, and cage traps. Statewide between 2015 and 2017, most animals that were unintentionally captured using neck snares died; however, unintentional captures were infrequent. In Mendocino County, an average of three animals died each year between 2007 and 2017 following unintentional capture in neck snares. In almost all such instances, the captured individual was of a species otherwise targeted by WS-CA in Mendocino County such as the raccoon, gray fox, feral swine, and striped skunk. When animals are unintentionally captured by WS-CA in foot snares and cage traps, the unintentionally captured animals usually survive and can be released.

For all the years that data is available, there has never been an instance of fisher or ringtail capture by WS-CA in Mendocino County. Use of trap devices identified by USFWS¹⁷⁰ as being most detrimental to fishers is strictly regulated and would occur minimally, if at all, in Mendocino County. Most trapping methods employed by WS-CA in Mendocino County are non-lethal, such that, in the unlikely event that a fisher or ringtail were unintentionally captured under the IWDM Program, the unintentionally captured animal could be released.

Considering the above, implementation of the IWDM Program is considered unlikely to result in injury or mortality of fishers or ringtail. Direct effects to the fisher and ringtail as a result of implementation of the IWDM Program are considered less than significant.

- American Badger

The American badger is associated with grasslands, savannahs and prairies throughout much of the western United States, including Mendocino County. Badgers prey primarily on small mammals including ground squirrels, pocket gophers, and mice, which badgers capture by digging out the animals' burrows. Badgers also dig to establish their underground dens, in some cases constructing a new sleeping den each day. Badgers may occasionally prey upon lambs and poultry or damage irrigation systems or earthen dams with their digging behavior.

Due to conflicting interactions with humans, badgers have traditionally been targeted by WS-CA in Mendocino County and elsewhere in California despite being designated a California Species of Special Concern by CDFW. The badger is also designated a furbearer pursuant to California FGC Section 461 and may be taken during the species' regular season without bag limit. In a 2004 CEQA analysis of potential effects associated with proposed revisions to California's furbearing and nongame mammal hunting and trapping regulations, CDFW used population models to assess whether California's badger population would be significantly affected by an annual statewide harvest of 424 badgers, which included hunting, trapping, and take by WS-CA. The CDFW determined that a harvest level of 424 badgers annually represented less than one percent of overall badger mortality, and that badgers would not be significantly affected by the proposed action.¹⁷¹

Between 1997 and 2017, an average of one badger was killed by WS-CA each year in Mendocino County (see Table 4.2-8). Statewide between 2015 and 2017, badger take averaged 24 individuals per year, less than 25 percent of the annual take of this species by WS-CA that CDFW assumed in the CDFW's 2004 model. Given that (1) CDFW does not impose bag limits for the American badger, even after accounting for annual take by WS-CA, (2) annual badger harvest inclusive of WS-CA actions appears to represent a very small fraction of overall badger mortality, (3) current levels of take by WS-CA appear to be much lower than what was originally assumed by CDFW, and (4) badger take in Mendocino County is limited to just a few individuals per year, badgers are unlikely to be adversely affected by take related to implementation of the IWDM Program. Direct affects to the American badger as a result of implementation of the IWDM Program is considered less than significant.

- Cougar

Under the IWDM Program, cougars would periodically be taken by WS-CA to address depredation or public safety concerns. Between 1997 and 2017, an average of approximately nine cougars per year were taken by

WS-CA. It is important to reemphasize here that cougars may only be taken following issuance of a depredation permit by CDFW or after authorization by CDFW for an animal posing a public safety concern. Depredation permits would not be requested by WS-CA under the IWDM Program for livestock conflicts with cougars. Rather, the landowner or livestock manager must request the depredation permit from CDFW. Should CDFW grant the depredation permit requested by the land owner or livestock manager, the permit requester may then complete the permitted take independently, or designate a third-party to complete the permitted take. The third-party designated by the permit requester to fulfill the CDFW depredation permit may be an individual, the WS-CA, or any other non-WS-CA affiliated individual or entity.

Most cougar populations can sustain an annual harvest rate of 20 to 30 percent of their adult members.¹⁷² As discussed in the existing setting section above, a limited number of cougar studies have been conducted that include population estimates for California. While studies with differing population density estimates for California exist, Allen et al.'s population density estimate is specific to the Mendocino National Forest, a portion of which is located within the County, and represents a comparatively low population estimate. By relying on Allen et al.'s population estimate, this analysis takes a conservative approach by assuming a low overall cougar population in the County.

Based on Allen et al.'s adult cougar density estimate on the Mendocino National Forest, Live Oak Associates conservatively estimated that there are 43 adult cougars County-wide.¹⁷³ Average annual take by WS-CA during the baseline years represented approximately 21 percent of this estimate, which is at the low end of the 20-30 percent sustainable harvest rates given by Beck et al. (2005) and others.¹⁷⁴ The highest level of cougar take in a given year between 1997 and 2017 was 15 individuals, or approximately 35 percent of the adult population estimate, which exceeds the maximum sustainable harvest rate of 30 percent of adults. For informational purposes, it should be noted that under the high population estimate based on average cougar densities calculated by the Mountain Lion Foundation, a take of 15 individuals would represent 15 percent of the estimated adult population, which would be within the sustainable harvest rate for the species.

The estimate that a take of 15 individuals represents 35 percent of the adult population, however, assumes that all cougars taken by WS-CA are adults, which is not necessarily the case, because young cougars are more likely to be found in human-occupied areas as compared to older cougars¹⁷⁵ and more likely to be involved in conflicts with humans.¹⁷⁶ Moreover, the rate of cougar take by WS-CA in Mendocino County declined over the baseline years, from an annual average of 12 individuals

between 1997 and 2007 to an annual average of 5 individuals between 2008 and 2017. The last time annual take by WS-CA exceeded 30 percent of the adult population estimate was in 2005. Therefore, assuming take of cougars under the IWDM Program occurs at similar levels to those observed between 1997 and 2017, the IWDM Program alone is unlikely to cause the County's cougar population to drop below self-sustaining levels.

However, take of cougars under the IWDM Program represents only one of several human-caused mortality factors operating on this species in Mendocino County. In addition to take by WS-CA, landowners and other entities may take cougars under depredation permits issued by CDFW. Poaching likely exerts substantial additional pressure on the County's cougar population. Such factors are considered a part of the environmental background under the No Program Baseline, and, thus, take related to implementation of the IWDM Program would occur in addition to other human-caused mortality factors. Even in non-hunted cougar populations, humans are often the main cause of mortality for this species.¹⁷⁷ CDFW data or estimates were not available for illegal cougar harvest levels in Mendocino County, nor was comprehensive data related to depredation take of cougars in Mendocino County by entities other than WS-CA. However, given the possibility that average annual take by WS-CA between 1997 and 2017 was already approaching the maximum sustainable harvest rate for the County's cougar population, additional mortality factors have considerable potential to cause the population to drop below self-sustaining levels.

Similar stressors appear to be at work throughout the North Coast population. WS-CA operates in most counties in this population, and cougar depredation permits are also issued to non-WS-CA entities and subsequently filled. Poaching is expected to exert pressure on cougars throughout the southern North Coast population, not just Mendocino County. This analysis is conservative in that it does not assume that cougar surpluses elsewhere in the population will offset losses in Mendocino County through immigration to Mendocino County.¹⁷⁸

Importantly, previous research has shown that high cougar harvest rates can exacerbate conflicts with humans rather than lower them. A study in Washington found that increased killing of cougars, while causing a short-term decline in the cougar population, also resulted in increased conflicts with humans,¹⁷⁹ likely due to a shift in the population structure toward younger males,¹⁸⁰ which are more often associated with depredation events than other demographic groups of cougars. Limiting annual harvest to the population's intrinsic growth rate, which in Washington averaged 14 percent, should help to stabilize the population structure,¹⁸¹ which in turn would be expected to minimize conflicts with humans.¹⁸²

Cougars occur in low densities in Mendocino County, despite an abundance of prey and protection from hunting, suggesting that the population is already somewhat impaired. Assuming that annual take of cougars under the IWDM Program occurs at levels observed during the baseline period, the IWDM Program would have the potential to result in significant levels of take when analyzed in the context of other existing background sources of take and stress on the Mendocino County population of cougars.

Conclusion for Special-Status Animals that May be Vulnerable to Program Activities

In summary, the IWDM Program does not have the potential to result in substantial adverse direct or indirect effects on 82 of the special-status animal species in Mendocino County. However, considering the conservative low population estimate used in this analysis for Mendocino County, historic take records, and other human-caused mortality factors (e.g. take by non-WS-CA entities under legally issued CDFW depredation permits and illegal poaching), the potential exists that due to the County's unique cougar population dynamics, implementation of the IWDM Program within Mendocino County could result in a significant effect to the cougar population in the County.

Non-Lethal Program Alternative

The following sections discuss potential affects to special-status plants and animals within the County resulting from implementation of the Non-Lethal Program Alternative under the No Program Baseline.

Special-Status Plants

Similar to the IWDM Program, the Non-Lethal Program Alternative would not involve the development of land, or removal of substantial amounts of vegetation or soil. Therefore, implementation of the non-lethal program alternative would not have the potential to substantially affect the 113 special-status plant species potentially occurring in Mendocino County (see Table 4.2-2 and Table 4.2-3). The only activities that would have the potential to impact special-status plants are off-road pedestrian and/or vehicular travel required for site access, and limited ground disturbance required for the installation of livestock fencing or other implements that could be funded by the Non-Lethal Program Alternative. In any given area, such activities would be extremely limited in scale and of short duration. Although there is some potential for damage to special-status plants to occur as a result of these activities, any such impacts would be minimal, and would not substantially affect special-status plant populations. Considering the nature of activities that would be conducted or funded under the Non-Lethal Program Alternative, the Non-Lethal Program Alternative would result in less-than-significant effect to special-status plant species.

Special-Status Animals

Similar to the IWDM Program, the Non-Lethal Program Alternative would not have the potential to produce substantial indirect effects to any of the 82 special-status animal species potentially occurring in Mendocino County through loss or degradation of habitat or altered ecosystem dynamics. As discussed above for potential effects to special-status plant species resulting from implementation of the Non-Lethal Program Alternative, the only activities that would directly affect habitat are off-road pedestrian and/or vehicular travel required for site access and limited ground disturbance required for the installation of livestock fencing or other implements that could be funded by the Non-Lethal Program Alternative. Although such activities may occasionally be conducted in habitat suitable for special-status wildlife, any associated effects would be temporary and extremely limited in scale, and are not considered significant.

Direct effects to special-status animals are expected to be minimal, if they occur at all, under the Non-Lethal Program Alternative. Considering the areas where the wildlife damage management activities would occur within the County, the Non-Lethal Program Alternative would not have the potential to result in adverse effects to 76 of the 82 special-status species that potentially occur in the County. Furthermore, the Non-Lethal Program Alternative would not involve lethal management of any of the six species that may be vulnerable to program activities under the IWDM Program (burrowing owl, tricolored blackbird, Point Arena mountain beaver, fisher, ringtail, and American Badger); consequently, the Non-Lethal Program Alternative would not have the potential to directly affect any of the 82 previously identified special-status species.

Some potential exists for LPDs funded under the Non-Lethal Program Alternative to harass or kill wildlife. Harassment or take of wildlife by LPDs could include special-status animal species. In general, LPDs are more likely to harass medium- to large-sized animals that are easily detected, and predators that might be perceived as threatening to livestock. Special-status animals meeting such criteria in Mendocino County might include the Point Arena mountain beaver, fisher, and badger. The fisher is associated with forest habitats and would rarely, if ever, venture into livestock operations where fishers would be at risk of harassment by LPDs. Badgers may occur in pastures and other agricultural lands and could conceivably be harassed by LPDs from time to time. However, because badgers sometimes damage agricultural property, and because “fur-bearing mammals that are injuring property may be taken at any time and in any manner” pursuant to Section 4180 of California FGC, harassment by LPDs may paradoxically help protect badgers from the more serious threat of being taken by property owners.

As discussed under the CEQA Baseline, the Point Arena mountain beaver may occasionally be killed by domestic dogs. Any harassment of Point Arena mountain beavers by LPDs would be expected to occur on or near pastures, where LPDs would primarily be used. Pasture land mapped using the CWHR system

account for only about two percent of the Point Arena mountain beaver's range. Even if LPDs were to be placed on all such lands under the Non-Lethal Program Alternative, which is unlikely, resulting harassment or take of Point Arena mountain beavers by LPDs is not expected to have a significant effect on this species because LPDs funded by the Non-Lethal Program Alternative would be properly imprinted and trained to minimize wildlife harassment behavior, and any harassment or mortality of mountain beavers that does occur due to LPDs funded by the Non-Lethal Program Alternative would affect a very small proportion of the population. Overall, the Non-Lethal Program Alternative is not expected to substantially affect special-status animal species through injury or mortality. Direct affects to special-status animal species associated with the Non-Lethal Program Alternative are considered less than significant.

It should be noted that under the Non-Lethal Program Alternative, take of cougars, which, for the purposes of this analysis, are considered a special-status species in Mendocino County pursuant to CEQA Guidelines Section 15380, would not be supported by the Non-Lethal Program Alternative or funds related to the program. A recent review of the non-lethal predator management program in Marin County concluded that lethal management of coyotes by property owners has persisted even with implementation of Marin County's non-lethal predator management program. However, due to data constraints, the extent to which such lethal predator management is occurring within Marin County is not known with certainty.¹⁸³ Considering the recent review of the Marin County non-lethal predator management program, take of cougars within Mendocino County is anticipated to persist through property owners obtaining depredation permits from the CDFW under the Non-Lethal Program Alternative. However, the level of continued take of cougars by property owners under the Non-Lethal Program Alternative is considered speculative. Furthermore, the CDFW would continue to authorize take of cougars that have been identified as a risk to public safety independent of the County's Non-Lethal Program Alternative. However, because take would not be funded by the Non-Lethal Program Alternative, and the goal of the Non-Lethal Program Alternative would be to avoid the use of lethal management methods within the County, for the purposes of this analysis, the Non-Lethal Program Alternative is not assumed to result in direct take of cougars. Thus, the Non-Lethal Program Alternative would not be considered to result in a significant effect to the cougar population in Mendocino County.

In summary, the Non-Lethal Program Alternative would result in less-than-significant adverse indirect or direct effects on special-status plants or animals in Mendocino County.

Variation to the Non-Lethal Program Alternative

The following section presents a discussion of the potential effects that could result from implementation of the variation to the Non-Lethal Program Alternative on special-status plants and special-status animals.

Special-Status Plants

The variation to the Non-Lethal Program Alternative would not involve the development of land, or removal of substantial amounts of vegetation or soil. Therefore, implementation of the variation to the non-lethal program alternative would not have the potential to substantially affect the 113 special-status plant species potentially occurring in Mendocino County (see Table 4.2-2 and Table 4.2-3). Certain activities that could be conducted under the variation to the Non-Lethal Program Alternative could involve minor amounts of ground-disturbance or vegetation removal. For instance, the installation of fladry/turbo fladry or off-road pedestrian/vehicular travel could all result in sporadic, limited vegetation removal or ground-disturbance. Similar to the discussion of potential effects presented under the IWDM Program and the Non-Lethal Program Alternative above, the vegetation removal or ground-disturbance resulting from such activities would be extremely limited and sporadic. Consequently, the variation to the Non-Lethal Program Alternative would result in less-than-significant effects related to special-status plant species.

Special-Status Animals

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. Although the variation to the Non-Lethal Program Alternative could involve some take of wildlife, as compared to the Non-Lethal Program Alternative, the variation to the Non-Lethal Program Alternative is anticipated to involve less take than would occur under the IWDM Program, given the strict limitations as to when lethal gunshot can be used (i.e. only when needed to protect public health and safety), as compared to the IWDM Program. As discussed for the IWDM Program, take levels in the County would not result in significant direct or indirect effects to the majority of special-status species.

With respect to cougars, it is assumed that cougars would only be taken under this alternative if an attack on a human had occurred or appeared imminent. Cougar attacks are very rare, averaging about one every two years in California. Of the fifteen verified cougar attacks in California between 1986 and 2014, two (13 percent) were in Mendocino County. The Mendocino County attacks occurred at the same time and likely involved the same cougar; however, conservatively considering the attacks to be separate incidents yields a rate of about one attack in Mendocino County every 14 years. Even if the variation to the Non-Lethal Program Alternative results in the take of three times the number of individuals indicated by the attack rate in Mendocino County, to account for situations where an attack appears imminent, this only amounts to about one cougar every 5 years. This level of take would not have the potential to cause the Mendocino County cougar population or larger southern North Coast cougar population to drop

below self-sustaining levels, either individually or in combination with other stressors on this species.

It is also noted that the CDFW and WS-CA maintain a contract allowing CDFW to rely on WS-CA personnel to perform take of cougars, if requested and as necessary, to protect public health and safety. If the public safety event happens in a county with a cost-shared IWDM Program, the county cost-share personnel may be used in the response, thus providing local knowledge and efficiency. If none is available, or other expertise is necessary, WS-CA may send another specialist to respond to the incident. WS-CA public safety response (at the request of CDFW) could occur in a county regardless of the existence of a cost-shared IWDM Program.

Conclusion

CEQA Baseline

Implementation of the IWDM Program would represent a continuation of the baseline conditions. Therefore, while take of special-status species (including cougars) may occur, levels of take would not result in impacts beyond the level that is included in the environmental baseline for the County. Furthermore, impacts to special-status plants under the IWDM Program would not occur beyond the level that is included in the environmental baseline. Overall, the IWDM Program would result in *no impact*.

The Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would result in reduced levels of take as compared to the environmental baseline for the County, and, consequently, impacts beyond the level that is included in the environmental baseline for the County would not be expected to occur in relation to the take of special-status species. Under the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative, some activities involving ground-disturbing activity and vegetation removal could be supported through cost-sharing/reimbursement from the County. However, such activities would not be anticipated to result in impacts to special-status plants or habitats used by special-status species. Considering the above, a *less-than-significant* impact would occur.

Mitigation Measure(s)

None required.

No Program Baseline

As discussed above, implementation of the Non-Lethal Program Alternative or the variation to the Non-Lethal Program Alternative would not have the potential to result in adverse effects, either directly or indirectly, through habitat modification, to special-status plant or animal species. Consequently, implementation of the Non-Lethal Program Alternative or the variation to the Non-Lethal Program Alternative would result in a *less-than-significant* effect on special-status species.

However, with respect to the IWDM Program, considering the conservative low population estimate used in this analysis for Mendocino County, historic take records, and other human-caused mortality factors (e.g. take by non-WS-CA entities under legally issued CDFW depredation permits and illegal poaching), the potential exists that due to the County's unique cougar population dynamics, implementation of the IWDM Program could result in significant effects to cougars within the County. Therefore, implementation of the IWDM Program could result in a *significant* effect to cougars.

Improvement Measure(s)

In the Santa Ana and Santa Monica Mountains of southern California, where a lack of genetic diversity has been noted in cougars,¹⁸⁴ and anthropogenic pressures appear to be restricting connectivity between cougar populations, CDFW has amended the Department's depredation incident response policy to reflect a tiered approach prioritizing use of non-lethal methods.¹⁸⁵ In the regions where the depredation incident response policy was amended, a depredation permit for take of a cougar in a specific area will only be issued following three depredation incidents that appear to demonstrate the animal's affinity for the area, and only after implementing non-lethal methods in response to the first two incidents. Implementation of the following improvement measure would require a similar process prior to the granting of depredation permits in Mendocino County. It should be noted that the CDFW has not amended the Department's depredation incident policy in Mendocino County. Such a process could reduce the number of depredation permits granted in Mendocino County, and, thus, reduce the number of cougars taken per year within the County, avoiding potentially significant effects to the population of cougars in Mendocino County. However, the CDFW grants depredation permits, and Mendocino County does not have the authority to place requirements on the CDFW's depredation permitting process within the County. Therefore, implementation of the depredation permitting process required by the following improvement measure cannot be assured, because the issuance of depredation permits within the County is not subject to control by Mendocino County. Therefore, the potential effect on cougar populations within Mendocino County resulting from implementation of the IWDM Program would remain *significant and unavoidable*.

IWDM Program

4.2-1 Except to address serious public safety concerns, direct control assistance related to cougars shall prioritize use of non-lethal methods. A cougar shall only be taken by WS-CA after the identified cougar has been involved in three depredation incidents in a specific area and non-lethal methods have failed, or if an attack on a human has occurred or appears imminent.

The following procedures shall be implemented for successive depredation events occurring in the same specific area within a

time period strongly suggesting the cougar's affinity for that location:

First Depredation Event: After confirming that the depredation was caused by a cougar, the WS-CA technician shall educate the landowner on cougar behavior and discuss site-specific options for preventing future depredation. WS-CA shall provide instruction on non-lethal strategies to be implemented by the landowner and lend appropriate equipment if available. WS-CA shall communicate to the landowner that continued assistance will be conditional upon the landowner taking measures to reduce the potential for attracting cougars, such as (1) removing the carcasses of depredated animals, (2) installing or repairing fencing or other shelter designed to exclude cougars from the depredated resource, and (3) removing cover from the immediate vicinity by clearing brush or removing lower limbs from shrubs. These conditions shall be identified in writing in WS-CA's work plan or other agreement with the landowner. If the cougar is still present at the time of WS-CA's first site visit, the technician may pursue or haze the cougar.

Second Depredation Event: After confirming (1) that the depredation was most likely caused by the cougar involved in the first incident, (2) that the landowner implemented non-lethal strategies as instructed, and (3) that the landowner implemented the required conditions for continued assistance, WS-CA shall work with the landowner to develop a new set of non-lethal strategies to be employed and lend appropriate equipment if available. If there are additional measures that can be employed by the landowner to avoid attracting cougars onto the property, the WS-CA field technician shall identify these in writing as a condition of continued assistance. If the cougar is still present at the time of WS-CA's second site visit, the technician may pursue or haze the cougar.

Third Depredation Event: After confirming (1) that the depredation was most likely caused by the cougar involved in the first and second incidents, (2) that the landowner implemented non-lethal strategies as instructed, and (3) that the landowner implemented the required conditions for continued assistance, WS-CA may take the cougar associated with the ongoing depredation.

4.2-2 Have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, or regulations or by CDFW or USFWS. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

As discussed above in Section 4.2.2, Mendocino County contains 13 sensitive natural communities mapped by CDFW, and a range of other habitats that are considered sensitive due to their associated biodiversity, wildlife value, and/or importance to special-status species. In addition, the Mendocino County General Plan and existing city general plans within the County identify various sensitive habitats within each jurisdiction covered by the foregoing General Plans. Sensitive habitats identified by the County and cities include riparian areas, wetlands, pygmy forests, and coastal dunes. The following sections present an analysis of potential impacts or effects related to implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative on riparian habitat or other sensitive natural communities under the CEQA Baseline and No Program Baseline.

CEQA Baseline

IWDM Program

Wildlife damage management operations to provide assistance to landowners to protect livestock, crops, human health and safety, and property from wildlife damage using a variety of methods, have been historically carried out by WS-CA in Mendocino County since 1989. As such, the lethal and non-lethal control of wildlife damage within the County, and any associated activities, are part of the environmental baseline, and continued implementation of the IWDM Program would not result in any changes to wildlife damage management activities in the County. Considering that the IWDM Program would represent a continuation of the existing environmental baseline conditions, under the CEQA Baseline, the IWDM Program would not result in any net new impacts to riparian habitats or other sensitive natural communities. Thus, the IWDM Program would not result in any substantial adverse effects to riparian and other sensitive natural communities identified in local or regional plans, policies, or regulations or by CDFW or USFWS, and impacts would be less than significant.

Non-Lethal Program Alternative

Cost-sharing for non-lethal wildlife control methods has not historically been a component of the IWDM Program within Mendocino County. Certain habitat impacts may result from implementation of non-lethal wildlife damage control methods, which may be funded by the County through cost-sharing within the Non-Lethal Program

Alternative. For example, landowners may use County funds to implement habitat management strategies aimed at reducing crop depredation, such as altering the composition of crops or planting lure crops. The Non-Lethal Program Alternative may include cost-share funding for installation of fences or pens to minimize livestock depredation. Generally speaking, such methods would be implemented in highly-modified anthropogenic landscapes that are not considered sensitive. The Non-Lethal Program Alternative would not fund landowner activities involving ground disturbance or physical alteration of habitat in riparian or other sensitive habitats. Substantial adverse effects to riparian and other sensitive natural communities identified in local or regional plans, policies, or regulations or by CDFW or USFWS, resulting from landowner activities funded under the Non-Lethal Program Alternative are considered less than significant.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. Firearm use is part of the baseline and would not pose potential impacts to sensitive habitats. Thus, the impact conclusion identified above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

Implementation of the IWDM Program would not include any land development, construction, or substantial amounts of vegetation removal. The only activities under the proposed Program that would directly affect habitat are off-road pedestrian and/or vehicular travel required for site access, the loaning and installation of fladry/turbo fladry, and the placement of capture devices. WS-CA Directive 2.201 requires WS-CA staff to consider biological and environmental factors when selecting management methods. Should wildlife damage management occur in areas where sensitive habitat is present, WS-CA personnel would consider such biological and environmental factors, and select management methods that would avoid adverse effects to such resources to the greatest extent feasible.

The IWDM Program would result in the take of apex predators, an action that, at sufficiently high levels, can create cascading ecological effects including damage to riparian communities and other sensitive habitats. For example, following the extirpation of wolves from the Yellowstone ecosystem in the 1920s, recruitment of cottonwood, willow, and other woody vegetation in riparian areas essentially ceased due to overbrowsing by elk. The overbrowsing of riparian vegetation, in turn, led to declines in beaver populations, which further impacted riparian vegetation as dams disappeared and stream flows increased.¹⁸⁶ Although some riparian areas recovered following the

reintroduction of wolves to Yellowstone in 1995,¹⁸⁷ others remain impaired, likely due to the beaver's continued absence.¹⁸⁸

As discussed in Impact 4.2-1, take of apex predators under the IWDM Program is not expected to occur at levels that would cause substantial cascading effects in the ecosystem. Average annual WS-CA take of the black bear and coyote in Mendocino County between 1997 and 2017 only accounted for about 0.5 percent and three percent of each species' low population estimates in the County, respectively. Average annual WS-CA take of the cougar during the baseline period relative to the species' low population estimate in the County was somewhat higher, constituting 21 percent of adults. For informational purposes, it should be noted that the average annual WS-CA take of cougars during the baseline period relative to the species' high population estimate of 130 individuals in the County would constitute seven percent of adults. However, even with a take of 21 percent of adults under the more conservative low population estimate, the cougar will continue to exert pressure on the primary prey of the species, the black-tailed deer, and substantial cascading effects to riparian or other sensitive habitats are not anticipated.

Thus, substantial adverse effects to riparian and other sensitive natural communities identified in local or regional plans, policies, or regulations or by CDFW or USFWS, resulting from activities under the IWDM Program are considered less than significant.

Non-Lethal Program Alternative

Similar to the IWDM Program discussed above, the Non-Lethal Program Alternative would not involve any land development, construction, or substantial amounts of vegetation removal. Minor habitat impacts may result from off-road pedestrian or vehicular travel. Although off-road pedestrian or vehicular travel could occur in areas containing riparian or other sensitive habitat, any associated impacts would be temporary and extremely limited in scale. The Non-Lethal Program Alternative is not anticipated to include any other forms of direct control measures or activities directly implemented by staff of the entity implementing the Non-Lethal Program Alternative that would result in potential disturbance of sensitive habitats.

Certain habitat impacts may result from implementation of non-lethal wildlife damage control methods, which may be funded by the County through cost-sharing within the Non-Lethal Program Alternative. For example, landowners may use County funds to implement habitat management strategies aimed at reducing crop depredation, such as altering the composition of crops or planting lure crops. The Non-Lethal Program Alternative may include cost-share funding for installation of fences or pens to minimize livestock depredation. Generally speaking, such methods would be implemented in highly-modified anthropogenic landscapes that are not considered sensitive. The Non-Lethal Program Alternative would not fund landowner activities involving ground disturbance or physical alteration of habitat in riparian or other sensitive habitats. Substantial adverse effects to riparian and other sensitive natural communities identified in local or regional plans, policies, or regulations or by CDFW or USFWS, resulting from

landowner activities funded under the Non-Lethal Program Alternative are considered less than significant.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. Thus, implementation of the variation to the Non-Lethal Program Alternative may involve off-road pedestrian or vehicular travel or cost-sharing for the installation of fencing or other non-lethal measures. Although the variation to the Non-Lethal Program Alternative would involve such activities, for the reasons discussed above under the IWDM Program and the Non-Lethal Program Alternative, adverse effects to riparian and other sensitive natural communities identified in local or regional plans, policies, or regulations or by CDFW or USFWS, resulting from implementation of the variation to the Non-Lethal Program Alternative would be considered less than significant.

Conclusion

CEQA Baseline

As discussed above, implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not have the potential to result in substantial adverse effects on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, or regulations or by the CDFW or the USFWS, and a *less-than-significant* impact would result.

Mitigation Measure(s)

None required.

No Program Baseline

As discussed above, substantial adverse effects to riparian and other sensitive natural communities identified in local or regional plans, policies, or regulations or by CDFW or USFWS, resulting from activities under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative are considered *less than significant*.

Improvement Measure(s)

None recommended.

4.2-3 Have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal filling, hydrological interruption, or other means. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

As discussed above in Section 4.2.2, Mendocino County contains a large amount of rivers, streams, and wetlands likely to fall under the jurisdiction of the USACE, RWQCB, and/or CDFW. Moreover, Mendocino County is coastal, and contains large portions of the territorial seas, which are federally regulated waters. Potential impacts to state or federally protected wetlands resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program under the CEQA Baseline and No Program Baseline are discussed below.

CEQA Baseline

IWDM Program

Wildlife damage management operations to protect livestock, crops, human health and safety, and property from wildlife damage using a variety of methods, have been historically carried out by WS-CA in Mendocino County since 1989. As such, the lethal and non-lethal control of wildlife damage within the County, and any associated activities, are part of the environmental baseline, and continued implementation of the IWDM Program would not result in any changes to wildlife damage management activities in the County. Considering that the IWDM Program would represent a continuation of the existing environmental baseline conditions, under the CEQA Baseline, the IWDM Program would not result in any net new impacts to state or federally protected wetlands. Thus, the IWDM Program would not result in a substantial adverse effect to state or federally protected wetlands, and impacts would be less than significant.

Non-Lethal Program Alternative

Cost-sharing for non-lethal wildlife control methods has not historically been a component of the IWDM Program within Mendocino County. Cost-sharing for certain non-lethal management methods, such as the installation of fencing and pens, could result in minor ground disturbance in the areas of installation. However, the installation of fencing and pens would not occur in sensitive habitat areas. Consequently, the Non-Lethal Program Alternative would not involve ground disturbance or physical alteration of habitat in state or federally regulated wetlands or waters and would not require the acquisition of a Clean Water Act permit or Section 1602 Streambed Alteration

Agreement. Thus, the Non-Lethal Program Alternative would not result in a substantial adverse effect to state or federally protected wetlands, and impacts would be less than significant.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. Firearm use is part of the baseline and would not pose potential impacts to sensitive habitats. Thus, the impact conclusion identified above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

Implementation of the IWDM Program would not include any land development, construction, or substantial amounts of ground disturbance that could result in fill of wetlands. Minor habitat impacts may result from off-road pedestrian and vehicular traffic, as well as the setting of traps. However, any disturbance from such activities would be spatially limited, temporary, and would not result in the fill, removal, or hydrologic interruption of state or federally protected wetlands because they would not typically be performed in sensitive habitats. WS Directive 2.201 requires WS-CA staff to consider biological and environmental factors when selecting management methods. In compliance with Directive 2.201, WS-CA personnel would identify any existing state or federally protected wetland resources and avoid such resources when selecting wildlife damage management methods. Consequently, the IWDM Program would not include or authorize any activity that would involve ground disturbance or physical alteration of habitat in state or federally regulated wetlands or waters. Furthermore, the IWDM Program would not authorize or implement any activities requiring the acquisition of a Clean Water Act permit or Section 1602 Streambed Alteration Agreement and a less-than-significant effect would occur.

Non-Lethal Program Alternative

Implementation of the Non-Lethal Program Alternative would not include any land development, construction, or substantial amounts of ground disturbance that could result in fill of wetlands. Minor habitat impacts may result from off-road pedestrian and vehicular traffic; however, such habitat impacts would be temporary and extremely limited in scale. The Non-Lethal Program Alternative would include cost-sharing for certain non-lethal management methods, which could include installation of fencing or pens. The installation of fencing and pens would not occur in sensitive habitat areas. Consequently, the Non-Lethal Program Alternative would not involve ground disturbance or physical alteration of habitat in state or federally regulated wetlands or waters and

would not require the acquisition of a Clean Water Act permit or Section 1602 Streambed Alteration Agreement and a less-than-significant effect would occur.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. Implementation of the variation to the Non-Lethal Program Alternative may involve off-road pedestrian or vehicular travel or cost-sharing for the installation of fencing or other non-lethal measures. Although the variation to the Non-Lethal Program Alternative would involve such activities, for the reasons discussed above under the IWDM Program and the Non-Lethal Program Alternative, the variation to the Non-Lethal Program Alternative would not have the potential to result in effects to state or federally protected wetlands and would not require the acquisition of a Clean Water Act permit or Section 1602 Streambed Alteration Agreement and a less-than-significant effect would occur.

Conclusion

CEQA Baseline

Considering the above, the IWDM Program, Non-Lethal Program Alternative, and variation to the Non-Lethal Program Alternative would result in a ***less-than-significant*** impact on state or federally protected wetlands.

Mitigation Measure(s)

None required.

No Program Baseline

As discussed above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would result in ***less-than-significant*** effect to state or federally protected wetlands.

Improvement Measure(s)

None recommended.

4.2-4 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

As discussed above in Section 4.2.2, fish and wildlife in Mendocino County are expected to regularly and predictably move along the County's major drainages and associated riparian corridors, linkages of public and other protected lands, swaths of contiguous forest, and various other habitat and landscape features.

In addition, numerous species nest or nurse young within the County. A variety of avian species nest colonially in Mendocino County. Brandt's and pelagic cormorants (*Phalacrocorax penicillatus* and *pelagicus*, respectively), western gulls (*Larus occidentalis*), and common murrelets (*Uria aalge*) nest in large, mixed-species colonies on rocky islands and headlands. Clark's and western grebes (*Aechmophorus clarkia* and *occidentalis*, respectively) nest colonially on floating algal mats in marshes and sloughs, and black-crowned night herons (*Nycticorax nycticorax*) in adjacent riparian vegetation. Cliff swallows (*Petrochelidon pyrrhonata*) nest in colonies of hundreds to thousands of birds on the underside of bridges and roof eaves. The tricolored blackbird, a state threatened species, nests colonially in cattails and blackberry thickets associated with wetlands, ponds, and ditches, and in triticale fields. In addition to avian species, a variety of native bats nest colonially in buildings and hollow trees and on bridges.

Potential impacts to the movement of wildlife and use of nesting or nursery sites resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program under the CEQA Baseline and No Program Baseline are discussed below.

CEQA Baseline

IWDM Program

Wildlife damage management operations to protect livestock, crops, human health and safety, and property from wildlife damage using a variety of methods, have been historically carried out by WS-CA in Mendocino County since 1989. As such, the lethal and non-lethal control of wildlife damage within the County, and any associated activities, are part of the environmental baseline, and continued implementation of the IWDM Program would not result in any changes to wildlife damage management activities in the County. Considering that the IWDM Program would represent a continuation of the existing environmental baseline conditions, under the CEQA

Baseline, the IWDM Program would not result in any net new changes regarding substantial interference with the movement of native or migratory wildlife species, nor would the IWDM Program impede the use of native wildlife nursery sites. Thus, the IWDM Program would not result in substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, nor would the IWDM Program impede the use of native wildlife nursery sites, and impacts would be less than significant.

Non-Lethal Program Alternative

Cost-sharing for non-lethal wildlife control methods has not historically been a component of the IWDM Program within Mendocino County. Cost-sharing could reimburse property owners and resource managers for the installation of frightening devices, such as Foxlights. Although Foxlights and other frightening devices have the potential to disturb non-target wildlife, Foxlights are not permanent, and disturbances would be localized and short-lived. Consequently, frightening devices would not be anticipated to substantially interfere with wildlife movement, established wildlife movement corridors, or wildlife nursery sites.

Under the Non-Lethal Program Alternative, the County may provide funding for landowner installation of livestock fencing, fladry and/or pens. Fences may discourage or preclude the movement of certain wildlife species through a given area.¹⁸⁹ For example, although ungulates readily jump fences, juveniles are often unable to do so and may become separated from their mothers.¹⁹⁰ Fencing can form partial or complete barriers to migration in pronghorn (*Antilocapra americana*).¹⁹¹ Impermeable fences and large-scale fence networks can disrupt wildlife movements to the extent that gene flow is reduced.¹⁹² The degree to which fencing impedes wildlife movement is dependent on several key factors including fence design and placement. The permeability of a fence tends to decrease with increased fence height, decreased fence clearance from the ground, and decreased wire spacing.¹⁹³ Fences that intersect game trails, ridges, gullies, or stream corridors are generally more disruptive to wildlife movements than fences that avoid such features.¹⁹⁴ Fences that are modified with polywire, flagging, or markers to increase visibility, such as fladry, can help ungulates and birds cross safely, with decreased risk of collisions.¹⁹⁵

Fencing installed using cost-sharing under the Non-Lethal Program Alternative has the potential to disrupt wildlife movements across the affected properties. However, fencing that intersects streams, riparian areas, or other established wildlife movement corridors, would not be funded under the Non-Lethal Program Alternative. Moreover, implementation of the Non-Lethal Program Alternative would include use of the best available scientific knowledge in selecting and implementing wildlife damage management techniques. Selection of wildlife damage management techniques would include consideration of design features that could be used to balance the goals of the fencing installation with considerations related to fence permeability for other wildlife species.

Fladry/turbo fladry installed using cost-sharing provides a visual deterrent to prevent predator species from entering livestock enclosures. Although fladry can be effective at preventing wolves, fladry/turbo fladry has not been found to be effective at deterring coyotes or other wildlife. Given the limited efficacy of fladry/turbo fladry, unless future improvements to fladry design prove to be more effective against coyotes or other wildlife, the use of fladry/turbo fladry within Mendocino County is likely to continue to be infrequent, if such methods are used at all. Moreover, ungulates can jump over fladry fences, and fladry may help birds navigate fence crossings by increasing the visibility of the fence. Considering the limited potential implementation of fladry/turbo fladry and that fladry/turbo fladry does not represent a barrier for most wildlife species, fladry does not represent a substantial barrier to the movement of wildlife within the County.

The Non-Lethal Program Alternative would not involve cost-sharing for any activities, such as the removal of cliff swallow colonies or disruption of bat roosting sites, that would interfere with the use of wildlife nursery sites.

Thus, the Non-Lethal Program Alternative would not result in substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, nor would the Non-Lethal Program Alternative impede the use of native wildlife nursery sites, and impacts would be less than significant.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. Firearm use is part of the baseline and would not pose potential impacts to wildlife movements. Thus, the impact conclusion identified above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

The IWDM Program would not include any land development, construction, or substantial amounts of ground disturbance that could result in disruption of wildlife movement corridors or the use of wildlife nursery sites. Under the IWDM Program, WS-CA personnel would advise property owners and resource managers on the use of a variety of non-lethal management strategies, some of which could have an effect on wildlife movement. For instance, frightening devices such as Foxlights may disturb non-target wildlife and fencing may disrupt the movement of certain wildlife species across the landscapes being fenced. Although frightening devices may be demonstrated by WS-CA and WS-CA personnel may advise on the placement of fencing, the IWDM Program would not involve cost-sharing for such methods; thus, the IWDM Program would not

involve the direct on-going implementation of such non-lethal methods. Furthermore, WS Directive 2.201 requires WS-CA staff to consider biological and environmental factors when selecting management methods. The compatibility of management methods with existing environmental factors such as nearby wildlife movement corridors or nursery sites would be a matter of consideration for WS-CA when recommending control methods.

Although the IWDM Program would not result in land development or conversion, certain activities, such as off-road pedestrian and vehicular travel or the placement of capture devices may occur within or intersect wildlife movement corridors. However, such activities would be temporary and extremely limited in scale. As such, off-road travel and the placement of capture devices would not have the potential to result in substantial disturbance of wildlife movement corridors or nursery sites.

The discharge of firearms for lethal wildlife damage management would have the potential to disturb non-target wildlife in the vicinity of the firearm. However, disturbance from a firearm is localized and short-lived, and is not expected to substantially interfere with wildlife movement or established wildlife movement corridors.

Under the IWDM Program, fladry/turbo fladry may be loaned to property owners as a non-lethal management measure. Fladry/turbo fladry provides a visual deterrent to prevent predator species from entering livestock enclosures. Although turbo fladry can be effective at preventing wolves, fladry/turbo fladry has not been found to be effective at deterring coyotes or other wildlife. Given the limited efficacy of fladry/turbo fladry, unless future improvements to fladry design prove to be more effective against coyotes or other wildlife, the use of fladry/turbo fladry within Mendocino County is likely to continue to be infrequent, if such methods are used at all. Moreover, ungulates can jump over fladry fences, and fladry may help birds navigate fence crossings by increasing the visibility of the fence. Considering the limited potential implementation of fladry/turbo fladry and that fladry/turbo fladry does not represent a barrier for most wildlife species, fladry does not represent a substantial barrier to the movement of wildlife within the County.

Statewide, WS-CA occasionally provides services related to cliff swallow nest colonies and bat roosts in or on buildings. Bat-related services are generally limited to technical assistance, wherein homeowners are provided brochures or instruction on how to exclude bats from inhabited buildings. In Mendocino County, 30 parties were provided technical assistance related to bats between 2007 and 2017. As discussed, however, homeowner actions resulting from technical assistance are not within the scope of this CEQA analysis. Services related to cliff swallow nests may include nest removal by WS-CA, a form of direct control assistance. However, WS-CA has not provided any assistance, technical or direct, in Mendocino County between 1997 and 2017 related to cliff swallow nesting. Should such assistance be requested in the future, WS-CA would be required to perform direct control in compliance with the MBTA and other regulations related to nesting birds.

Overall, the IWDM Program is not anticipated to interfere substantially with wildlife movement, the use of established wildlife corridors, or the use of wildlife nursery sites and a less-than-significant effect would occur.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not include any land development, construction, or substantial amounts of ground disturbance that could result in disruption of wildlife movement corridors or the use of wildlife nursery sites. Unlike the IWDM Program, the Non-Lethal Program Alternative would involve cost-sharing for non-lethal management methods implemented by property owners and resource managers within the County. Cost-sharing could reimburse property owners and resource managers for the installation of frightening devices, such as Foxlights. Although Foxlights and other frightening devices have the potential to disturb non-target wildlife, Foxlights are not permanent, and disturbances would be localized and short-lived. Consequently, frightening devices would not be anticipated to substantially interfere with wildlife movement, established wildlife movement corridors, or wildlife nursery sites.

Similar to the IWDM Program, off-road pedestrian and vehicular travel could intersect wildlife movement corridors. However, travel through wildlife movement corridors would be localized and short-lived, and is not expected to substantially interfere with wildlife movement, established wildlife movement corridors, or wildlife nursery sites.

Under the Non-Lethal Program Alternative, the County may provide funding for landowner installation of livestock fencing, fladry and/or pens. As discussed previously, fences may discourage or preclude the movement of certain wildlife species through a given area, and fences that intersect game trails, ridges, gullies, or stream corridors are generally more disruptive to wildlife movements than fences that avoid such features. Fences that are modified with polywire, flagging, or markers to increase visibility, such as fladry, can help ungulates and birds cross safely, with decreased risk of collisions.

Fencing installed using cost-sharing under the Non-Lethal Program Alternative has the potential to disrupt wildlife movements across the affected properties. However, fencing that intersects streams, riparian areas, or other established wildlife movement corridors, would not be funded under the Non-Lethal Program Alternative. Moreover, implementation of the Non-Lethal Program Alternative would include use of the best available scientific knowledge in selecting and implementing wildlife damage management techniques. Selection of wildlife damage management techniques would include consideration of design features that could be used to balance the goals of the fencing installation with considerations related to fence permeability for other wildlife species.

With respect to fladry, per previous discussion, considering the limited potential implementation of fladry/turbo fladry and that fladry/turbo fladry does not represent a barrier for most wildlife species, fladry does not represent a substantial barrier to the movement of wildlife within the County.

With respect to nursery sites, under the Non-Lethal Program Alternative direct control of bats is not anticipated to occur. Furthermore, the Non-Lethal Program Alternative would not include authorization for the removal of cliff swallow nest colonies. Thus, the Non-Lethal Program Alternative would not have the potential to interfere with the use of bat or swallow nests or nurseries.

Overall, the Non-Lethal Program Alternative is not anticipated to interfere substantially with wildlife movement, the use of established wildlife corridors, or nursery sites and a less-than-significant effect would occur.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. Thus, implementation of the variation to the Non-Lethal Program Alternative may involve off-road pedestrian or vehicular travel or cost-sharing for the installation of fencing or other non-lethal measures. In addition, under the variation to the Non-Lethal Program Alternative removal of cliff swallow nest colonies could occur should such colonies represent a serious public health concern. Such a situation is considered unlikely; however, should a colony present a public health concern, removal of the colony would be required to comply with all relevant regulations related to nesting birds.

Although the variation to the Non-Lethal Program Alternative would involve such activities, for the reasons discussed above under the IWDM Program and the Non-Lethal Program Alternative, the variation to the Non-Lethal Program Alternative would not have the potential to interfere substantially with wildlife movement, the use of established wildlife corridors, or nursery sites and a less-than-significant effect would occur.

Conclusion

CEQA Baseline

Considering the above, the IWDM Program, Non-Lethal Program Alternative, and variation to the Non-Lethal Program Alternative would not be anticipated to interfere substantially with wildlife movement or the use of established wildlife corridors or nursery sites. Thus, implementation of the IWDM Program, Non-Lethal Program Alternative, or variation to the Non-Lethal Program Alternative would result in a ***less-than-significant*** impact related to wildlife movement corridors and wildlife nursery sites.

Mitigation Measure(s)

None required.

No Program Baseline

Considering the above, the IWDM Program, Non-Lethal Program Alternative, and variation to the Non-Lethal Program Alternative would not be anticipated to interfere substantially with wildlife movement or the use of established wildlife corridors or nursery sites. Thus, implementation of the IWDM Program, Non-Lethal Program Alternative, or variation to the Non-Lethal Program Alternative would result in a *less-than-significant* effect related to wildlife movement corridors and wildlife nursery sites.

Improvement Measure(s)

None recommended.

4.2-5 Conflict with any local policies or ordinance protecting biological resources. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

CEQA Baseline

IWDM Program

As discussed above in Section 4.2.3, seven general plans and a coastal area plan are in effect in Mendocino County, all of which contain goals and policies relevant to biological resources. Ordinances pertaining to biological resources are also contained in the Mendocino County Code, as discussed above in Section 4.2.3. Approval of the IWDM Program would enable WS-CA to provide assistance to landowners to protect livestock, crops, human health and safety, and property from wildlife damage using a variety of methods, which have been historically carried out by WS-CA in Mendocino County since 1989. As such, the lethal and non-lethal control of wildlife damage within the County, and any associated activities, are part of the environmental baseline, and continued implementation of the IWDM Program would not result in any changes to wildlife damage management activities in the County. Considering that the IWDM Program would represent a continuation of the existing environmental baseline conditions, under the CEQA Baseline, the IWDM Program would not result in any net new conflicts with local policies or ordinances protecting biological resources. Thus, the IWDM Program would not result in conflicts with local policies or ordinances protecting biological resources, and impacts would be less than significant.

Non-Lethal Program Alternative and Variation to the Non-Lethal Program Alternative

The non-lethal wildlife damage management activities implemented under the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would

be identical to the non-lethal wildlife damage management activities previously implemented within the County under the IWDM Program. Furthermore, the use of lethal gunshot to protect public health and safety under the variation to the Non-Lethal Program Alternative would not differ from the previous use of lethal gunshot for such purposes under the IWDM Program. Although both the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would include cost-sharing for certain non-lethal wildlife damage management activities within the County, as discussed in Impacts 4.2-1 through 4.2-3, such cost-sharing activities would not result in any significant impacts to biological resources. The policies and goals included in the six general plans in Mendocino County, as well as the ordinances in effect in Mendocino County, generally protect sensitive habitat and special-status species. Impacts 4.2-1 through 4.2-3 demonstrate that implementation of the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would not result in impacts to such resources, including cougars. Thus, the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would not result in conflicts with local policies or ordinances protecting biological resources, and impacts would be less than significant.

No Program Baseline

IWDM Program, Non-Lethal Program Alternative, and Variation to the Non-Lethal Program Alternative

As discussed above in Section 4.2.3, six general plans are in effect in Mendocino County, all of which contain goals and policies relevant to biological resources. Ordinances pertaining to biological resources are also contained in the Mendocino County Code, as discussed above in Section 4.2.3. The policies and ordinances within the various general plans and the Mendocino County Code deal primarily with the protection of wetland and riparian areas, other sensitive habitats, and wildlife movement corridors. Potential effects to these resources associated with the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative were addressed in Impacts 4.2-2 through 4.2-4 and found to be less than significant under CEQA. The IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not conflict with local policies and ordinances pertaining to wetland and riparian areas, other sensitive habitats, and wildlife movement corridors.

Policy RM-28 of the Mendocino County General Plan requires that “all discretionary public and private projects that identify special-status species in a biological resources evaluation... avoid impacts to special-status species and their habitat to the maximum extent feasible.” Potential effects to special-status species associated with the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative were addressed in Impact 4.2-1. Although Impact 4.2-1 concludes that implementation of the IWDM Program could result in a significant and unavoidable effect related to special-status wildlife, specifically cougars, the IWDM Program includes a recommended improvement measure to minimize effects to cougars to the maximum extent feasible. In addition, the IWDM Program, the Non-Lethal Program Alternative,

and the variation to the Non-Lethal Program Alternative are unlikely to affect special-status species habitat because all habitat effects would be minimal, temporary, and/or confined to anthropogenic landscapes. As such, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would be consistent with Policy RM-28 of the Mendocino County General Plan.

Policy OS-5.1 of the Fort Bragg Coastal General Plan is a directive to “preserve native plant and animal species and their habitat.” Policy OS-5.1 only applies to Fort Bragg’s coastal zone, an area of approximately 1,000 acres. Wildlife damage management services provided within the small area subject to the regulation of Policy OS-5.1 would be requested minimally, if at all, under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative. Any services performed under the Non-Lethal Program Alternative would be consistent with Policy OS-5.1 because the Non-Lethal Program Alternative would not result in the take of any wildlife, and because associated habitat effects would be minimal, temporary, and/or confined to anthropogenic landscapes.

In the unlikely event that common wildlife species were to be taken in Fort Bragg’s coastal zone under the proposed Program or variation to the Non-Lethal Program Alternative, take would occur at a level that would ensure the preservation of the species in question (see Section 4.2.5 below for further details regarding take of target animals). Although Fort Bragg’s coastal zone may support special-status species, none of the special-status species potentially present in Fort Bragg’s coastal zone have life histories that would make them vulnerable to the lethal control measures likely to be used under the IWDM Program and the variation to the Non-Lethal Program. As with the Non-Lethal Program Alternative, habitat effects associated with the proposed Program and alternatives would be minimal, temporary, and/or limited to anthropogenic landscapes, and as such, would not conflict with Policy OS-5.1’s requirement for native habitat preservation. Thus, effects would be less than significant.

Conclusion

CEQA Baseline

Considering the above, the IWDM Program, Non-Lethal Program Alternative, and variation to the Non-Lethal Program Alternative would be consistent with local policies and ordinances, and impacts related to implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative would be *less than significant*.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would be consistent with local policies and ordinances, and effects related to implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative would be *less than significant*.

Improvement Measure(s)

None recommended.

4.2-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

CEQA Baseline

IWDM Program, Non-Lethal Program Alternative, and Variation to the Non-Lethal Program Alternative

As discussed above in Section 4.2.3, one (1) adopted HCP, the Fisher Family HCP, is presently in effect in Mendocino County. The IWDM Program, Non-Lethal Program Alternative, and variation to the Non-Lethal Program Alternative would involve the use of a variety of methods, which have been historically carried out by WS-CA in Mendocino County since 1989. As such, the lethal and non-lethal control of wildlife damage within the County, and any associated activities, are part of the environmental baseline. Thus, continued implementation of the IWDM Program would not result in any changes to wildlife damage management activities in the County. Furthermore, while the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative would include cost-sharing for certain non-lethal wildlife damage methods, neither the Non-Lethal Program Alternative nor the variation to the Non-Lethal Program Alternative would provide cost-sharing for methods that conflict with the Fisher Family HCP, within the area covered by the Fisher Family HCP. Consequently, the IWDM Program, the Non-Lethal Program Alternative, and/or the variation to the Non-Lethal Program Alternative would not result in any conflicts with the provisions of the Fisher Family HCP; and impacts are considered less than significant.

No Program Baseline

IWDM Program, Non-Lethal Program Alternative, and Variation to the Non-Lethal Program Alternative

If wildlife damage management services are requested within the 24-acre area covered by the Fisher Family HCP, certain activities that may routinely be authorized under the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative would have the potential to conflict with the Fisher Family HCP's conservation measures for federally listed species. For example, off-road vehicular travel would conflict with the Fisher Family HCP if the off-road vehicle travel occurred in the Fisher Family HCP-established conservation areas; and use of County funds to purchase livestock guardian animals would conflict with the Fisher Family HCP if such animals were allowed to enter the conservation areas. However, any services performed on lands covered by the Fisher Family HCP under the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative would be modified to be consistent with the Fisher Family HCP's conservation measures. Thus, the IWDM Program, the Non-Lethal Program Alternative, and/or the variation to the Non-Lethal Program Alternative would not conflict with the provisions of the Fisher Family HCP; and effects are considered less than significant.

Conclusion

CEQA Baseline

Considering the above, the IWDM Program, Non-Lethal Program Alternative, and variation to the Non-Lethal Program Alternative would not be anticipated to conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan, and impacts are considered *less than significant*.

Mitigation Measure(s)

None required.

No Program Baseline

Considering the above, the IWDM Program, Non-Lethal Program Alternative, and variation to the Non-Lethal Program Alternative would not be anticipated to conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan, and effects are considered *less than significant*.

Improvement Measure(s)

None recommended.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

The following discussion of impacts is based on the implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative in combination with buildout of the Mendocino County General Plan. Determination of impacts is based on the thresholds of significance presented above.

4.2-7 Cumulative impacts to biological resources within Mendocino County, including special-status species, riparian habitat, sensitive natural communities, and/or state or federally protected wetlands. Based on the analysis below, the findings are as follows:

- **CEQA Baseline.** The cumulative impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.
- **No Program Baseline.** The cumulative effect is *less than significant* for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative, but would be *cumulatively considerable and significant and unavoidable* for the IWDM Program.

CEQA Baseline

IWDM Program

Wildlife damage management operations to protect livestock, crops, human health and safety, and property from wildlife damage using a variety of methods, have been historically carried out by WS-CA in Mendocino County since 1989. As such, the lethal and non-lethal control of wildlife damage within the County, and any associated activities, are part of the environmental baseline, and continued implementation of the IWDM Program would not result in any changes to wildlife damage management activities in the County. The IWDM Program would not involve use of any new control methods that have not previously been used by WS-CA within the County and, thus, reinstatement of the IWDM Program would not result in net new impacts to biological resources that could combine with other reasonably foreseeable future cumulative projects. As such, the IWDM Program would result in a less than significant contribution to any cumulatively considerable impacts.

Non-Lethal Program Alternative

Cost-sharing for non-lethal wildlife control methods has not historically been a component of the IWDM Program within Mendocino County. However, as discussed in Impacts 4.2-1 through 4.2-6, cost-sharing for non-lethal wildlife damage control methods would not result in any significant adverse impacts to protected biological resources in the County. Because cost-sharing for non-lethal wildlife control methods would not result in any impacts to biological resources, and the remaining aspects of the Non-Lethal Program Alternative would be identical to the IWDM Program historically implemented in the County, the Non-Lethal Program Alternative would not result in any net new impacts to biological resources in the County. As such, the Non-Lethal Program Alternative would result in a less than significant contribution to any cumulatively considerable impacts.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. Thus, the impact conclusion identified above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

Implementation of the IWDM Program would not result in any land development, construction, or substantial amounts of ground disturbance that could result in cumulative losses of special-status species, sensitive habitats, or protected wetlands.

Although the IWDM Program would involve certain activities that could result in minor ground disturbance, such as the use of off-road vehicles or the placement of live capture traps, or that would require minor vegetation removal, for instance during the placement of fladry/turbo fladry, such minor ground disturbance would be temporary and localized. Thus, such disturbance would not interact appreciably with cumulative development within Mendocino County and the IWDM Program would not have the potential to result in the cumulative loss of special-status plants, nor would the IWDM Program have the potential to result in the cumulatively considerable disturbance of sensitive habitats, protected wetlands, wildlife movement corridors, or wildlife nursery sites.

As discussed in Impact 4.2-1, the IWDM Program would not have the potential to result in substantial adverse effects of special-status species, with the exception of potential effects to the Mendocino County cougar population under the same No Program Baseline scenario, for which it is conservatively determined that the IWDM Program could have a significant and unavoidable effect. While other cumulative development would not be

anticipated to meaningfully contribute to the project-level impact, given that cumulative development would largely be concentrated in urban areas, where conflicts, and direct effects, to cougars would be limited, the potential for other cumulative development to impact cougars cannot be eliminated. This EIR conservatively concludes that the IWDM Program's effects on cougars, in combination with other cumulative development effects, could be cumulatively considerable and significant.

Non-Lethal Program Alternative

Similar to the IWDM Program, the Non-Lethal Program Alternative not result in any land development, construction, or substantial amounts of ground disturbance that could result in cumulative losses of special-status species, sensitive habitats, or protected wetlands.

The Non-Lethal Program Alternative would include cost-sharing for implementation of non-lethal management methods, such as reimbursements for the installation of fencing or frightening devices among other methods, within the County. As discussed previously, such methods would not result in significant effects to biological resources. In addition, most non-lethal management methods would be implemented on a temporary basis and all non-lethal management methods would be spatially limited in scale. Consequently, the Non-Lethal Program Alternative would result in a less-than-significant effect on biological resources, and would not result in a cumulatively considerable contribution to any effects related to buildout of the Mendocino County General Plan.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger.

The limited use of firearms to protect public safety would not be anticipated to result in substantial amounts of take of special-status species, as the majority of special-status species do not typically pose public safety concerns. As noted in Section 4.2.2 above, the threat that cougars pose to humans, and thus public safety, is limited, with only 25 fatal attacks and 95 non-fatal attacks Nationwide over the last century. Nevertheless, regardless of the program implemented by the County, CDFW maintains the authority to declare specific cougars a public safety risk and authorize take of such cougars. Under the variation to the Non-Lethal Program Alternative, the implementing agency may conduct take, as authorized by CDFW, for cougars declared to be a public safety risk. However, Live Oak Associates concluded that because take of cougars would be strictly limited to instances where public safety is at risk, take of cougars under the variation to the Non-Lethal Program Alternative would not be sufficient to result in effects to the cougar population in Mendocino County.

Considering the above, the variation to the Non-Lethal Program Alternative would result in a less-than-significant effect on biological resources. Furthermore, the variation to the

Non-Lethal Program Alternative would not have the potential to cumulatively contribute to any effects related to buildout of the Mendocino County General Plan.

Conclusion

CEQA Baseline

Considering the above, implementation of the IWDM Program, the Non-Lethal Program Alternative, and/or the variation to the Non-Lethal Program Alternative would result in a ***less-than-significant*** cumulative impact related to biological resources within Mendocino County.

Mitigation Measure(s)

None required.

No Program Baseline

Considering the above, implementation of the Non-Lethal Program Alternative or the variation to the Non-Lethal Program Alternative would result in a ***less than significant*** cumulative impact to biological resources within Mendocino County. However, based on the conservatively estimated cougar population in Mendocino County, the IWDM Program, in combination with cumulative development, was determined to result in a ***cumulatively considerable*** and ***significant*** effect to cougars.

Improvement Measure(s)

Implementation of the following Improvement Measure would reduce the number of depredation permits granted in Mendocino County, and, thus, reduce the number of cougars taken per year within the County, avoiding potentially significant effects to the population of cougars in Mendocino County. However, as discussed in Impact 4.2-1, the CDFW grants depredation permits, and Mendocino County does not have the authority to place requirements on the CDFW's depredation permitting process within the County. Therefore, implementation of the depredation permitting process required by the following improvement measure cannot be assured, because the issuance of depredation permits within the County is not subject to control by Mendocino County. Therefore, the potential effect on cougar populations within Mendocino County resulting from implementation of the IWDM Program would remain ***cumulatively considerable*** and ***significant and unavoidable***.

IWDM Program

4.2-7 *Implement Improvement Measure 4.2-1.*

4.2.5 POTENTIAL IMPACTS TO IWDM PROGRAM TARGET SPECIES

The IWDM Program and alternatives are expected to target a number of wildlife species that have traditionally been associated with damage or threats to agricultural and livestock commodities, human health and safety, natural resources, and property in Mendocino County. Based on past requests for assistance and subsequent take by WS-CA in the County, the species expected to be targeted most often by the IWDM Program and alternatives are the black bear, bobcat, coyote, cougar, gray fox, feral swine, raccoon, striped skunk, and Virginia opossum (see Section 4.2.2 for further detail). With the exception of cougars, which are discussed in Impact 4.2-1, 4.2-2, and 4.2-7, the foregoing species are not identified as special-status species. Under CEQA, the analysis of project impacts is appropriately focused on impacts to special-status species. However, given the public concern regarding the IWDM Program's effects on non-special-status target species, this section includes an evaluation of potential effects of the IWDM Program, Non-Lethal Program Alternative, and variation to the Non-Lethal Program Alternative on the foregoing non-special-status species for informational purposes only.

As noted previously, the wildlife species under consideration in this section have historically been taken by WS-CA in the County, and such take is considered part of the environmental baseline. Because the level of take under the IWDM Program is not anticipated to change, implementation of the IWDM Program would not result in any net new impacts beyond what has previously occurred in the County. Therefore, an analysis of the IWDM Program under the CEQA Baseline is not necessary for the following sections. Instead, the following analysis presented for information purposes is based on the No Program Baseline for all non-special-status target wildlife.

It should be noted that although other wildlife species have been targeted in the past, and would presumably be targeted by future wildlife damage management activities in the County, as historical take levels have been so low that any impacts are expected to be negligible.

Black Bear

Potential impacts to black bears resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative are discussed in further depth below.

IWDM Program

As discussed above in Section 4.2.2, average take of black bears by WS-CA in Mendocino County between 1997 and 2017 averaged 13 individuals per year. Assuming a low population estimate of 2,535 black bears in the County, annual take by WS-CA has represented just 0.51 percent of the County's black bears (see Appendix E of the Biological Evaluation prepared for the proposed project). A take of 0.51 percent of the County's black bear population is well below CDFW's estimated sustained-yield level of 14.2 percent for black bears in California, or the annual surplus of bears that can be removed without causing population declines.¹⁹⁶ Even if the conservative assumption is made that annual take of black bears in Mendocino County under the IWDM Program would average 26 individuals, the highest reported take during the baseline

years, take of 26 individuals in a year would only represent 1.02 percent of the County's low population estimate (see Appendix E of the Biological Evaluation prepared for the proposed project). Take of 1.02 percent of the County's low population estimate is not expected to adversely affect the County's black bear population.

In addition to take under the IWDM Program, black bears in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including legal and illegal hunting and depredation take by entities other than WS-CA. Sport hunting take of black bears in Mendocino County between 1997 and 2017 averaged 86 bears annually (see Appendix O of the Biological Evaluation prepared for the proposed project). Illegal hunting is not readily trackable. Computer simulations by CDFW indicate that, prior to 1985, illegal harvest of black bears may have been roughly equivalent to legal harvest. Poaching appeared to decrease following revisions to California's black bear regulations in 1985, and more recently has been estimated at approximately 25 percent of the legal harvest rate.¹⁹⁷ CDFW reported an annual average of nine bears taken under the authority of depredation permits in Mendocino County between 2006 and 2014,¹⁹⁸ although the CDFW reported average depredation take may include take by WS-CA in the County, in order to provide a conservative analysis, Live Oak Associates assumed all such take was by entities other than WS-CA. Collectively, the above mortality factors account for an estimated average of 117 individuals per year. When considered with average annual take by WS-CA in the County, average additive mortality in the County is 130 bears per year, or 5.1 percent of the low population estimate. A take level of 5.1 percent is well below the sustained-yield level of 14.2 percent. Therefore, when considered with other forms of additive mortality, the IWDM Program would not have incremental effects on the County's black bear population that are cumulatively considerable.

Non-Lethal Program Alternative

Because the Non-Lethal Program Alternative would not authorize the take of bears, the Non-Lethal Program Alternative does not have the potential to cause declines in the Mendocino County black bear population, either individually or in combination with other stressors on this species. Effects on the County's black bear population from the Non-Lethal Program Alternative are expected to be negligible.

Variation to The Non-Lethal Program Alternative

Although the variation to the Non-Lethal Program Alternative may authorize the take of black bears to address serious public safety concerns, black bears rarely pose a threat to public safety, and are therefore unlikely to be taken under the variation to the Non-Lethal Program Alternative. Effects on the County's black bear population from the variation to the Non-Lethal Program Alternative are expected to be negligible.

Bobcat

Potential impacts to bobcats resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative are discussed in further depth below.

IWDM Program

As discussed above in Section 4.2.2, average take of bobcats by WS-CA in Mendocino County between 1997 and 2017 averaged six individuals per year. Assuming a low population estimate of 2,210 bobcats in the County, annual take by WS-CA has represented just 0.27 percent of bobcats in the County. A take of 0.27 percent is well below the sustained-yield level of 20 percent that CDFW uses to inform the Department's bobcat management program.¹⁹⁹ Even when the conservative assumption is made that annual take of bobcats in Mendocino County under the IWDM Program would average 12 individuals, the highest reported take during the baseline years, take of 12 individuals annually would only represent 0.54 percent of the County's low population estimate (see Appendix F of the Biological Evaluation prepared for the proposed project). A take of 0.54 percent of the low population estimate for bobcats in the County would not be expected to adversely affect the County's bobcat population.

In addition to take under the IWDM Program, bobcats in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including legal and illegal harvest and depredation take by entities other than WS-CA. Bobcat harvest in Mendocino County between 1997 and 2017, considering both sport hunting and commercial trapping until the latter was banned in 2015, and using the higher sport hunting average generated by game take hunter surveys, was approximately 80 individuals per year (Appendix O of the Biological Evaluation prepared for the proposed project). CDFW data or estimates were not available for illegal bobcat harvest levels or depredation take of bobcats in Mendocino County by entities other than WS-CA. To provide a conservative analysis, Live Oak Associates assumed that illegal bobcat harvest in the County is equivalent to legal bobcat harvest at 80 animals per year, and that non-WS-CA depredation take in the County is equivalent to WS-CA depredation take at six animals per year. Collectively, the foregoing mortality factors account for an estimated average of 166 individuals per year. When considered with average annual take by WS-CA in the County, estimated average additive mortality in the County is 172 bobcats per year, or 7.8 percent of the low population estimate. A take level of 7.8 percent of the bobcat population within the County is well below CDFW's accepted sustained-yield level of 20 percent. Therefore, the IWDM Program would not have incremental effects on the County's bobcat population that are cumulatively considerable when accounting for other forms of additive mortality.

Non-Lethal Program Alternative

Because the Non-Lethal Program Alternative would not authorize the take of bobcats, the Non-Lethal Program does not have the potential to cause declines in the Mendocino County bobcat population, either individually or in combination with other stressors on this species. Effects on the County's bobcat population from the Non-Lethal Program Alternative are expected to be negligible.

Variation to the Non-Lethal Program Alternative

Although the variation to the Non-Lethal Program Alternative may authorize the take of bobcats to address serious public safety concerns, bobcats almost never pose a threat to public safety, and

are therefore unlikely to be taken under the variation to the Non-Lethal Program Alternative. Effects on the County's bobcat population from the variation to the Non-Lethal Program Alternative are expected to be negligible.

Coyote

Potential impacts to coyotes resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative are discussed in further depth below.

IWDM Program

As discussed above in Section 4.2.2, average take of coyotes by WS-CA in Mendocino County between 1997 and 2017 averaged 197 individuals per year. Assuming a low population estimate of 6,500 coyotes in the County, annual take by WS-CA has represented just 3.0 percent of the County's coyote population. A take level of 3.0 percent is well below the sustained-yield level of 70 percent that CDFW uses to inform the Department's coyote management program.²⁰⁰ Even with the conservative assumption that annual take of coyotes in Mendocino County under the IWDM Program would average 272 individuals, the highest reported take during the baseline years, an annual take of 272 individuals would only represent 4.2 percent of the County's low population estimate (see Appendix H of the Biological Evaluation prepared for the proposed project). Take of 4.2 percent of the population is not expected to adversely affect the County's coyote population.

In addition to take under the IWDM Program, coyotes in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including hunting, trapping, and depredation take by entities other than WS-CA. Hunting and trapping take of coyotes in Mendocino County reported to CDFW between 1997 and 2017 averaged 875 individuals per year (see Appendix O of the Biological Evaluation prepared for the proposed project). CDFW data is not available for depredation take of coyotes by entities other than WS-CA. Because coyotes can be taken at any time of the year and in any number, and reporting of take is not required, the actual number of coyotes killed by private parties in Mendocino County each year is likely much higher than what the available data indicate. To provide a conservative analysis, Live Oak Associates conservatively assumed that unreported hunting and trapping take of coyotes in the County is equivalent to reported hunting and trapping take at 875 animals per year, and that non-WS-CA depredation take is equivalent to WS-CA take at 197 animals per year. Collectively, the foregoing mortality factors account for an average of 1,947 individuals per year. When considered with average annual take by WS-CA in the County, estimated average additive mortality in the County is 2,144 coyotes per year, or 32.9 percent of the low population estimate. Annual take of 32.9 percent of the coyote population in Mendocino County is well below CDFW's accepted sustained-yield level of 70 percent. Therefore, the IWDM Program would not have incremental effects on the County's coyote population that are cumulatively considerable when accounting for other forms of additive mortality.

Non-Lethal Program Alternative

Because the Non-Lethal Program Alternative would not authorize the take of coyotes, the Non-Lethal Program does not have the potential to cause declines in the Mendocino County coyote population, either individually or in combination with other stressors on this species. Effects on the County's coyote population from the Non-Lethal Program Alternative are expected to be negligible.

Variation to the Non-Lethal Program Alternative

Although the variation to the Non-Lethal Program Alternative may authorize the take of coyotes to address serious public safety concerns, coyotes rarely pose a threat to public safety, and are therefore unlikely to be taken under the variation to the Non-Lethal Program Alternative. Effects on the County's coyote population from the variation to the Non-Lethal Program Alternative are expected to be negligible.

Feral Swine

Potential impacts to feral swine resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative are discussed in further depth below.

IWDM Program

As discussed above in Section 4.2.2, average take of feral swine by WS-CA in Mendocino County between 1997 and 2017 averaged 24 individuals per year. Assuming a low population estimate of 18,890 feral swine in the County, annual take by WS-CA has represented just 0.13 percent of the County's feral swine. Even under the conservative assumption that annual take of feral swine in Mendocino County under the IWDM Program would average 91 individuals, the highest reported take during the baseline years, an annual take of 91 individuals would only represent 0.48 percent of the County's low population estimate (see Appendix I of the Biological Evaluation prepared for the proposed project). CDFW permits the hunting of feral swine without regard to sustainable yield because the feral swine is an invasive species that causes considerable damage in California's ecosystems and agricultural landscapes. Regardless, annual take of less than 1 percent of Mendocino County's feral swine population under the IWDM Program is expected to have negligible population-level effects, and would not contribute meaningfully to cumulative effects on this invasive species.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not authorize the take of feral swine. Effects on the County's feral swine population from the Non-Lethal Program Alternative are expected to be negligible.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would include the authorization of take only to address serious public safety concerns, which rarely arise in association with feral swine. Effects on the County's feral swine population from the variation to the Non-Lethal Program Alternative are expected to be negligible.

Gray Fox

Potential impacts to gray fox resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative are discussed in further depth below.

IWDM Program

As discussed above in Section 4.2.2, average take of the gray fox by WS-CA in Mendocino County between 1997 and 2017 averaged 12 individuals per year. Assuming a low population estimate of 4,785 gray foxes in the County, annual take by WS-CA has represented just 0.25 percent of the County's gray foxes. An annual take of 0.25 percent is well below the sustained-yield level of 25 percent that CDFW uses to inform the Department's gray fox management program.²⁰¹ Even under the conservative assumption that annual take of gray foxes in Mendocino County under the IWDM Program would average 29 individuals, the highest reported take during the baseline years, an annual take of 29 individuals would only represent 0.61 percent of the County's low population estimate (see Appendix J of the Biological Evaluation prepared for the proposed project). An annual take of 0.61 percent of the population is not expected to adversely affect the County's gray fox population.

In addition to take under the IWDM Program, gray foxes in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including legal and illegal harvest and depredation take by entities other than WS-CA. Gray fox harvest in Mendocino County between 1997 and 2017, considering both sport hunting and commercial trapping, averaged 196 individuals per year (see Appendix O of the Biological Evaluation prepared for the proposed project). CDFW data or estimates were not available for illegal gray fox harvest levels or depredation take of gray foxes in Mendocino County by entities other than WS-CA. To provide a conservative analysis, Live Oak Associates assumed that illegal gray fox harvest in the County is equivalent to legal gray fox harvest at 196 animals per year, and that non-WS-CA depredation take in the County is equivalent to WS-CA depredation take at 12 animals per year. Collectively, the foregoing mortality factors account for an estimated average of 404 individuals per year. When considered with average annual take by WS-CA in the County, average additive mortality in the County is 416 gray foxes per year, or 8.7 percent of the low population estimate. Average take of 8.7 percent of the gray fox population is well below CDFW's accepted sustained-yield level of 25 percent. Therefore, the IWDM Program would not have incremental effects on the County's gray fox population that are cumulatively considerable when accounting for other forms of additive mortality.

Non-Lethal Program Alternative

Because the Non-Lethal Program Alternative would not authorize the take of gray foxes, the Non-Lethal Program Alternative does not have the potential to cause declines in the County's gray fox population, either individually or in combination with other stressors on this species. Effects on the County's gray fox population from the Non-Lethal Program Alternative are expected to be negligible.

Variation to the Non-Lethal Program Alternative

Although the variation to the Non-Lethal Program Alternative may authorize the take of foxes to address serious public safety concerns, gray foxes almost never pose a threat to public safety, and are therefore unlikely to be taken under the variation to the Non-Lethal Program Alternative. Effects on the County's gray fox population from the variation to the Non-Lethal Program Alternative are expected to be negligible.

Raccoon

Potential impacts to raccoon resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative are discussed in further depth below.

IWDM Program

As discussed above in Section 4.2.2, average intentional take of raccoons by WS-CA in Mendocino County between 1997 and 2017 was 43 individuals per year, with an average of one additional animal taken unintentionally each year between 2007 and 2017. Assuming a low population estimate of 2,205 raccoons in the County, annual take by WS-CA, both intentional and unintentional, has represented just 2.0 percent of the County's raccoons. An annual take of 2.0 percent is well below the sustained-yield level of 49 percent that CDFW uses to inform the Department's raccoon management program.²⁰² Even with the conservative assumption that annual take of raccoons in Mendocino County under the IWDM Program would average 73 individuals, the highest reported take during the baseline years, a take of 73 individuals per year would only represent 3.3 percent of the County's low population estimate (see Appendix K of the Biological Evaluation prepared for the proposed project). A take of 3.3 percent is not expected to adversely affect the County's raccoon population.

In addition to take under the IWDM Program, raccoons in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including legal and illegal harvest and depredation take by entities other than WS-CA. Raccoon harvest in Mendocino County between 1997 and 2017, considering both sport hunting and commercial trapping, averaged 373 individuals per year (see Appendix O of the Biological Evaluation prepared for the proposed project). CDFW data or estimates were not available for illegal raccoon harvest levels or depredation take of raccoons in Mendocino County by entities other than WS-CA. Live Oak Associates conservatively assumed that illegal raccoon harvest in the County is equivalent to legal raccoon harvest at 373 animals per year, and that non-WS-CA

depredation take in the County is equivalent to WS-CA depredation take at 43 animals per year. Collectively, the foregoing mortality factors account for an estimated average of 789 individuals per year. When considered with average annual take by WS-CA in the County, average additive mortality in the County is 832 raccoons per year, or 37.7 percent of the low population estimate. An annual take level of 37.7 percent is below than CDFW's accepted sustained-yield level of 49 percent. Therefore, the IWDM Program would not have incremental effects on the County's raccoon population that are cumulatively considerable when accounting for other forms of additive mortality.

Non-Lethal Program Alternative

Because the Non-Lethal Program Alternative would not authorize the take of raccoons, the Non-Lethal Program Alternative does not have the potential to cause declines in the County's raccoon population, either individually or in combination with other stressors on this species. Effects on the County's raccoon population from the Non-Lethal Program Alternative are expected to be negligible.

Variation to the Non-Lethal Program Alternative

Although the variation to the Non-Lethal Program Alternative may authorize the take of raccoons to address serious public safety concerns, raccoons almost never pose a threat to public safety, and are therefore unlikely to be taken under the variation to the Non-Lethal Program Alternative. Effects on the County's raccoon population from the variation to the Non-Lethal Program Alternative are expected to be negligible.

Striped Skunk

Potential impacts to striped skunk resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative are discussed in further depth below.

IWDM Program

As discussed in Section 4.2.2, average take of striped skunks by WS-CA in Mendocino County between 1997 and 2017 averaged 62 individuals per year. Assuming a low population estimate of 6,495 striped skunks in the County, annual take by WS-CA has represented just 0.95 percent of the County's striped skunks. Even with the conservative assumption that annual take of striped skunks in Mendocino County under the IWDM Program would average 101 individuals, the highest reported take during the baseline years, a take of 101 individuals would only represent 1.5 percent of the County's low population estimate (see Appendix L of the Biological Evaluation prepared for the proposed project). Take of 1.5 percent of the population is not expected to adversely affect the County's striped skunk population.

In addition to take under the IWDM Program, striped skunks in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including commercial trapping and depredation take by entities other than WS-CA. Commercial

trapping of striped skunks in Mendocino County between 1997 and 2017 averaged 18 individuals per year (see Appendix O of the Biological Evaluation prepared for the proposed project). CDFW data or estimates were not available for depredation take of striped skunks in Mendocino County by entities other than WS-CA. Because skunks can be taken at any time of the year and in any number, and reporting of take is not required, the actual number of striped skunks killed by private parties in Mendocino County each year is likely much higher than what the available data indicate. To provide a conservative analysis, Live Oak Associates assumed that unreported skunk harvest in the County is equivalent to legal striped skunk harvest at 18 animals per year, and that non-WS-CA depredation take in the County is equivalent to WS-CA depredation take at 62 animals per year. Collectively, the foregoing mortality factors account for an estimated average of 98 individuals per year. When considered with average annual take by WS-CA in the County, estimated average additive mortality in the County is 160 striped skunks per year, or 2.5 percent of the low population estimate. Even when accounting for other forms of additive mortality, the IWDM Program is not expected to have incremental effects on the County's striped skunk population that are cumulatively considerable.

Non-Lethal Program Alternative

Because the Non-Lethal Program Alternative would not authorize the take of skunks, the Non-Lethal Program Alternative does not have the potential to cause declines in the County's striped skunk population, either individually or in combination with other stressors on this species. Effects on the County's striped skunk population from the Non-Lethal Program Alternative are expected to be negligible.

Variation to the Non-Lethal Program Alternative

Although the variation to the Non-Lethal Program Alternative may authorize the take of striped skunks to address serious public safety concerns, individuals of this species almost never pose a threat to public safety, and are therefore unlikely to be taken under the variation to the Non-Lethal Program Alternative. Effects on the County's striped skunk population from the variation to the Non-Lethal Program Alternative are expected to be negligible.

Virginia Opossum

Potential impacts to Virginia opossum resulting from implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative are discussed in further depth below.

IWDM Program

As discussed in Section 4.2.2, average take of Virginia opossums by WS-CA in Mendocino County between 1997 and 2017 averaged 12 individuals per year. Assuming a low population estimate of 4,670 opossums in the County, annual take by WS-CA has represented just 0.26 percent of the County's opossums. Even with the conservative assumption that annual take of opossums in Mendocino County under the IWDM Program would average 19 individuals, the highest reported take during the baseline years, a take level of 19 individuals per year would only

represent 0.41 percent of the County's low population estimate (see Appendix M of the Biological Evaluation prepared for the proposed project). The Virginia opossum is not native to California and can be taken at any time and in any number without regard to sustainable yield. Regardless, annual take of less than one percent of the County's opossum population under the IWDM Program is expected to have negligible population-level effects, and would not contribute meaningfully to cumulative effects on this species.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not authorize the take of Virginia opossums. Effects on the County's Virginia opossum population from the Non-Lethal Program Alternative are expected to be negligible.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative only authorizes take to address serious public safety concerns, which are not expected to occur in association with the species. Effects on the County's Virginia opossum population from the variation to the Non-Lethal Program Alternative are expected to be negligible.

Endnotes

- ¹ Live Oak Associates, Inc. *Biological Evaluation for CEQA Compliance, Mendocino County WS-CA IWDM Program Project*. March 2019. (Appendix E)
- ² Mendocino County. *General Plan*. August 2009.
- ³ Mendocino County. *General Plan Update Draft Environmental Impact Report, SCH: 2008062074*. September 2008.
- ⁴ U.S. Forest Service, Pacific Southwest Region. 2018. CALVEG, ESRI file geodatabase, S_USA.EVMid_R05_NorCoastMid.gdp.zip and S_USA.EVMid_R05_NorCoastWest.gdb.zip. Available at <https://data.fs.usda.gov/geodata/edw/datasets.php>.
- ⁵ CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- ⁶ U.S. Forest Service, Pacific Southwest Region. 2018. CALVEG, ESRI file geodatabase.
- ⁷ U.S. Forest Service, Pacific Southwest Region. 2018. CALVEG, ESRI file geodatabase.
- ⁸ U.S. Forest Service, Pacific Southwest Region. 2018. CALVEG, ESRI file geodatabase.
- ⁹ CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- ¹⁰ CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- ¹¹ Shuford, W. D., and Gardali, T., editors. 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California*. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- ¹² California Native Plant Society. 2018. *Inventory of Rare and Endangered Vascular Plants of California*. Available at: <http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi>.
- ¹³ U.S. Fish and Wildlife Service. 2018. Information for Planning and Consultation website. Available at: <https://ecos.fws.gov/ipac/>.
- ¹⁴ CDFW. 2018. *California Natural Diversity Database*. Available at: <https://www.wildlife.ca.gov/data/cnddb>.
- ¹⁵ U.S. Fish and Wildlife Service. 2018. Information for Planning and Consultation website.

- 16 CDFW. 2018. *California Natural Diversity Database*.
eBird, Cornell Lab of Ornithology, Ithaca, New York. 2018. *eBird: An online database of bird distribution and
abundance [web application]*. Available: <http://www.ebird.org>.
- 17 U.S. Fish and Wildlife Service. 2018. Information for Planning and Consultation website.
- 18 National Marine Fisheries Service. 2018. *NMFS Resources in California, West Coast Region, National Oceanic
and Atmospheric Administration – Fisheries*. Available at:
https://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html.
- 19 CDFW. 2018. *California Natural Diversity Database*.
eBird. 2018. *eBird: An online database of bird distribution and abundance [web application]*.
- 20 USFWS. 1976-2002. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife
Service, Washington, D.C. Available online at: <http://www.fws.gov/wetlands/>.
- 21 USFWS. 1976-2002. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife
Service, Washington, D.C. Available online at: <http://www.fws.gov/wetlands/>.
- 22 CDFW, Biogeographic Data Branch. 2018. *Vegetation Classification and Mapping Program*. Available at:
<https://www.wildlife.ca.gov/Data/VegCAMP>.
- 23 CDFW, Biogeographic Data Branch. 2018. *Natural Communities webpage*. Available at:
<https://www.wildlife.ca.gov/data/VegCAMP/Natural-Communities/>.
- 24 CDFW. 2018. *California Natural Diversity Database*.
- 25 Beier, P. 1996. *Metapopulation modeling, tenacious tracking, and cougar conservation* [Pgs 293–323]. D. R.
McCullough, editor. *Metapopulations and wildlife management*. Island Press, Washington, D.C., USA.
- 26 Beier, P. and R. F. Noss. 1998. *Do habitat corridors really provide connectivity?* *Conservation Biology*
12:1241-1252.
- 27 Beier, P. 1996. *Metapopulation modeling, tenacious tracking, and cougar conservation* [Pgs 293–323].
- 28 Beier, P. and R. F. Noss. 1998. *Do habitat corridors really provide connectivity?*
- 29 Kelleyhouse, D. G. 1975. *Habitat utilization and ecology of the black bear in northern California*. M.S. Thesis,
Humboldt State University, Arcata, CA.
- 30 Sheick, B. K. and W. McCown. 2014. *Geographic distribution of American black bears in North America*.
Ursus 25(1):24-33.
- 31 Taylor, J. D., A. Morzillo, and A. M. Anderson. 2014. *Estimating the total economic impact of black bear
peeling in western Oregon using GIS and REMI*. USDA National Wildlife Research Center – Staff Publications.
1791. Available at: https://digitalcommons.unl.edu/icwdm_usdawrc/1791.
- 32 Prugh, L. R., C. J. Stoner, C. W. Epps, W. T. Bean, W. J. Ripple, A. S. Laliberte, J. S. Brashares. 2009. *The
Rise of the Mesopredator*. *BioScience* 59: 779-79.
- 33 Elbroch, L. M. and A. Kusler. 2018. *Are pumas subordinate carnivores, and does it matter?* *PeerJ* 6:e4293;
Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5786880/>.
- 34 Allen, M. L., L. M. Elbroch, D. S. Casady, and H. U. Wittmer. 2015. *Feeding and spatial ecology of mountain
lions in the Mendocino National Forest*. *California Fish and Game* 101(1):51-65.
- 35 Suraci, J. P., M. Clinchy, and L. Y. Zanette. 2017. *Do large carnivores and mesocarnivores have redundant
impacts on intertidal prey?* *PLoS One* 12(1): e0170255.
- 36 White, C. G., P. Zager, and M. W. Gratson. 2010. *Influence of Predator Harvest, Biological Factors, and
Landscape on Elk Calf Survival in Idaho*. *Journal of Wildlife Management* 74(3):355-359.
- 37 CDFW, Wildlife Branch – Game Management. 2018. *Black Bear information webpages*. Available at:
<https://www.wildlife.ca.gov/Conservation/Mammals/Black-Bear>.
- 38 CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program.
Sacramento, CA.
- 39 CDFW, Wildlife Branch – Game Management. 2018. *Black Bear information webpages*.
- 40 CDFW, Wildlife Branch – Game Management. 2018. *Black Bear information webpages*.
- Bunnell, F. L. and D.E.N. Tait. 1985. *Mortality Rates of North American Bears*. *Arctic* Vol. 38, No. 4: pp. 316-
323.
- 41 CDFW, Wildlife Branch – Game Management. 2018. *Black Bear information webpages*.
- 42 Roberts, N. M. and S. M. Crimmins. 2010. *Bobcat population status and management in North America:
Evidence of large-scale population increase*. *Journal of Wildlife Management* 1(2):169-174.

- 43 Conner, L. M., B. D. Leopold, and M. J. Chamberlain. 2001. *Multivariate habitat models for bobcats in southern forested landscapes* [pgs 51-55]. In Woolf, A., C. K. Nielsen, and R. D. Bluett, editors. Proceedings of the Symposium on Current Bobcat Research and Implications for Management, The Wildlife Society 2000 Conference. Carbondale, Illinois: Southern Illinois University.
- 44 Prugh, L. R., et al. 2009. *The Rise of the Mesopredator*.
- 44 Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White, Eds. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals*. Department of Fish and Game. Available at: <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>.
- 45 CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- 46 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping*. State of California Draft Environmental Document.
- 47 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping*.
- 48 Pierce, B. and V. Bleich. 2003. *Mountain lion* [pgs 744-757] in G. A. Feldhamer, B. C. Thompson, and J. A. Chapman, eds. *Wild Mammals of North America: Biology, Management, and Conservation*, Second Edition. Baltimore: Johns Hopkins University.
- 49 LaRue, M., C. Nielsen, M. Dowling, K. Miller, B. Wilson, H. Shaw, C. Anderson. 2012. *Cougars Are Recolonizing the Midwest: Analysis of Cougar Confirmations during 1990–2008*. *Journal of Wildlife Management* 76(7):1364-1369.
- USFWS. 2017. *Florida panther population estimate updated*. Press release, February 22, 2017. Available at: <https://www.fws.gov/southeast/news/2017/02/florida-panther-population-estimate-updated>.
- 50 USFWS. 2018. *Long-extinct eastern cougar to be removed from endangered species list correcting lingering anomaly*. News bulletin, January 22, 2018. Available at: https://www.fws.gov/northeast/ecougar/pdf/Cougar_News_Bulletin_Final_1_18.pdf.
- 51 Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals*.
- 52 Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals*.
- 53 Ripple, W. J. and R. L. Beschta. 2006. *Linking a cougar decline, trophic cascade, and catastrophic regime shift in Zion National Park*. *Biological Conservation* 133:397-408.
- 54 CDFW, Wildlife Investigations Lab. 2018. *Mountain Lions in California webpages*. Available at: <https://www.wildlife.ca.gov/Conservation/Mammals/Mountain-Lion>.
- 55 Mattson, D., K. Logan, and L. Sweanor. 2011. *Factors governing risk of cougar attacks on humans*. *Human-Wildlife Interactions* 5(1):135-138.
- 56 Allen, et al. 2015. *Feeding and spatial ecology of mountain lions in the Mendocino National Forest*.
- 57 Allen, et al. 2015. *Feeding and spatial ecology of mountain lions in the Mendocino National Forest*.
- 58 Torres, S. G., T. M. Mansfield, J. E. Foley, T. Lupo, and A. Brinkhaus. 1996. *Mountain lion and human activity in California: Testing speculations*. *Wildlife Society Bulletin* 24:451–460.
- 59 Robinson H. S., R. B. Wielgus, H. S. Cooley, and S. W. Cooley SW. 2008. *Sink populations in carnivore management: cougar demography and immigration in a hunted population*. *Ecological Applications* 18:1028–1037.
- Dawn, D. 2002. *Management of cougars (Puma concolor) in the western United States*. Thesis, San Jose State University, San Jose, California.
- 60 CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- 61 Mountain Lion Foundation. 2018. *Mountain Lion Status in California*. Available at: <https://mountainlion.org/us/ca/-ca-status.asp>.
- 62 Pierce, B. and V. Bleich. 2003. *Mountain lion*.
- 63 Allen, et al. 2015. *Feeding and spatial ecology of mountain lions in the Mendocino National Forest*.
- 64 Allen, et al. 2015. *Feeding and spatial ecology of mountain lions in the Mendocino National Forest* [pg. 57].
- 65 Neal, Donald L. Steger, George N.; Bertam, Ronald C.; 1987. *Mountain lions: preliminary findings on home-range use and density, central Sierra Nevada*. USFS PSW Research Station. RN-PSW-392. Available at: https://www.fs.fed.us/psw/publications/documents/psw_rn392/psw_rn392.pdf.

- Justin A. Dellinger, Eric R. Loft, Ronald C. Bertram, Donald L. Neal, Marc W. Kenyon, and Steven G. Torres. 12 July 2018. *Seasonal Spatial Ecology of Mountain Lions (Puma concolor) in the Central Sierra Nevada* [pg. 143-156]. *Western North American Naturalist* 78(2). Available at <https://doi.org/10.3398/064.078.0205>.
- Hornocker M., Negri S., Quigley H. 2010. *Cougar: Ecology and Conservation* [Chpt. 5; Cougar Population Dynamics]. University of Chicago Press, Chicago.
- ⁶⁶ CDFW. *Commonly Asked Questions About Mountain Lions*. Available at: <https://www.wildlife.ca.gov/Conservation/Mammals/Mountain-Lion/FAQ#359951241-how-many-mountain-lions-are-in-california>. Accessed May 30, 2019.
- ⁶⁷ Allen, et al. 2015. *Feeding and spatial ecology of mountain lions in the Mendocino National Forest*.
- ⁶⁸ Ernest, H. B., et al. 2003. *Genetic structure of mountain lion (Puma concolor) populations in California*.
- ⁶⁹ Culver M., W. E. Johnson, J. Pecon-Slatery, and S. J. O'Brien. 2000. *Genomic ancestry of the American puma (Puma concolor)*. *Journal of Heredity* 91:186–197.
- ⁷⁰ Ernest, H. B., et al. 2003. *Genetic structure of mountain lion (Puma concolor) populations in California*.
- ⁷¹ Gustafson, K.D., Gagne, R.B., Vickers, T.W., Riley S. P. D., Wilmers C. C., Bleich V.C., Pierce B. M., Kenyon M., Drazenovich T. L., Sikich J. A., Boyce W. M., Ernest H. B. 2019. *Genetic source-sink dynamics among naturally structured and anthropogenically fragmented puma populations*. *Conservation Genetics*, 20: 215. Available at <https://doi.org/10.1007/s10592-018-1125-0>.
- Kurushima J. D., Collins J. A., Ernest H. B.. 2006. *Development of 21 microsatellite loci for puma (Puma concolor) ecology and forensics*. *Molecular Ecology Notes* 6, 1260-1262.
- ⁷² Gustafson, K.D., Gagne, R.B., Vickers, T.W., Riley S. P. D., Wilmers C. C., Bleich V.C., Pierce B. M., Kenyon M., Drazenovich T. L., Sikich J. A., Boyce W. M., Ernest H. B. 2019. *Genetic source-sink dynamics among naturally structured and anthropogenically fragmented puma populations*. *Conservation Genetics*, 20: 215. Available at <https://doi.org/10.1007/s10592-018-1125-0>.
- ⁷³ Allen, et al. 2015. *Feeding and spatial ecology of mountain lions in the Mendocino National Forest*.
- ⁷⁴ Gustafson, K.D., Gagne, R.B., Vickers, T.W., Riley S. P. D., Wilmers C. C., Bleich V.C., Pierce B. M., Kenyon M., Drazenovich T. L., Sikich J. A., Boyce W. M., Ernest H. B. 2019. *Genetic source-sink dynamics among naturally structured and anthropogenically fragmented puma populations*. *Conservation Genetics*, 20: 215. Available at <https://doi.org/10.1007/s10592-018-1125-0>.
- ⁷⁵ Hody, J. W. and R. Kays. 2018. *Mapping the expansion of coyotes (Canis latrans) across North and Central America*. *ZooKeys* 759:81-97.
- ⁷⁶ Berger K.M. and E. M. Gese. 2007. *Does interference competition with wolves limit the distribution and abundance of coyotes?* *Journal of Animal Ecology* 76: 1075–1085.
- Hody, J. W. and R. Kays. 2018. *Mapping the expansion of coyotes (Canis latrans) across North and Central America*.
- Thornton, D. H. and D. L. Murray. 2014. *Influence of hybridization on niche shifts in expanding coyote populations*. *Diversity and Distributions* 20: 1355–1364
- ⁷⁷ Hody, J. W. and R. Kays. 2018. *Mapping the expansion of coyotes (Canis latrans) across North and Central America*.
- ⁷⁸ Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals*.
- ⁷⁹ Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals*.
- ⁸⁰ Crabtree, R. L. and J. W. Sheldon. 1999. *Coyotes and canid coexistence*. In T. W. Clark, et al., (Eds.). *Carnivores in Ecosystems: The Yellowstone Experience* [pgs. 127–163]. New Haven: Yale University Press.
- ⁸¹ Connolly, G. E. and W. M. Longhurst. 1975. *The effects of control on coyote populations: A simulation model*. Division Agricultural Science, University of California, Davis, Bulletin 1872.
- ⁸² Kilgo, J. C., C. E. Shaw, M. Vukovich, M. J. Conroy, C. Ruth. 2017. *Reproductive characteristics of a coyote population before and during exploitation*. *The Journal of Wildlife Management* 81(8):1386-1393.
- ⁸³ Prugh, L. R., et al. 2009. *The Rise of the Mesopredator*.
- ⁸⁴ Mezquida, E. T., S. J. Slater, and C. Benkman. 2006. *Sage-grouse and indirection interactions: potential implications of coyote control on sage-grouse populations*. *Condor* 108(4):747-759.
- ⁸⁵ Jurek, R. M. 1992. *Nonnative red foxes in California*. Nongame Bird and Mammal Section Report 92-04. The Resources Agency, Department of Fish and Game.

- 86 CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- 87 CDFW. *Furbearing and Nongame Mammal Hunting and Trapping*.
- 88 CDFW. *Furbearing and Nongame Mammal Hunting and Trapping*.
- 89 CDFW. 2018. *Wild Pig Management Program*. Wildlife Branch – Game Management. Available at: <https://www.wildlife.ca.gov/Conservation/Mammals/Wild-Pig>.
- 90 The Wildlife Society. 2014. *Feral swine in North America*. Issue statement.
- 91 USDA Cooperative Extension. 2014. *Food habits of feral hogs*. October 9, 2012. Available at: <https://articles.extension.org/pages/63655/food-habits-of-feral-hogs>.
- 92 The Wildlife Society. 2014. *Feral swine in North America*. Issue statement.
- 93 Siemann, E., J.A. Carrillo, C. A. Gabler, R. Zipp, and W. E. Rogers. 2009. *Experimental test of the impacts of feral hogs on forest dynamics and processes in the southeastern U.S. Forest*. Ecology and Management 258:546-553.
- 94 Jay, M. T., M. Cooley, D. Carychao, G. W. Wiscomb, R. A. Sweitzer, L. Crawford-Miksza, J. A. Farrar, D. K. Lau, J. O'Connell, A. Millington, R. V. Asmundson, E. R. Atwill, R. E. Mandrell. 2007. *Escherichia coli O157:H7 in feral swine near spinach fields and cattle, central California coast*. Emerging Infectious Diseases 13:1908-1911.
- Kaller, M. D. and W.E. Kelso. 2006. *Swine activity alters invertebrates and microbial communities in a coastal plain watershed*. American Midland Naturalist. 156(1):163-177.
- Lynes, B. C. and S. D. Campbell. 2000. *Germination and viability of mesquite (Prosopis pallida) seed following ingestion and excretion by feral pigs (Sus scrofa)*. Tropical Grasslands 34: 125-128.
- Siemann, et al. 2009. *Experimental test of the impacts of feral hogs on forest dynamics and processes in the southeastern U.S. Forest*.
- 95 Roemer, G. W., C. J. Donlan, and F. Courchamp. 2002. *Golden eagles, feral pigs, and insular carnivores: how exotic species turn native predators into prey*. Proc. Nat. Acad. Sci., 99: 791-796.
- 96 The Wildlife Society. 2014. *Feral swine in North America*. Issue statement.
- 97 CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- 98 Sweitzer, R. A., Van Vuren, D., Gardner, I. A., Boyce, W. M., and Waithman, J. D. 2000. *Estimating sizes of wild pig populations in the North and Central Coast regions of California*. Journal of Wildlife Management, 64(2), 531-542.
- 99 Toigo, C., S. Servanty, J.M. Gailard, S. Brandt, and E. Baubet. 2008. *Disentangling Natural from Hunting Mortality in an Intensively Hunted Wild Boar Population*. Journal of Wildlife Management. 72(7): 1532-1539.
- Texas A&M. 2012. *Feral Hog Population Growth, Density and Harvest in Texas*. Texas A&M University AgriLife Extension Service. Available at: <https://invasivespecies.wa.gov/documents/squealopigs/FeralHogPopGrowthDensity&HarvestinTX.pdf>.
- 100 CDFW. 2018. *Wild Pig Management Program*.
- 101 Quinn, R. D. 1990. *Habitat preferences and distribution of mammals in California chaparral* [pg 11]. Res. Pap. PSW-202. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station.
- 102 Trapp, G. R. and D. L. Hallberg. 1975. *Ecology of the gray fox (Urocyon cinereoargenteus): a review*. In: Fox, M. W., ed. *The wild canids: Their systematics, behavioral ecology and evolution*. Behavioral Science Series. New York: Van Nostrand Reinhold Company: 164-178.
- 103 Maser, C., B. R. Mate, J. F. Franklin, and C. T. Dyrness. 1981. *Natural history of Oregon Coast mammals* [pg. 496]. Gen. Tech. Rep. PNW-133. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station.
- 104 Trapp, G. R. and D. L. Hallberg. 1975. *Ecology of the gray fox (Urocyon cinereoargenteus): a review*.
- 105 Maser, et al. 1981. *Natural history of Oregon Coast mammals*.
- Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals*.
- 106 Jennings, W. L., N. J. Schneider, A. L. Lewis, and J. E. Scatterday. 1960. *Fox rabies in Florida*. Journal of Wildlife Management 24:171-179.
- 107 California Department of Public Health, Veterinary Public Health Section, Infectious Diseases Branch, Division of Communicable Disease Control. 2016. *Rabies surveillance in California, annual report 2015*.

- 108 Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals.*
- 109 The Mendocino Voice. *Rabies alert: wild fox tests positive in Ukiah.* January 2, 2018. Available at: <https://www.mendocino.com/2018/01/rabies-alert/>.
- 110 CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- 111 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping.*
- 112 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping.*
- 113 Prugh, L. R., et al. 2009. *The Rise of the Mesopredator.*
- 114 Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals.*
- 115 Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals.*
- 116 Barton, B. T. 2003. *Cascading effects of predator removal on the ecology of sea turtle nesting beaches.* Master's thesis. University of Central Florida, Orlando.
- 117 Baldwin, R. A. 2015. *Pest Notes: Raccoons.* University of California Statewide Integrated Pest Management Program, Davis, CA.
- 118 Birhane M. G., J. M. Cleaton, B. P. Monroe. 2017. *Rabies surveillance in the United States during 2015.* Journal of the American Veterinary Medical Association 250:1117-1130.
- 119 CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- 120 Orloff, S. 1980. *Raccoon status in Contra Costa and Alameda counties.* Job progress report, Project No. W-54-R-12, California Department of Fish and Game, Nongame Wildlife Investigations, Sacramento.
- 121 Riley, S. P. D., J. Hadidian, and D. A. Manski. 1998. *Population density, survival, and rabies in raccoons in an urban national park.* Canadian Journal of Zoology 76:1153-1164.
- 122 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping.*
- 123 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping.*
- 124 California Department of Public Health. 2016. *Rabies surveillance in California, annual report 2015.*
- 125 Wade-Smith, J. and B. Verts. 1982. *Mephitis mephitis.* Mammalian Species, 173: 1-7.
- Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals.*
- 126 CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- 127 CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- 128 Zeiner, David C., et al. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals.*
- 129 Gardner, A. L. 1982. *Virginia opossum* [pgs 3-36]. in J. A. Chapman and G. A. Feldhamer, eds. Wild mammals of North America. Johns Hopkins Univ. Press, Baltimore, MD. 1147pp.
- 130 Gardner, A. L. 1982. *Virginia opossum.*
- 131 Woods II, H. and E. Hellgren. 2003. *Seasonal changes in the physiology of male Virginia opossums (Didelphis virginiana): Sign of the dasyurid semelparity syndrome.* Physiological and Biochemical Zoology, 76:3: 406-417.
- 132 Woods II, H. and E. Hellgren. 2003. *Seasonal changes in the physiology of male Virginia opossums (Didelphis virginiana): Sign of the dasyurid semelparity syndrome.*
- 133 Gipson, P. and J. Kamler. 2001. *Survival and home ranges of opossums in northeastern Kansas.* The Southwestern Naturalist, 46:2: 178-182.
- 134 Woods II, H. and E. Hellgren. 2003. *Seasonal changes in the physiology of male Virginia opossums (Didelphis virginiana): Sign of the dasyurid semelparity syndrome.*
- 135 Keesing, F., J. Brunner, S. Duerr, M. Killilea, K. LoGiudice, K. Schmidt, H. Vuong, and R. S. Ostfeld. 2009. *Hosts as ecological traps for the vector of Lyme disease.* Proceedings of the Royal Society B 276(1675):3911-3919.

- ¹³⁶ Baldwin, R. A. 2015. *Pest Notes: Opossums*. University of California Statewide Integrated Pest Management Program, Davis, CA.
- ¹³⁷ CDFW, California Interagency Wildlife Task Group. 2014. CWHR version 9.0 personal computer program. Sacramento, CA.
- ¹³⁸ CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping*.
- ¹³⁹ CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping*.
- ¹⁴⁰ Live Oak Associates, Inc. *Biological Evaluation for CEQA Compliance, Mendocino County WS-CA IWDM Program Project*. March 2019.
- ¹⁴¹ CDFW. 2018. *California Natural Diversity Database*.
- ¹⁴² U.S. Fish and Wildlife Service. 2018. *Information for Planning and Consultation website*.
- ¹⁴³ California Native Plant Society. 2018. *Inventory of Rare and Endangered Vascular Plants of California*.
- ¹⁴⁴ Calflora. 2018. *Calflora: An online database of plant identification and distribution*. Calflora, Berkeley, California. Available at: <http://www.calflora.org>.
- ¹⁴⁵ CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping*.
- ¹⁴⁶ CDFW, Wildlife Branch – Game Management. 2018. *Black Bear information webpages*.
Bunnell, F. L. and D.E.N. Tait. 1985. *Mortality Rates of North American Bears*.
Mountain Lion Foundation. 2018. *Mountain Lion Status in California*.
Sweitzer, et al. 2000. *Estimating sizes of wild pig populations in the North and Central Coast regions of California*.
- ¹⁴⁷ USDA, APHIS. 2018. *Program Data Reports for Years 1997-2017 for California*. Available at: https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/SA_Reports.
- ¹⁴⁸ Black, H. L., & Green, J. S. 1985. *Navajo use of mixed-breed dogs for management of predators*. *Journal of Range Management* 38:11–15.
- ¹⁴⁹ Potgieter, G. C., Kerley, G. I., & Marker, L. L. 2015. *More bark than bite? The role of livestock guarding dogs in predator control on Namibian farmlands*. *Oryx* 50: 1–9.
- ¹⁵⁰ Hansen, I., & Smith, M. E. 1999. *Livestock-guarding dogs in Norway Part II: Different working regimes*. *Journal of Range Management* 52: 312–316.
- ¹⁵¹ Potgieter, G. C. 2011. *The effectiveness of livestock guarding dogs for livestock production and conservation in Namibia*. MSc thesis. Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- ¹⁵² Hansen, I., & Smith, M. E. 1999. *Livestock-guarding dogs in Norway Part II: Different working regimes*.
- ¹⁵³ van Bommel. 2016. *Livestock guardian dogs as surrogate top predators? How Maremma sheepdogs affect a wildlife community*. *Ecology and Evolution* 6(16):6702-6711.
- ¹⁵⁴ Gehring, Thomas M.; Vercauteren, Kurt C.; Provost, Megan L.; and Cellar, Anna C. 2010. *Utility of livestock-protection dogs for deterring wildlife from cattle farms*. USDA National Wildlife Research Center - Staff Publications. 1344. https://digitalcommons.unl.edu/icwdm_usdanwrc/1344
- ¹⁵⁵ USFWS. 1998. *Point Arena Mountain Beaver (Aplodontia rufa nigra (Rafinesque)) Recovery Plan* [pg 71]. Region 1, Portland, OR.
- ¹⁵⁶ Hansen, I., & Smith, M. E. 1999. *Livestock-guarding dogs in Norway Part II: Different working regimes*.
- ¹⁵⁷ USFWS. 2007. *RE: Amended Biological Assessment for APHIS-WS Activities to Protect Livestock, Property, Human Health and Safety, and Natural Resources in the State of California*. Letter to Craig Coolahan, State Director, California Office, APHIS-WS. May 8, 2007.
USFWS. 2014. *Subject: Informal Consultation on USDA APHIS California Wildlife Services Program Part II*. Letter to Dennis Orthmeyer, State Director, California Office, APHIS-WS. April 15, 2014.
CDFW. 2014. *RE: Request for concurrence on Wildlife Services Program effects on State listed threatened and endangered species in California and Proposed Action*. Letter to Dennis Orthmeyer, State Director, USDA APHIS Wildlife Services. October 29, 2014.
- ¹⁵⁸ Colman, N. J., C. E. Gordon, M. S. Crowther, and M. Letnic. 2014. *Lethal control of an apex predator has unintended cascading effects on forest mammal assemblages*. *Proceedings of the Royal Society B* 281:20133094.
Mezquida, et al. 2006. *Sage-grouse and indirection interactions: potential implications of coyote control on sage-grouse populations*.
Prugh, L. R., et al. 2009. *The Rise of the Mesopredator*.
- ¹⁵⁹ Barton, B. T. 2003. *Cascading effects of predator removal on the ecology of sea turtle nesting beaches*.

- 160 Ripple W. J., Beschta R. L. 2004. *Wolves and the ecology of fear: Can predation risk structure ecosystems?* BioScience 54: 755-766.
- Marshall, K. M., N. T. Hobbs, and D. J. Cooper. 2013. *Stream hydrology limits recovery of riparian ecosystems after wolf reintroduction.* Proceedings of the Royal Society B 280: 20122977.
- 161 Rosell, F., O. Bozser, P. Collen, and H. Parker. 2005. *Ecological impact of beavers Castor fiber and Castor canadensis and their ability to modify ecosystems.* Mammal Review 35(3-4):248-276.
- Westbrook, C. J., D. J. Cooper, and B. W. Baker. 2006. *Beaver dams and overbank floods influence groundwater-surface/water interactions of a Rocky Mountain riparian area.* Water Resources Research 42:1-12.
- 162 Hamlin, R., L. Roberts, G. Schmidt, K. Brubaker and R. Bosch 2010. *Species assessment for the Humboldt marten (Martes americana humboldtensis).* U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, Arcata, California. 34 + iv pp.
- 163 USFWS. 2002. *Draft Guidelines for Project-Related Habitat Assessments and Surveys for Point Arena Mountain Beaver (Aplodontia rufa nigra).* Unpublished document on file at the Arcata Fish and Wildlife Office, Arcata, California.
- 164 USFWS. 2002. *Draft Guidelines for Project-Related Habitat Assessments and Surveys for Point Arena Mountain Beaver (Aplodontia rufa nigra).*..
- 165 USFWS. 2016. *Final Species Report, Fisher (Pekania pennanti), West Coast Population.* Klamath Falls Fish and Wildlife Office.
- 166 USFWS. 2016. *Final Species Report, Fisher (Pekania pennanti), West Coast Population.*
- 167 USFWS. 2016. *Final Species Report, Fisher (Pekania pennanti), West Coast Population.*
- 168 Gabriel, M. W., L. W. Woods, G. M. Wengert, N. Stephenson, J. M. Higley, and C. Thompson. 2015. *Patterns of natural and human-caused mortality factors of a rare forest carnivore, the fisher (Pekania pennant) in California.* PLoS ONE 10(11):e0140640.doi:10.1371/journal.pone.0140640.
- 169 USFWS. 2016. *Final Species Report, Fisher (Pekania pennanti), West Coast Population.*
- 170 USFWS. 2016. *Final Species Report, Fisher (Pekania pennanti), West Coast Population.*
- 171 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping.*
- 172 Beck, T., J. Beecham, P. Beier, T. Hofstra, M. Hornocker, F. Lindzey, K. Logan, B. Pierce, H. Quigley, I. Ross, H. Shaw, R. Sparrowe, and S. Torres. 2005. *Cougar Management Guidelines.* Opal Creek Press LLC, Salem, Oregon. 137pp.
- 173 Allen, et al. 2015. *Feeding and spatial ecology of mountain lions in the Mendocino National Forest.*
- 174 Beck, et al. 2005. *Cougar Management Guidelines.*
- 175 Kertson, B. N. 2010. *Cougar ecology, behavior, and interactions with people in a wildland-urban environment in western Washington.* Dissertation. University of Washington, Seattle, WA, USA.
- 176 Beier, P. 1993. *Puma: a population simulator for cougar conservation.*
- 177 Logan, K. A., L. L. Sweanor, T. K. Ruth, and M. G. Hornocker. 1996. *Cougars of the San Andres Mountains, New Mexico.* Final Report, Federal Aid in Wildlife Restoration Project W-128-R. New Mexico Department of Game and Fish, Santa Fe, NM.
- 178 While Gustafson et al. (2019) determined that the California cougar populations demonstrated lower connectivity than the Nevada population, connectivity did exist within the California populations. In particular, gene flow was demonstrated between the North Coast population and the Eastern and Western Sierra Nevada populations.
- 179 Peebles KA, Wielgus RB, Maletzke BT, Swanson ME. 2013. *Effects of Remedial Sport Hunting on Cougar Complaints and Livestock Depredations.* PLoS ONE 8(11): e79713. doi:10.1371/journal.pone.0079713.
- 180 Robinson H. S. 2008. *Sink populations in carnivore management: cougar demography and immigration in a hunted population.*
- 181 Beausoleil, R. A., G. M. Koehler, B. T. Maletzke, B. N. Kertson, and R. B. Wielgus. 2013. Research to regulation: cougar social behavior as a guide for management. Wildlife Society Bulletin 37(3):680-688.
- 182 Peebles, et al. 2013. *Effects of Remedial Sport Hunting on Cougar Complaints and Livestock Depredations.*
- Lambert, C.M., R. B. Wielgus, H. R. Robinson, H. S. Cruickshank, R. Clarke, and J. Almack. 2006. *Cougar population dynamics and viability in the Pacific Northwest.* Journal of Wildlife Management 70: 246-254.
- 183 Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry.* Approved for Print.

-
- 184 Ernest, H. B., et al. 2003. *Genetic structure of mountain lion (Puma concolor) populations in California.*
- 185 CDFW. 2017. *Human/Wildlife Interactions in California: Mountain Lion Depredation, Public Safety, and Animal Welfare – Amendment to Department Bulletin 2013-02.* Departmental Bulletin, Department of Fish and Wildlife. Issued December 15, 2017.
- 186 Marshall, et al. 2013. *Stream hydrology limits recovery of riparian ecosystems after wolf reintroduction.*
- 187 Ripple W. J., Beschta R. L. 2004. *Wolves and the ecology of fear: Can predation risk structure ecosystems?*
- 188 Marshall, et al. 2013. *Stream hydrology limits recovery of riparian ecosystems after wolf reintroduction.*
- 189 Jakes, A. F., P. F. Jones, L. Christine Paige, R. G. Seidler, and M. P. Huijser. 2018. *A fence runs through it: A call for greater attention to the influence of fences on wildlife and ecosystems.* Biological Conservation 227:310-318.
- 190 Harrington, J. L. and M. R. Conover. 2006. *Characteristics of ungulate behavior and mortality associated with wire fences.* Wildlife Society Bulletin 34(5):1295-1305.
- 191 Seidler, R. G., R. A. Long, J. Berger, S. Bergen, and J. P. Beckmann. 2015. *Identifying impediments to long-distance mammal migration.* Conservation Biology 29(1):99-109
- 192 Epps, C. W., P. J. Palsbell, J. D. Wehausen, G. K. Roderick, R. R. Ramey II, and D. R. McCullough. 2005. *Highways block gene flow and cause a rapid decline in genetic diversity of desert bighorn sheep.* Ecology Letters 8:1029-1038.
- Flesch, A. D., C. W. Epps, J. W. Cain III, M. Clark, P. R. Krausman, and J. R. Morgart. 2009. *Potential effects of the United States-Mexico border fence on wildlife.* Conservation Biology 24(1):171-181.
- 193 Paige, C. 2012. *A Landowner's Guide to Wildlife Friendly Fences: How to Build Fence with Wildlife in Mind, Second Edition.* Private Land Technical Assistance Program, Montana Fish, Wildlife, and Parks, Helena, Montana.
- 194 Paige, C. 2012. *A Landowner's Guide to Wildlife Friendly Fences: How to Build Fence with Wildlife in Mind, Second Edition.*
- 195 Jakes, et al. 2018. *A fence runs through it: A call for greater attention to the influence of fences on wildlife and ecosystems.*
- Paige, C. 2012. *A Landowner's Guide to Wildlife Friendly Fences: How to Build Fence with Wildlife in Mind, Second Edition.*
- van Lanen, N. J., A. W. Green, T. R. Gorman, L. A. Quattrini, and D. C. Pavlacky Jr. 2017. *Evaluating efficacy of fence markers in reducing greater sage-grouse collisions with fencing.* Biological Conservation 213:70-83.
- 196 CDFW. 2011. *Draft Environmental Document – Bear Hunting.* Wildlife Branch. Sacramento, CA. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=82753&inline>.
- 197 CDFW. 2011. *Draft Environmental Document – Bear Hunting.*
- 198 CDFW, Wildlife Branch – Game Management. 2018. *Black Bear information webpages.*
- 199 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping.*
- 200 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping.*
- 201 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping.*
- 202 CDFW. 2004. *Furbearing and Nongame Mammal Hunting and Trapping.*

4.3 HAZARDS AND HAZARDOUS MATERIALS

4.3

HAZARDS AND HAZARDOUS MATERIALS

4.3.1 INTRODUCTION

The Hazards and Hazardous Materials chapter of the EIR includes a discussion of hazards and hazardous materials that could be used within Mendocino County as a result of the IWDM Program, the Non-Lethal Program Alternative, and the proposed variation to the Non-Lethal Program Alternative. In addition, the chapter evaluates the potential for implementation of the IWDM Program and the Non-Lethal Program Alternative to result in wildfire hazards. Information included in this chapter is drawn primarily from the Mendocino County General Plan¹ and the Mendocino County General Plan EIR.²

4.3.2 EXISTING ENVIRONMENTAL SETTING

The discussions below provide an overview of hazardous materials historically used by WS-CA under the IWDM Program in Mendocino County, as well as current wildfire hazard risks within the County.

Prior WS-CA Hazardous Material Use

Wildlife management services within the County have been provided by WS-CA since the initial adoption of a Cooperative Services Agreement in 1989. In December 2004, the County entered into a new Cooperative Agreement with a five-year term, and in March 2010, the second five-year agreement was approved. The Cooperative Agreement and Work Plan between WS-CA and Mendocino County were both renewed by the Board on June 3, 2014. The Work Plan expired on June 30, 2015. Since that time, WS-CA has continued to implement the IWDM Program in Mendocino County without funding from the County, though not necessarily at a level of service equivalent to when a Cooperative Services Agreement and Work Plan were in effect.

As discussed in Chapter 3, Project Description, of this EIR, properly trained and certified personnel may use certain chemicals to immobilize wildlife under WS Directive 2.430. Depending on the need, immobilization chemicals can be selected to cause physical paralysis of the animal, while allowing the animal to maintain consciousness, or immobilization chemicals may be selected that result in unconsciousness with anesthesia. Immobilizing chemicals are a non-lethal method of wildlife control, which allow WS-CA personnel to handle or transport target wildlife while minimizing the potential for physical harm to either the immobilized wildlife or the WS-CA personnel. As noted in WS Directive 2.430, the type of immobilization chemical used by WS-CA personnel is limited to those chemicals approved by the WS's Immobilization and Euthanasia

¹ Mendocino County. *General Plan*. August 2009.

² Mendocino County. *General Plan Update Draft Environmental Impact Report, SCH: 2008062074*. September 2008.

Committee. Both immobilization chemicals and euthanasia chemicals may be considered hazardous materials.

Within the last 10 years, immobilization chemicals have not been used by WS-CA within the County. However, WS-CA personnel have used the following euthanasia chemicals: euthasol (2007); sodium pentobarbital (390 milligrams per milliliter [mg/mL]) (2009); and, on tribal lands only, M-44 cyanide devices (2013). In 2013, the WS-CA label allowing for use of cyanide within Mendocino County expired and use of M-44 cyanide devices ceased. In 2014, M-44 cyanide devices were banned within California, except as authorized on sovereign tribal lands. While M-44 cyanide devices may still be used legally on sovereign tribal lands within Mendocino County, WS-CA has indicated that the agency will not seek approval of new cyanide label from the U.S. Environmental Protection Agency (USEPA). Thus, WS-CA is not anticipated to employ use of M-44 cyanide devices within the County for the foreseeable future.

Wildfire Hazards

Per the County General Plan EIR, many areas of the County are at risk from wildland fires. The potential wildfire hazard in the County is exacerbated by the hot, dry summers typically experienced throughout most of the region. According to the California Department of Forestry and Fire Protection (CAL FIRE) Fire and Resource Assessment Program (FRAP), substantial portions of the County within state responsibility areas (SRAs) are classified as High or Very High Fire Hazard Severity Zones (FHSZs) (Figure 4.3-1). The local responsibility areas (LRAs) around the Willits, Ukiah, Point Arena, Fort Bragg, and Covelo communities are primarily classified by the FRAP as High and Moderate FHSZs, with limited Very High FHSZs located within the western portion of the City of Ukiah (see Figure 4.3-2).³

Per CAL FIRE, the primary cause for wildfires within the County between 2011 and 2017 was debris burning (see Figure 4.3-3).⁴ Other common causes included, but were not limited to, electrical power, arson, lightning, and campfires. Electrical fires were started primarily due to illegal cannabis growing operations, as well as trees, branches, and birds coming into contact with power lines. CAL FIRE has not documented any recent instances of wildfires caused specifically by electric fences, turbo fladry, pyrotechnics, or other similar equipment.

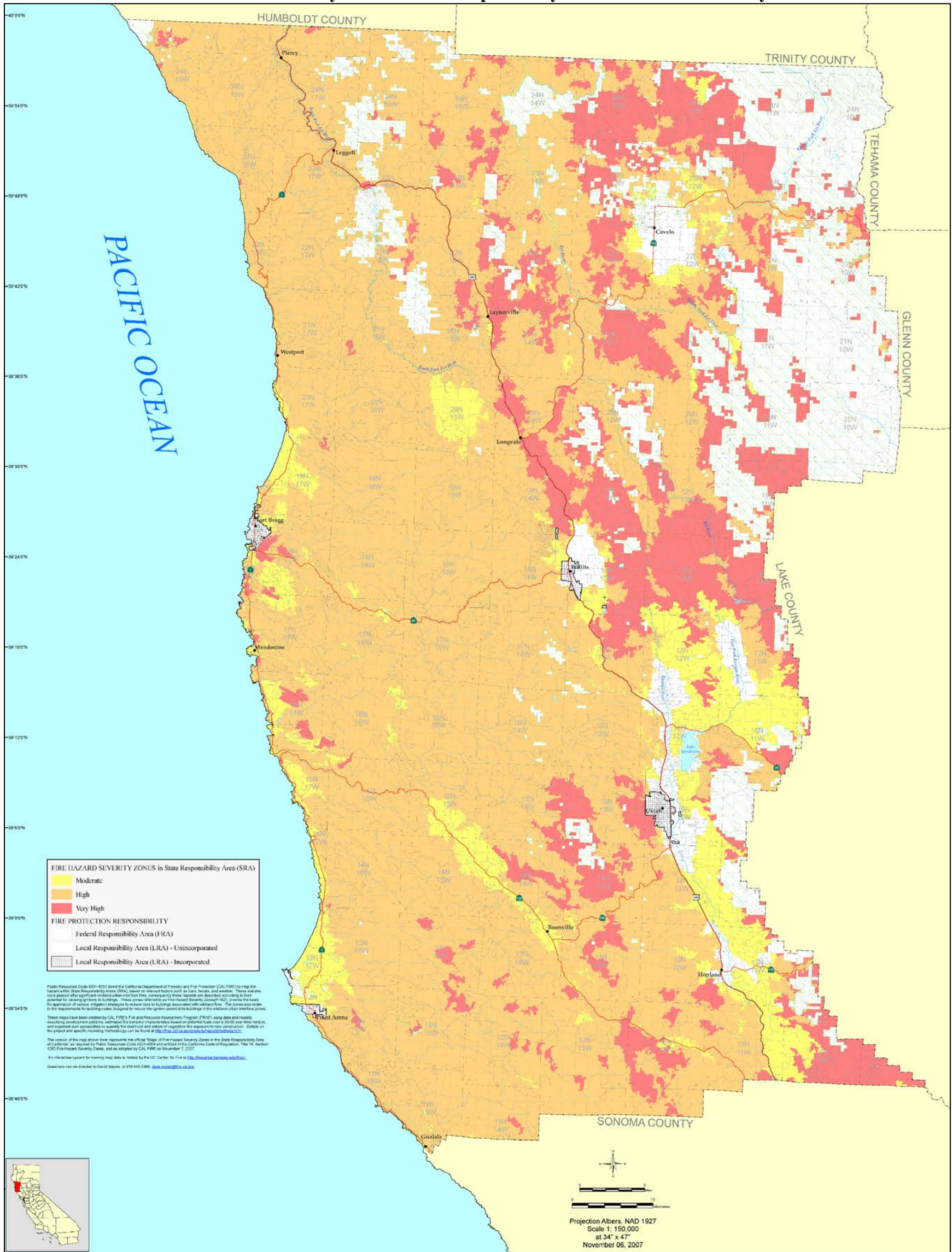
As noted in the County's Multi-Hazard Mitigation Plan (MHMP),⁵ CAL FIRE and the U.S. Forest Service (USFS) have responded to over 280 wildland fires in the County since 1922. Per the MHMP, the entire County is susceptible to wildland fires, but the northeastern portion of the County, in areas near Mendocino National Forest, are the most vulnerable. Approximately 20 percent of wildland fires in the County have occurred within a national forest. Areas at risk also include the Wildland-Urban Interface (WUI).

³ California Department of Forestry and Fire Protection. *Mendocino County, Draft Fire Hazard Severity Zones in LRA*. September 24, 2007.

⁴ Anthony Massucco, Fire Captain/Pre-Fire Engineer, CAL FIRE. Personal Communication [email] with Nick Pappani, Vice President, Raney Planning & Management, Inc. March 8, 2019.

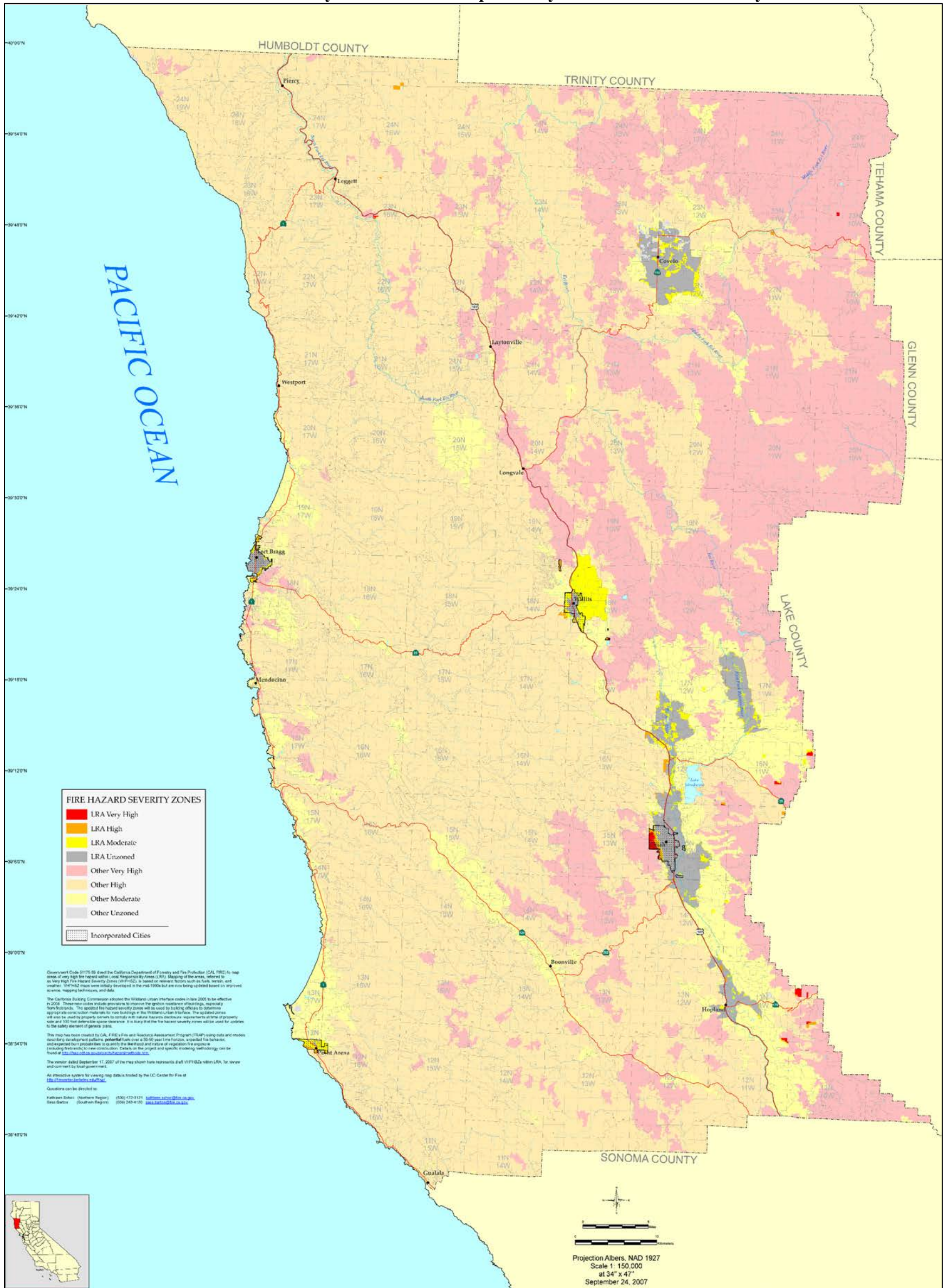
⁵ Mendocino County. *2014 Mendocino County Multi-Hazard Mitigation Plan* [pg. 5-45]. 2014.

Figure 4.3-1
Fire Hazard Severity Zones in State Responsibility Areas – Mendocino County



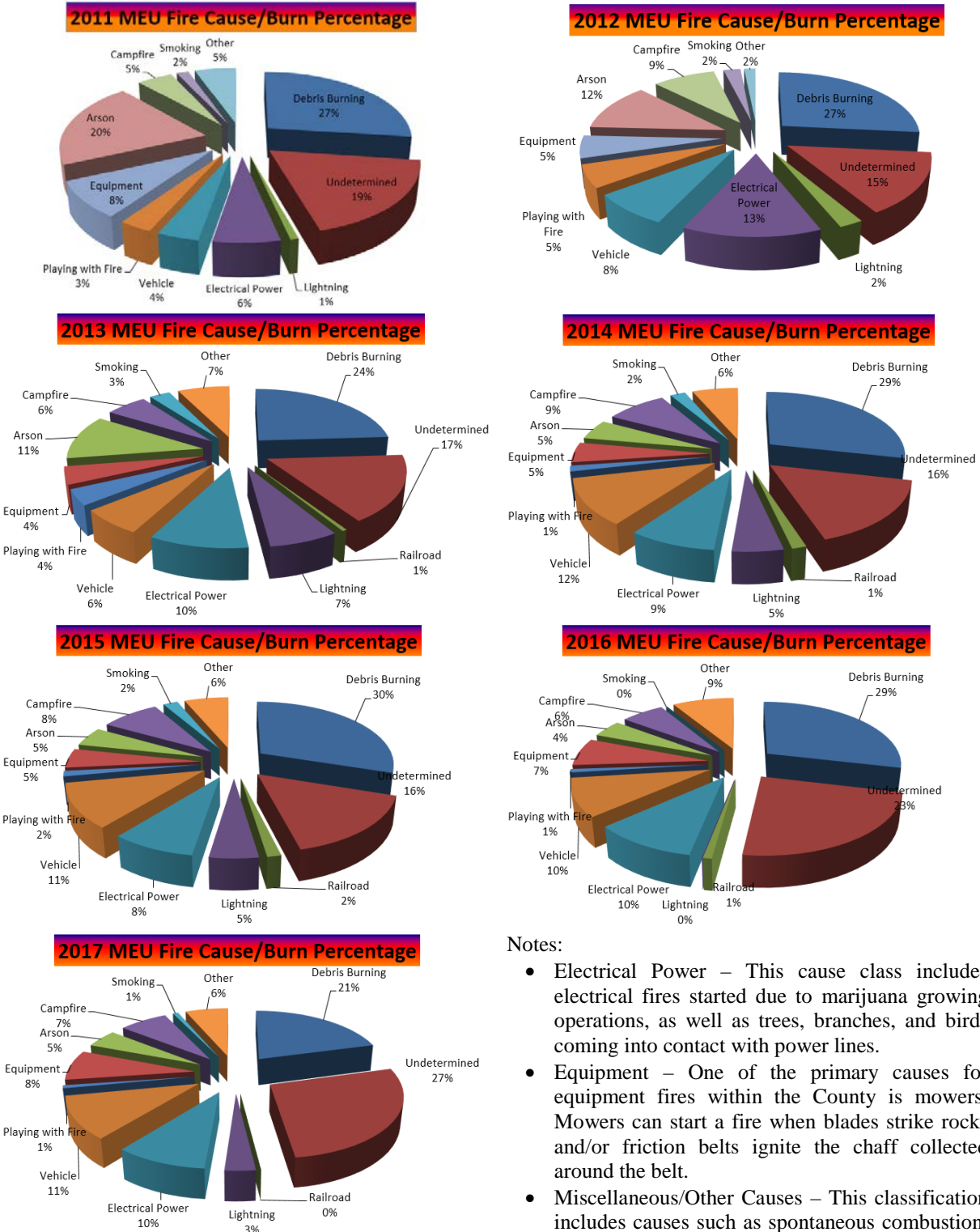
Source: Department of Forestry and Fire Protection, 2007.

Figure 4.3-2
Fire Hazard Severity Zones in Local Responsibility Areas – Mendocino County



Source: Department of Forestry and Fire Protection, 2007.

**Figure 4.3-3
 Mendocino County Fire Cause/Burn Percentage: 2011 through 2017**



- Notes:
- Electrical Power – This cause class includes electrical fires started due to marijuana growing operations, as well as trees, branches, and birds coming into contact with power lines.
 - Equipment – One of the primary causes for equipment fires within the County is mowers. Mowers can start a fire when blades strike rocks and/or friction belts ignite the chaff collected around the belt.
 - Miscellaneous/Other Causes – This classification includes causes such as spontaneous combustion, fireplace ashes deposited in the wildland, barbecuing, target shooting, and fireworks.

Source: Department of Forestry and Fire Protection, 2019.

The WUI is composed of both interface and intermix communities. In both interface and intermix communities, housing must meet or exceed a minimum density of one structure per 40 acres. For intermix communities, wildland vegetation is continuous, with more than 50 percent vegetation, while interface communities are areas with housing in the vicinity of contiguous vegetation and have less than 50 percent vegetation. Within the County, the WUI communities at greatest risk to a wildland fire include: Piercy, Westport, Leggett, Branscomb, Comptche, Gualala, and Laytonville.

4.3.3 REGULATORY CONTEXT

The following discussion contains a summary of the regulatory controls pertaining to hazards and hazardous materials, including federal, State, and local laws and ordinances.

Federal Regulations

Federal agencies that regulate hazardous materials include the USEPA, the Occupational Safety and Health Administration (OSHA), the U.S. Department of Transportation (DOT), and the National Institute of Health. Prior to August 1992, the principal agency at the federal level regulating the generation, transport, and disposal of hazardous waste was the USEPA under the authority of the Resource Conservation and Recovery Act. As of August 1, 1992, however, the California Department of Toxic Substances Control (DTSC) was authorized to implement the State's hazardous waste management program for the USEPA. The USEPA continues to regulate hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). In addition, the Federal Drug Enforcement Agency (DEA) administers licenses for controlled substances. The following federal laws and regulations govern hazardous materials.

Occupational Safety and Health Act (29 U.S.C. §651 et seq. [1970])

Congress passed the Occupational and Safety Health Act to ensure worker and workplace safety. Their goal was to make sure employers provide their workers a place of employment free from recognized hazards to safety and health, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions. In order to establish standards for workplace health and safety, the Act also created the National Institute for Occupational Safety and Health (NIOSH) as the research institution for the OSHA. OSHA is a division of the U.S. Department of Labor that oversees the administration of the Act and enforces standards in all 50 states.

Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. §9601 et seq. [1980])

The CERCLA provides a federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites, as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through CERCLA, the USEPA was given power to seek out those parties responsible for any release and assure their cooperation in the cleanup. The USEPA cleans up orphan sites when potentially responsible parties cannot be identified or located, or when

they fail to act. Through various enforcement tools, USEPA obtains private party cleanup through orders, consent decrees, and other small party settlements. The USEPA also recovers costs from financially viable individuals and companies once a response action has been completed. The USEPA is authorized to implement the Act in all 50 states and U.S. territories.

Superfund Amendments and Reauthorization Act of 1986, Title III; Section 305(a)

The Superfund Amendments and Reauthorization Act (SARA) of 1986 reauthorized CERCLA to continue cleanup activities around the country. Several site-specific amendments, definitions clarifications, and technical requirements were added to the legislation, including additional enforcement authorities. In addition, Title III of SARA authorized the Emergency Planning and Community Right-to-Know Act. SARA, Title III provides funding for training in emergency planning, preparedness, mitigation, response, and recovery capabilities associated with hazardous chemicals. Title III of SARA addresses concerns about emergency preparedness for hazardous chemicals, and emphasizes helping communities meet their responsibilities in preparing to handle chemical emergencies and increasing public knowledge and access to information on hazardous chemicals present in their communities.

Toxic Substances Control Act (15 U.S.C. §2601 et seq. [1976])

The Toxic Substances Control Act (TSCA) of 1976 provides USEPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics and pesticides. TSCA addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon and lead-based paint.

New Animal Drug Applications (21 CFR 514.1)

Per 21 CFR 514.1(b), any labeling which furnishes or purports to furnish information for use or which prescribes, recommends, or suggests a dosage for use of a new animal drug must also contain, in the same language and emphasis, information for its use including indications, effects, dosages, routes, methods, and frequency and duration of administration, any relevant hazards, contraindications, side effects, and precautions contained in the labeling.

In addition, per Section 514.1(b)(8), an application for new animal drugs may be refused unless it contains full reports of adequate tests by all methods reasonably applicable to show whether or not the new animal drug is safe and effective for use as suggested in the proposed labeling.

Registration of Manufacturers, Distributors, and Dispensers of Controlled Substances (21 CFR 1301)

Per 21 CFR 1301.11, every person who manufactures, distributes, dispenses, imports, or exports any controlled substance or who proposes to engage in the manufacture, distribution, dispensing, importation or exportation of any controlled substance shall obtain a registration unless exempted by law or pursuant to Sections 1301.22 through 1301.26. Per Section 1301.22, the requirement of

registration is waived for any agent or employee of a person who is registered to engage in any group of independent activities, if such agent or employee is acting in the usual course of his/her business or employment. Sections 1301.90 through 1301.90 establish specific procedures and requirements to limit potential illicit activities or drug diversion by employees.

Schedules of Controlled Substances (21 CFR 1308)

Title 21, Part 1308 of the CFR establishes schedules of controlled substances. Sections 1308.11 through 1308.15 include lists of chemicals that are classified as Schedule I, II, III, IV, or V controlled substances.

Animal Medicinal Drug Use Clarification Act of 1994

The Animal Medicinal Drug Use Clarification Act of 1994 (AMDUCA) permits veterinarians to prescribe extralabel uses of certain approved new animal drugs and approved human drugs for animals under certain conditions. Extralabel use refers to the use of an approved drug in a manner that is not in accordance with the approved label directions. Under AMDUCA and its implementing regulations published within 21 CFR 530, any extralabel use of an approved new animal or human drug must be by or on the lawful order of a veterinarian within the context of a veterinarian-client-patient relationship. Extralabel use must also comply with other provisions of 21 CFR 530. A list of drugs specifically prohibited from extralabel use appears in 21 CFR 530.41.

American Veterinary Medical Association Guidelines for the Euthanasia of Animals

Section 7.6 of the 2013 edition of the *American Veterinary Medical Association Guidelines for the Euthanasia of Animals* includes specific considerations regarding the euthanasia of free-ranging wildlife. As noted therein, within the context of wildlife management, personnel associated with state and federal agencies and Native American tribes may handle or capture individual animals or groups of animals for various purposes, including research. During the course of these management actions, individual animals may become injured or debilitated and may require euthanasia; in other cases, research or collection protocols dictate that some of them be killed. The Guidelines note that population management may require the lethal control of wildlife species.

State Regulations

The California EPA (CalEPA) and the California State Water Resources Control Board (SWRCB) establish rules governing the use of hazardous materials and the management of hazardous waste. Within CalEPA, DTSC has primary regulatory responsibility, with delegation of enforcement to local jurisdictions that enter into agreements with the State agency, for the management of hazardous materials and the generation, transport, and disposal of hazardous waste under the authority of the Hazardous Waste Control Law (HWCL). In addition, the California Code of Regulations includes restrictions on the use of weapons and traps within State parks. The following discussion contains the applicable State laws.

California Health and Safety Code

Sections 12500 through 12728 of the California Health and Safety Code (HSC) are known as the State Fireworks Law. Sections 12503 and 12526 of the HSC specifically define pyrotechnic device to include such devices as agricultural and wildlife fireworks designed and intended by the manufacturer to be used to prevent damage to crops or unwanted occupancy of areas by animals or birds through the employment of sound or light, or both. The State Fireworks Law contains specific regulations related to the administration, classification, licensing, and permitting of pyrotechnics, including specific standards related to fire hazard risk.

Cortese List: Government Code Section 65962.5(a)

The DTSC shall compile and update as appropriate, but at least annually, and shall submit to the Secretary for Environmental Protection, a list of all of the following:

1. All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
2. All land designated as hazardous waste property or border zone property pursuant to former Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
3. All information received by the DTSC pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
4. All sites listed pursuant to Section 25356 of the Health and Safety Code.

Regional Water Quality Control Board

The Regional Water Quality Control Board (RWQCB) is responsible for implementing regulations pertaining to management of soil and groundwater investigation and cleanup. The RWQCB's regulations are contained in Title 27 of the California Code of Regulations (CCR). The DTSC, RWQCB, and/or a local agency typically oversees investigation and cleanup of contaminated sites.

California Health and Safety Code

The handling and storage of hazardous materials is regulated on the federal level by the USEPA under CERCLA as amended by the SARA. Under SARA Title III, a nationwide emergency planning and response program was established that imposed reporting requirements for businesses which store, handle, or produce significant quantities of hazardous or acutely toxic substances as defined under federal laws. SARA Title III required each state to implement a comprehensive system to inform federal authorities, local agencies, and the public when a significant quantity of hazardous, acutely toxic substances are stored or handled at a facility.

The California Office of Emergency Services regulates a wide range of acutely hazardous materials (AHMs) under the California Accidental Release Program (CalARP), the USEPA under the Risk Management Program (40 CFR 68), and the OSHA under the Process Safety Management Program (OSHA 1910.119). The California Accidental Release Program and Risk Management Program require that all facilities that store, handle, or use AHMs above a minimum quantity,

known as the threshold planning quantity, are required to develop a plan and prepare supporting documentation that summarizes the facility's potential risk to the local community and identifies safety measures to reduce potential risks to the public.

The HWCL, Chapter 6.5 of the California Health and Safety Code, is administered by CalEPA to regulate hazardous wastes. While the HWCL is generally more stringent than RCRA, until the USEPA approves the California program, both the State and federal laws apply in California. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills.

The handling and storage of hazardous materials is regulated by Chapter 6.95 of the California Health and Safety Code. Under Sections 25500–25543.3, facilities handling hazardous materials are required to prepare a Hazardous Materials Business Plan. The plan provides information to the local emergency response agency regarding the types and quantities of hazardous materials stored at a facility, and provides detailed emergency planning and response procedures in the event of a hazardous materials release. In the event that a facility stores quantities of specific acutely-hazardous materials above the thresholds set forth by the California Code, facilities are also required to prepare a Risk Management Plan and California Accidental Release Plan, which provides information on the potential impact zone of a worst-case release, and requires plans and programs designed to minimize the probability of a release and mitigate potential impacts.

Emergency Response to Hazardous Materials Incidents

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous material incidents is one part of this plan. The plan is managed by the Governor's Office of Emergency Services (OES), which coordinates the responses of other agencies, including CalEPA, California Highway Patrol, California Department of Fish and Wildlife (CDFW), Central Valley RWQCB, North Coast RWQCB, and California Department of Forestry and Fire Protection.

Weapons and Traps within State Parks (14 CCR 4313)

Per 14 CCR Section 4313(a), no person shall carry, possess or discharge across, in or into any portion of any unit any weapon, firearm, spear, bow and arrow, trap, net, or device capable of injuring, or killing any person or animal, or capturing any animal, or damaging any public or private property, except in underwater parks or designated archery ranges where the Department of Parks and Recreation finds that it is in its best interests. However, 14 CCR Part 4309 states that the California Department of Parks and Recreation (CA State Parks) may grant a permit to remove, treat, disturb, or destroy animals, which would be applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.

Local Regulations

Relevant policies from the County's General Plan and various other local guidelines and regulations related to hazards and hazardous materials are discussed below. It should be noted that while the IWDM Program, the Non-Lethal Program Alternative, and the proposed variation to the Non-Lethal Program Alternative could be implemented within incorporated cities within the County, the cities have policies that are generally consistent with the County's policies related to hazards and hazardous materials, based upon a review by Raney Planning & Management, Inc. Cities typically rely on the County to handle issues related to hazards, particularly hazards due to the use of hazardous chemicals, pyrotechnics, or firearms. In addition, no applicable hazardous materials policies are included in the Mendocino Coastal Element, the Ukiah Valley Area Plan, or the Mendocino Town Plan.

Mendocino County General Plan

The following goals and policies from the Mendocino County General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal DE-20 To reduce risks to human and environmental health posed by solid, hazardous and toxic materials and wastes.

Policy DE-208: Land uses, densities and intensities shall be designed to reduce human risk and exposure to hazardous conditions and events.

Goal DE-24 To reduce, to the extent possible, the risk and exposure of life, property and the environment to hazardous conditions and events such as earthquakes, landslides, wildfires, floods, inundation, energy emergencies, and toxic releases.

Mendocino County Hazardous Waste Management Plan

In 1990, Mendocino County adopted a Hazardous Waste Management Plan (HWMP) to guide future decisions by the County and the incorporated cities about hazardous waste management. Policies within the HWMP emphasize source reduction and recycling of hazardous wastes and express a preference for on-site hazardous waste treatment over off-site treatment. The HWMP proposed a number of hazardous waste programs and set forth criteria to guide the siting of new off-site hazardous materials facilities. In 1997, the County Division of Environmental Health assumed responsibility for administering hazardous waste generation and treatment regulations.⁶

Mendocino County Multi-Hazard Mitigation Plan

Consistent with the requirements of the Disaster Mitigation Act of 2000, the County has developed a MHMP, approved in 2014, to assess risks posed by natural and human-caused hazards and to

⁶ Mendocino County. *General Plan Update, Draft Environmental Impact Report* [pg. 4.7-4]. September 2008.

develop a mitigation strategy for reducing the County's risks. The MHMP includes unincorporated Mendocino County, as well as the cities of Fort Bragg, Point Arena, Ukiah, and Willits. Hazards addressed by the MHMP include hazardous materials and wildland fires.

Mendocino County Code of Ordinances

The following sections summarize the County's existing regulations set forth in the Code of Ordinances related to hazardous materials and firearm use.

Hazardous Materials

Chapter 8.70 of the County Code of Ordinances contains the County's local regulations related to the handling of hazardous materials. Specific guidelines are provided for reporting unauthorized releases and threatened releases, as well as County response procedures for such releases.

Firearms

The County Code of Ordinances contains numerous regulations related to the use of firearms within the County. Per Section 14.08.020, firing or discharge of firearms within recreation areas in the County is prohibited. Section 8.04.050 includes additional prohibitions on the use of firearms within the Pudding Creek Area in the vicinity of Fort Bragg, the Low Gap Park Area in the vicinity of Ukiah, and the Mariposa Creek swimming area in the vicinity of Redwood Valley.

In addition, per Chapter 8.04, Division III, no person other than the owner, person in possession of the premises, or person having the express permission of the owner or person in possession of the premises, is permitted to discharge any firearm within 500 yards of any occupied dwelling house, or any residence, of any other building or barn or outbuilding used in connection with such dwelling house or residence, or of any building in the process of construction. For shotguns, the allowable distance is reduced to 150 yards.

4.3.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the potential impacts of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative related to hazards and hazardous materials. A discussion of project-level and cumulative impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines and professional judgment, a significant impact would occur if the IWDM Program, the Non-Lethal Program Alternative, or the proposed variation to the Non-Lethal Program Alternative would result in the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires; or
- If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:
 - Substantially impair an adopted emergency response plan or emergency evacuation plan;
 - Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
 - Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
 - Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Issues Not Discussed Further

As noted in the Initial Study prepared for the proposed project (see Appendix B), neither the IWDM Program, the Non-Lethal Program Alternative, nor the variation to the Non-Lethal Program Alternative would involve activities with the potential to disturb existing known contaminated soils or areas. Existing contaminated areas are primarily located within developed portions of the County, while the majority of activities related to the proposed project are anticipated to occur in more rural portions of the County, where agricultural activity occurs. Agricultural activity is not likely to occur where known contamination is present. Therefore, as noted in the Initial Study, the proposed project would result in a less-than-significant impact related to the following:

- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment.

In addition, the Initial Study concluded that the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative would not involve the use of aerial hunting techniques and would not result in the development of any structures or other infrastructure that could have the potential to create conflicts with existing airports. In addition, as discussed in Chapter 4.4, Noise, of this EIR, wildlife specialists working within the vicinity of airports or airstrips within the County would not be exposed to aircraft overflight noise for substantial periods of time. Therefore, the Initial Study determined that a less-than-significant impact would occur related to the following:

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.

Furthermore, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative do not involve any physical development or other land disturbing activity that could result in changes to the circulation system within Mendocino County or changes to the emergency response capability of any agencies within the County. Therefore, the Initial Study determined that a less-than-significant impact would occur related to the following:

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Accordingly, impacts related to the above are not further analyzed or discussed in this EIR.

Method of Analysis

Evaluation of potential impacts of the proposed project, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative is based on the Mendocino County General Plan, the associated EIR, and applicable WS-CA directives. The standards of significance listed above are used to delineate the significance of any potential impacts.

Project-Specific Impacts and Mitigation Measures

The proposed project would include implementation of a variety of wildlife control methods by WS-CA staff, some of which would result in the creation of potential hazards. The Non-Lethal Program Alternative would involve the use of wildlife control methods that would be implemented under the proposed project, with the exception of the lethal control and live capture methods. In addition, this analysis includes consideration of a variation to the Non-Lethal Program Alternative, which would include the limited use of lethal gunshot only in instances where wildlife poses a threat to public health or safety.

Hazards and hazardous materials impacts due to the implementation of wildlife control methods of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative are assessed relative to the applicable local, State, federal, and CEQA Appendix G checklist criteria. For each impact statement, two baseline scenarios are evaluated: a “CEQA Baseline” and a “No Program Baseline”. Additional information related to the baseline

scenarios is included in Chapter 1, Introduction, of this EIR. The impact statements presented below are organized as follows:

CEQA Baseline

This baseline scenario recognizes the fact that the County has had a wildlife damage management program since 1989, and as such, it is part of the environmental baseline pursuant to CEQA Guidelines Section 15125. While the County's most recent Work Plan with WS-CA expired in June of 2015, WS-CA has continued to implement the IWDM Program in Mendocino County without funding from the County.

No Program Baseline

The No Program Baseline treats the IWDM Program as a new program and, thus, does not account for the fact that such a program is part of the baseline. This approach enables the County to provide an informational analysis as to the potential environmental effects of the IWDM Program.

4.3-1 Create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. *No impact would occur for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.***
- **No Program Baseline. *The effect is less than significant for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.***

Projects which involve the potential handling, use, or disposal of hazardous materials have the potential to result in adverse effects to the public or the environment. For example, improper storage of chemicals may expose employees to health risks and may result in environmental contamination. In addition, projects involving ground disturbance or new development within the vicinity of existing hazardous materials may result in the release of such materials into the environment. The following sections analyze the potential for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative to result in impacts/effects related to potential handling, use, or disposal of hazardous materials.

CEQA Baseline

IWDM Program

Wildlife damage management operations to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods have been historically carried out by WS-CA in Mendocino County

since 1989. As such, use of hazardous materials for wildlife damage management purposes is part of the environmental baseline, and continued use of hazardous materials and firearms for such purposes would not represent a net new method. Given that the IWDM Program would represent a continuation of existing conditions, no impact would occur related to creation of a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to residents reporting wildlife damage. For example, with respect to deterrent methods, field technicians would instruct property owners or managers how to use deterrent tools in ways that maximize their effectiveness while minimizing the potential for wildlife to habituate to the deterrents.

Similar to the IWDM Program, the Non-Lethal Program Alternative would involve implementation of wildlife control methods similar to methods that have been historically carried out by WS-CA in Mendocino County since 1989. In addition, the Non-Lethal Program Alternative would include a cost-share mechanism for specific non-lethal control methods, such as electrified fencing and fladry, use of livestock protection dogs, and Foxlights. These methods do not involve use of hazardous materials. Therefore, no impact would occur.

Variation to the Non-Lethal Program Alternative

Under the variation to the Non-Lethal Program Alternative, use of firearms would be permitted for the lethal control of wildlife on a strictly limited basis in exceptional cases where a risk to public health and safety is posed by wildlife. Similar to the IWDM Program, the limited use of firearms under the variation to the Non-Lethal Program Alternative would represent a continuation of existing conditions associated with prior implementation of the IWDM Program within the County since 1989. Other new control methods for which the variation would include a cost-share/reimbursement mechanism, such as electric fences and fladry, would not involve use of hazardous materials. Overall, the variation to the Non-Lethal Program Alternative would not result in any new significant impacts. Thus, no impact would occur related to the creation of a significant hazard to the public or the environment.

No Program Baseline

IWDM Program

Approval of the proposed project would enable WS-CA to provide assistance to landowners to protect livestock, crops, human health and safety, and property from wildlife damage using a variety of methods, many of which have been historically carried out by WS-CA in Mendocino County. As noted previously, the No Program Baseline sections treat the IWDM Program as a new program and, thus, do not account for the fact that such a program is already occurring. Consequently, under the No Program Baseline scenario, use of hazardous materials for the IWDM Program would be considered a net change from existing conditions.

The IWDM Program could include the use of chemical repellents as part of wildlife management within the County. In addition, since the release of the Notice of Preparation and Initial Study prepared for the project, the County has determined that, in addition to the use of wildlife repellents, the IWDM Program could involve the use of certain immobilization chemicals (e.g., Telazol, Xylazine, and Yohimbine) and euthanasia chemicals (e.g., euthasol and sodium pentobarbital), specifically approved for such uses by the American Veterinary Medical Association (AVMA) and/or WS-CA. Potential hazards could also include non-chemical euthanasia methods such as firearms, which could create hazards if not used properly. The following sections include an analysis of potential hazards related to use of repellents, immobilization and euthanasia chemicals, and non-euthanasia methods that could be employed under the IWDM Program. It should be noted that the IWDM Program would not involve the use of pesticides.

Repellents

The repellents that would be used under the IWDM Program, such as Raccoon Eviction Fluid, are not considered hazardous to the environment or public health. The use, transport, and disposal of such repellents would not have the potential to create a hazard to the public or the environment.

Immobilization and Euthanasia Chemicals

Immobilization chemicals that may be used in Mendocino County could include Telazol, Xylazine, and/or Yohimbine. Telazol is an immobilizing agent that has been approved by the FDA and is used by WS-CA. Once applied through deep intramuscular injection, Telazol produces a state of unconsciousness and an anesthetic effect usually occurs within 5 to 12 minutes. Xylazine is a sedative that produces a transitory hypertension followed by prolonged hypotension and respiratory depression. Xylazine is administered through intramuscular injection, which results in immobilization in approximately five minutes, which lasts for 30

to 45 minutes.⁷ Yohimbine may be used to counteract the sedative effects of Xylazine. In an emergency situation, unapproved immobilization chemicals may be used on a one-time or limited basis by WS-CA personnel; however, the use of such unapproved chemicals is only allowed when approved by an attending/consulting veterinarian and the State Director or designee.

WS-CA personnel must use all immobilization chemicals in accordance with protocols approved by the Institutional Animal Care and Use Committee, and in compliance with all state and federal law and regulations. Furthermore, the acquisition, storage, and use of immobilizing chemicals must comply with all applicable federal, state, and local law and regulations. Proper care, use, chain of custody, and security of immobilizing chemicals is the responsibility of WS-CA employees. It should be noted that the CDFW rarely authorizes relocation of wildlife, whether such wildlife is trapped or chemically immobilized. Thus, immobilized wildlife may be euthanized in a humane manner and the carcasses disposed of off-site in compliance with applicable regulations. However, in certain circumstances, immobilized wildlife may be freed or relocated subject to approval by the CDFW.

As noted previously, within the last 10 years, immobilization chemicals have not been used by WS-CA within the County. WS-CA personnel have used the following euthanasia chemicals: euthasol; sodium pentobarbital; and M-44 cyanide devices. Only euthasol and sodium pentobarbital would be used under the IWDM Program.

Due to the potential hazard posed by chemicals used to immobilize or euthanize wildlife, most such chemicals are regulated by State and Federal law. In addition to the State and Federal laws concerning such chemicals, several factors reduce the likelihood of any impacts related to the use of immobilization or euthanasia chemicals. Prior to the use of any immobilization or euthanasia chemicals, such chemicals must be registered with the USEPA, and WS-CA personnel applying such chemicals must adhere to any training and certification requirements imposed by the USEPA and the State. Additionally, WS-CA personnel must comply with WS policy related to the use, storage, transport, and accountability of such chemicals. For example, WS Directive 2.430 includes specific training and certification requirements for all WS-CA personnel prior to independent use or possession of immobilizing and euthanizing substances (I&E drugs) by such personnel. Personnel must be recertified every three years. In addition, WS-CA requires states to obtain their own license for controlled substances from the DEA, to be issued to WS-CA employees. The highly regulated nature of such chemicals ensures that such chemicals are properly used, and would not create a significant hazard to the public or the environment. Furthermore, the aforementioned

⁷ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015.

chemicals would be used in relatively low volumes within a limited area and would only be used for specific animals in specific situations.

Non-Chemical Euthanasia Methods

Non-chemical euthanasia methods employed under the IWDM Program could include snares, trap devices, and use of firearms from the ground. If traps are used, WS Directive 2.450 requires that appropriate warning signs be posted on commonly used public access points to areas where traps or snares are in use. Signs must be routinely checked by WS-CA field specialists to ensure they are present, obvious, and readable. Appropriate notification signs must be posted within the direct line of sight of cougar foot-snare device sets. In addition, capture devices must be set where they would minimize the public's view of captured animals. In California, pursuant to Fish and Game Code Section 465.5, traps must be checked at least once daily, and each time traps are checked, all trapped animals must be removed. Therefore, the potential for the public to encounter a trapped, dead, or injured animal is relatively low.

Use of firearms would involve potential hazards related to accidental discharge, improper storage, and theft. However, all firearm use would be undertaken by trained WS-CA personnel in accordance with WS Directive 2.615, WS Firearm Use and Safety. WS Directive 2.615 includes policies and guidelines related to the safe storage, transportation, and operation of firearms. With regard to storage, WS Directive 2.615 requires firearms to be stored in a secure location, including, but not limited to, gun safes, vaults, locking gun racks, or cables locking the firearm to an immovable object. Firearms may not be stored in a vehicle overnight unless certain circumstances are met, subject to approval by the appropriate Regional Director. When firearms are needed for immediate use, vehicles must be equipped with a firearm rack or other device that securely holds the firearm and has been approved by the State Director. Firearms stored in government facilities must be stored unloaded. Furthermore, all firearms used by WS-CA employees on the job must be inspected at least annually by the appropriate supervisor or designee. Per the directive, all new WS-CA employees must complete a firearm safety training course corresponding to the firearms the employees will use on the job prior to the use of such firearms. In addition, shooting would be limited to locations where discharge of firearms is legal and safe. Therefore, use of firearms under the IWDM Program would not create a significant hazard to the public or the environment.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not involve the use of toxicants, firearms, or traps. Thus, risks associated with such control methods would not occur under the Non-Lethal Program Alternative. Overall, the Non-Lethal Program Alternative would not result in the creation of a significant hazard to the public or the environment.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative could involve the use of firearms for the lethal control of wildlife on a strictly limited basis. Similar to the Non-Lethal Program Alternative, toxicants, firearms, and/or traps would not be used under this Alternative. As would be the case with the IWDM Program, all firearm use would be undertaken by trained wildlife specialists in accordance with applicable State and federal guidelines and regulations. Lethal means other than shooting would not be permitted under the variation to the Non-Lethal Program Alternative. Therefore, the variation to the Non-Lethal Program Alternative would not create a significant hazard to the public or the environment.

Conclusion

CEQA Baseline

Based on the above, use of firearms under the IWDM Program and the variation to the Non-Lethal Program Alternative, as well as use of chemicals and traps under the IWDM Program, would be considered a part of the environmental baseline and, thus, would not be considered a net change. Both the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative would involve reimbursement/cost-share for use of specific control methods, such as installation of electric fencing, thus requiring analysis in this EIR. However, such new control methods would not result in the creation of a significant hazard to the public or the environment. Therefore, neither the IWDM Program, the Non-Lethal Program Alternative, nor the variation to the Non-Lethal Program Alternative would create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, ***no impact*** would occur.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, compared to the No Program Baseline, the IDWM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Thus, a ***less-than-significant*** effect would occur.

Improvement Measure(s)

None recommended.

4.3-2 Expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires, or be located in or near state responsibility areas or lands classified as very high fire hazard severity zones. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. No impact would occur for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The effect is less than significant for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

CEQA Baseline

IWDM Program

Wildlife damage management operations to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods have been historically carried out by WS-CA in Mendocino County since 1989. As such, use of control methods with potential wildfire risks is part of the environmental baseline, and continued use of such methods would not represent a net new change. Given that the IWDM Program would represent a continuation of existing conditions, no impact would occur related to exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires, including structures located in or near state responsibility areas or lands classified as very high fire hazard severity zones.

Non-Lethal Program Alternative

Unlike the IWDM Program, the Non-Lethal Program Alternative is anticipated to include a cost-share/reimbursement mechanism for the use of electric fences by private land owners. As a result, compared to the IWDM Program, provision of funding for use of electric fences and turbo fladry under the Non-Lethal Program Alternative is considered a new control method, requiring evaluation.

Installation of electric fences would be subject to Section 17152 of the California Food and Agricultural Code, clearing of brush and dry vegetation along the intended alignment of the electric fence would be required to ensure that electrified wires do not directly contact dry vegetation.

With respect to turbo fladry, prior to installation, program wildlife specialists would require clearing of brush and dry vegetation along the intended alignment of the turbo fladry to ensure that electrified wires do not directly contact dry vegetation. Once installed, program specialists would perform regular maintenance checks to ensure that turbo fladry is functioning properly. It should be noted that turbo fladry is currently only used by WS-CA in instances where wolf conflicts occur, due to its efficacy in deterring wolf movements

into pastures. Given that wolves are not known to exist within Mendocino County at this time, use of turbo fladry under the IWDM Program would likely be rare or nonexistent.

Thus, reimbursement for electric fences and/or turbo fladry under the Non-Lethal Program Alternative is not anticipated to result in substantial hazards related to wildland fires. Overall, no impact would occur.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would only permit the lethal use of firearms in exceptional cases where a risk to public health and safety is posed by wildlife. Overall, use of firearms would be reduced relative to what has previously occurred under the IWDM Program. In addition, use of firearms under the variation to the Non-Lethal Program Alternative would not be anticipated to pose a substantial fire risk. Fire risk associated with other new control methods for which the variation would include a cost-share/reimbursement mechanism, such as electric fences, would be identical to the Non-Lethal Program Alternative discussed above. Thus, no impact would occur related to wildfire hazards.

No Program Baseline

IWDM Program

Potential fire hazard risks associated with the IWDM Program are discussed in Chapter 4.5, Public Services, of this EIR. As noted therein, the IWDM Program would include the use of frightening devices, such as pyrotechnics and propane exploders. Pyrotechnics used as frightening devices range from shell crackers or scare cartridges fired from shotguns to noise bombs fired from flare pistols. Pyrotechnics, including devices such as noise bombs and whistle bombs, can be used to frighten birds or mammals, but are most often used to prevent crop depredation by birds or to discourage birds from undesirable roost locations. Noise bombs are firecrackers that travel about 75 feet before exploding. Whistle bombs are similar to noise bombs, but whistle in flight and do not explode. Propane exploders/cannons consist of a tubular metal barrel with an ignition device coupled with a propane tank fuel source, which produces a loud concussive noise. In addition, under the IWDM Program, WS-CA may loan non-lethal electrified fladry (turbo fladry) to private parties. Turbo fladry is a series of cloth or plastic flags attached to an electrified wire.

It should be noted that turbo fladry is currently only used by WS-CA in instances where wolf conflicts occur, due to its efficacy in deterring wolf movements into pastures. Given that wolves are not known to exist within Mendocino County at this time, use of turbo fladry under the IWDM Program would likely be rare or nonexistent. Nonetheless, research projects are currently underway to investigate potential modifications to existing turbo fladry designs to improve efficacy for use with coyotes. Thus, the potential exists that a future modified turbo fladry design could be used under the IWDM Program to deter movements of other target wildlife species, such as coyote, thus minimizing risk of predation within the County.

Pyrotechnics, propane cannons, and turbo fladry, when used improperly, could pose a risk of causing wildfires within the County. For example, without proper clearance, electrified wires associated with turbo fladry may ignite dry vegetation if such vegetation comes into contact with the wires for an extended period of time. Pyrotechnics and turbo fladry could potentially be used throughout Mendocino County under the IWDM Program, including areas of the County which are located in or near SRAs or lands classified as Very High FHSZs. As noted previously, and shown in Figure 4.3-1, substantial portions of the County within SRAs are classified as High or Very High FHSZs. The LRAs around the Willits, Ukiah, Point Arena, Fort Bragg, and Covelo communities are primarily classified by the FRAP as High and Moderate FHSZs, with limited Very High FHSZs located within the western portion of the City of Ukiah (see Figure 4.3-2).

However, neither pyrotechnics nor propane exploders have been used during the past 10 years within Mendocino County. The infrequent use of pyrotechnics in Mendocino can be primarily attributed to the infrequent requests for assistance with the type of damage such particular tools were designed to alleviate. Pyrotechnics are most effective at causing a startle response in flocking birds feeding or loafing in open environments such as cropland or airport settings. Pyrotechnic use in Mendocino County is limited by the varied topography, type of agricultural resources grown, and the lack of high traffic airports. In the event that such devices are used under the IWDM Program, compliance with applicable federal, State, and local regulations, as well as WS-CA Directive 2.627, Pyrotechnics, would ensure that a substantial fire hazard risk would not occur. Sections 12500 through 12728 of the California Health and Safety Code provide specific standards regarding the permitting and use of pyrotechnics. Per WS-CA Directive 2.627, employees assigned to use pyrotechnic launching devices must receive safety training in their use and must be issued the “Protect Yourself: Pest Control Pyrotechnics” OSHA QuickCard. The QuickCard includes direction on the following: using a 45-degree barrel angle; aiming away from dry vegetation, buildings, and vehicles, with consideration given to wind direction and potential overhead obstruction; and carrying a fire extinguisher.⁸ In addition, WS-CA Directive 2.627 prohibits overnight storage of pyrotechnics or other explosive material in residences and prohibits storage of pyrotechnics within the same container as the applicable detonator. During transportation on public roadways, pyrotechnics must be locked in a secure container. Each vehicle used to transport pyrotechnics must be equipped with two fire extinguishers.

Manufacturers of propane cannon devices recommend that the cannon and associated propane tank are kept away from any flammable material, such as crops, and kept clear of any heat sources. In instances where the cannon must be placed on top of grass, a non-flammable material should be placed on the ground underneath the cannon. WS-CA follows all manufacturer safety directions when using any device for wildlife damage management. As such, if a propane cannon were to be used by WS-CA staff in Mendocino County, appropriate fire safety precautions would be observed. Based on the above, use of pyrotechnics and/or propane exploders under the IWDM Program would be infrequent, and

⁸ Occupational Safety and Health Administration. *OSHA Quick Card, Protect Yourself, Pest Control Pyrotechnics*. 2007.

would be subject to compliance with applicable regulations and guidelines designed to minimize fire hazard risks.

With regard to the loaning of turbo fladry, WS-CA would meet with landowners prior to installation. Oftentimes the CDFW, other federal and State agencies, and environmental organizations are involved as well. WS-CA would advise landowners on where and how to install the fladry, proper maintenance, duration of use, etc. To date, multiple agencies, including WS-CA, landowner(s), and environmental organizations have worked together as a team to install turbo fladry. Prior to installation, WS-CA would require clearing of brush and dry vegetation along the intended alignment of the turbo fladry to ensure that electrified wires do not directly contact dry vegetation. Once installed, as is routine, WS-CA would perform regular maintenance checks to ensure that turbo fladry is functioning properly. It should be noted that electrified fences, including turbo fladry, would be required to comply with Section 17152 of the California Food and Agricultural Code, which requires that the electrical current used for any electrified fences in the State must be limited and regulated by an electrical controller which meets or exceeds the standards or specifications of the National Electrical Code of the National Fire Protection Association, international standards of the International Electrotechnical Commission, or the Underwriters Laboratories for intermittent type electric fence or electrified fence controllers. Compliance with such standards would help to ensure that electrified wires carry the minimum amount of current necessary to deter wildlife without resulting in a fire hazard.

Overall, risk of wildfire would be managed by WS-CA through evaluation of the environment prior to tool selection, occupational safety information, and agency directives. WS-CA staff would evaluate all methods for use with the biological, environmental, social, and cultural conditions present at the location. Risk of wildfire falls into the environmental category of evaluation. While pyrotechnics might be a biologically and socially acceptable way to deal with bird damage to crops, a neighboring dry brush field is an environmental factor that may lead a specialist to choose another tool such as scarecrows or distress calls. Specialists may also modify tool use in certain environmental situations, such as restricting use of methods to cooler times of day or recommending vegetation management take place prior to application of a technique.

Based on the above, implementation of the IWDM Program would not expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires. While the IWDM Program could be implemented in or near SRAs or lands classified as Very High FHSZs, implementation would not result in any of the following, identified in Section XX, Wildfire, of Appendix G of the CEQA Guidelines, amended on December 28, 2018:

- Substantially impair an adopted emergency response plan or emergency evacuation plan;
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;

- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Specifically, the IWDM Program would not conflict with any provisions of the County's MHMP and would not result in development of new structures or infrastructure that would be exposed to, or exacerbate, fire risks. In addition, the IWDM Program would not include any grading activities or otherwise alter drainage patterns or slope stability. Thus, the IWDM Program would result in a less-than-significant effect.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative could involve the use of all wildlife control methods that would be implemented under the IWDM Program with the exception of the lethal control methods and those methods typically associated with lethal disposition of animals, such as live capture devices. Consequently, the Non-Lethal Program Alternative could involve the use of pyrotechnics and propane exploders. As noted above, such devices have the potential to result in wildfire hazards if used improperly. In addition, under the Alternative, property owners could be reimbursed for the purchase and installation of electric fences and/or turbo fladry as a predator deterrent.

Electric fences would involve similar fire hazards as turbo fladry. Similar to turbo fladry, installation of electric fences would be subject to Section 17152 of the California Food and Agricultural Code, and WS-CA would require clearing of brush and dry vegetation along the intended alignment of the electric fence to ensure that electrified wires do not directly contact dry vegetation. In addition, use of pyrotechnics and/or propane exploders under the Non-Lethal Program Alternative would be infrequent, and would be subject to compliance with applicable regulations and guidelines designed to minimize fire hazard risks.

Based on the above, similar to the proposed project, the Non-Lethal Program Alternative would not expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires. While the Non-Lethal Program Alternative could be implemented in or near SRAs or lands classified as Very High FHSZs, implementation would result in a less-than-significant effect to people or the environment related to wildfires.

Variation to the Non-Lethal Program Alternative

Under the variation to the Non-Lethal Program Alternative, use of firearms would be permitted for the lethal control of wildlife on a strictly limited basis. However, as noted previously, use of firearms would not be anticipated to pose a substantial fire risk. Fire risk associated with other non-lethal control methods for which the variation would include a

cost-share/reimbursement mechanism, such as electric fences, would be identical to the Non-Lethal Program Alternative discussed above. Therefore, the analysis and conclusions presented above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, while implementation could occur within or near SRAs and on lands classified as Very High FHSZs, neither the IWDM Program, the Non-Lethal Program Alternative, nor the variation to the Non-Lethal Program Alternative would expose people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires. Therefore, *no impact* would occur.

Mitigation Measure(s)

None required.

No Program Baseline

Use of pyrotechnics and/or propane exploders under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would be infrequent, and would be subject to compliance with applicable regulations and guidelines designed to minimize fire hazard risks. In addition, while the Non-Lethal Program Alternative could include, and seek reimbursement for, installation of electric fences, electrical current used for such fences would be required to meet established standards. As discussed previously, risk of wildfire would be managed through evaluation of the environment prior to tool selection, occupational safety information, and agency directives. Staff would evaluate all methods for use with the biological, environmental, social, and cultural conditions present at the location, including wildfire risks. It should be noted that CAL FIRE has not documented any previous occurrences of wildfires started by electric fences, turbo fladry, or pyrotechnics within Mendocino County.

Based on the above, while implementation could occur within or near SRAs and on lands classified as Very High FHSZs, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not expose people or structures, either directly or indirectly, to substantial risk of loss, injury or death involving wildland fires. Thus, a *less-than-significant* effect would occur.

Improvement Measure(s)

None recommended.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable, or increase other

environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

The following discussion of impacts is based on the implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative in combination with buildout of the Mendocino County General Plan.

4.3-3 Creation of a significant cumulative hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The cumulative impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The cumulative effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

The Mendocino County General Plan EIR includes an analysis of potential impacts related to the release of hazardous materials associated with buildout of the General Plan. As noted in the General Plan EIR, development within the County would be required to comply with Sections 8.70.020 and 9.28.030 of the County Code of Ordinances, as well as Policies DE-195, DE-200, and DE-201 from the General Plan, and would be subject to all applicable federal, State, and local regulations regarding the transportation of explosives, poisonous inhalation hazards, and radioactive materials. Compliance with such would reduce cumulative environmental impacts associated with the routine transport, use, and disposal of hazardous materials to less-than-significant levels.

Hazardous materials and other public health and safety issues are generally site-specific and/or project-specific, and would not be significantly affected by future development within the rural areas of the County where wildlife damage management would typically occur. Nonetheless, a discussion of cumulative hazards associated with the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative is provided herein.

CEQA Baseline

IWDM Program

The proposed continuation of the IWDM Program would not involve any changes to the methods that are already considered part of the baseline conditions and, thus, would not create a significant cumulative hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials, or

through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Thus, a less-than-significant cumulative impact would occur.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not involve use of firearms or toxicants. The only net new non-lethal control methods associated with the Alternative would be reimbursement/cost-share for specific non-lethal control methods, such as installation of fencing, that were not previously implemented by WS-CA within the County. However, such methods would not contribute to cumulative hazards issues, as hazards are generally site-specific rather than cumulative in nature. In addition, as discussed under Impact 4.3-1 above, the new control methods associated with the Alternative would not otherwise involve creation of substantial hazards or involve hazardous materials. Thus, a less-than-significant cumulative impact would occur.

Variation to the Non-Lethal Program Alternative

As noted under Impact 4.3-1 above, use of firearms under the variation to the Non-Lethal Program Alternative would be reduced relative to what has previously occurred under the IWDM Program and would not be considered a net new method. With respect to hazards associated with other non-lethal methods for which the variation would provide reimbursement/cost-share, the conclusions presented above for the Non-Lethal Program Alternative are applicable to the variation. Thus, the variation to the Non-Lethal Program Alternative would result in a less-than-significant cumulative impact related to creation of a significant cumulative hazard to the public or the environment.

No Program Baseline

IWDM Program

As discussed above, all impacts related to hazards and hazardous materials were found to be less than significant for the IWDM Program. Hazardous materials and other public health and safety issues are generally site-specific and/or project-specific, and would not be significantly affected by other development within the rural areas where wildlife damage management operations would typically occur. Thus, any effects associated with the use of hazardous materials under the IWDM Program would not be expected to combine with effects from cumulative development within the County. Similar to the IWDM Program, proposed and pending projects within the County would be subject to federal, State, and local hazardous materials management requirements, which would minimize potential risks associated with increased hazardous materials use in the community. Therefore, cumulative effects associated with hazardous materials transport, storage, and use associated with General Plan buildout, as well as the IWDM Program, would be less than significant.

Non-Lethal Program Alternative

As discussed previously, all impacts related to hazards and hazardous materials were found to be less than significant for the Non-Lethal Program Alternative. Hazardous materials and other public health and safety issues are generally site-specific and/or project-specific, and would not be significantly affected by other development within the project area. Thus, any effects associated with the use of hazardous materials under the Non-Lethal Program Alternative would not be expected to combine with effects from cumulative development within the County. Proposed and pending projects within the County would be subject to federal, State, and local hazardous materials management requirements, similar to the Non-Lethal Program Alternative, which would minimize potential risks associated with increased hazardous materials use in the community. Therefore, cumulative effects associated with hazardous materials transport, storage, and use associated with General Plan buildout, as well as the Non-Lethal Program Alternative, would be less than significant.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would involve the same methods as the Non-Lethal Program Alternative, in addition to the use of firearms for the lethal control of wildlife on a strictly limited basis. Thus, the analysis and conclusions presented above are applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, when considered in the context of other proposed and pending projects in the region, would result in a ***less-than-significant*** cumulative impact associated with hazardous materials transport, storage, and use.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, when considered in the context of other proposed and pending projects in the region, would result in a ***less-than-significant*** cumulative effect associated with hazardous materials transport, storage, and use.

Improvement Measure(s)

None recommended.

4.3-4 Cumulative exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires. Based on the analysis below, the findings are as follows:

- **CEQA Baseline.** The cumulative impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.
- **No Program Baseline.** The cumulative effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.

The General Plan EIR concluded that with compliance with Section 8.80.020 of the County Code of Ordinances (related to response to emergencies in unincorporated areas of the County that are not within a legal fire or rescue protection jurisdiction), Public Resources Code Sections 4290 and 4291 (related to fire safety requirements for new building construction and defensible space for new and existing structures), as well as applicable General Plan policies related to wildfire risk from existing and new development, impacts related to wildland fires would be less-than-significant.

CEQA Baseline

IWDM Program

As noted under Impact 4.3-2, use of lethal and non-lethal methods under the IWDM Program that have a potential wildfire risk has historically occurred within the County and is part of the baseline setting. CAL FIRE has indicated that wildlife damage management methods have not contributed to wildfires in the past. Given that the control methods associated with the IWDM Program do not represent a net change from the baseline setting, a less-than-significant cumulative impact would occur related to the cumulative exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would involve reimbursement/cost-share for specific non-lethal control methods, such as installation of fencing. However, as noted above, such control methods would not result in the creation of new wildfire hazards. In addition, the County does not anticipate substantial amounts of new development within rural areas of the County and, thus, wildfire risks associated with new development would not be likely to combine with the effects of the Non-Lethal Program Alternative. Therefore, the Non-Lethal Program Alternative would result in a less-than-significant cumulative impact related to the cumulative exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires.

Variation to the Non-Lethal Program Alternative

As noted under Impact 4.3-2 above, use of firearms under the variation to the Non-Lethal Program Alternative would be reduced relative to what has previously occurred under the IWDM Program and would not be considered a net new method. With respect to wildfire risk associated with other non-lethal methods for which the variation would provide reimbursement/cost-share, the conclusions presented above for the Non-Lethal Program Alternative are applicable to the variation. Thus, the variation to the Non-Lethal Program Alternative would result in a less-than-significant cumulative impact related to the cumulative exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires.

No Program Baseline

IWDM Program

As discussed under Impact 4.3-2 above, the control methods that would be implemented within the County under the IWDM Program would not exacerbate wildfire risks. Other proposed and pending projects within the County would be subject to federal, State, and local requirements related to wildfire prevention, similar to the IWDM Program, which would minimize potential risks associated with wildfire hazards in the community. In addition, wildlife damage management operations associated with the IWDM Program would occur primarily within rural areas of the County where new development would be relatively limited. Therefore, cumulative wildfire effects associated with General Plan buildout, as well as the IWDM Program, would be less than significant.

Non-Lethal Program Alternative

As discussed under Impact 4.3-2 above, the control methods that would be implemented within the County under the Non-Lethal Program Alternative would not exacerbate wildfire risks. Other proposed and pending projects within the County would be subject to federal, State, and local requirements related to wildfire prevention, similar to the Alternative, which would minimize potential risks associated with wildfire hazards in the community. In addition, wildlife damage management operations associated with the Non-Lethal Program Alternative would occur primarily within rural areas of the County where new development would be relatively limited. Therefore, cumulative wildfire effects associated with General Plan buildout, as well as the Non-Lethal Program Alternative, would be less than significant.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would not involve any potential impacts related to wildfire risks beyond those discussed above for the IWDM Program and the Non-Lethal Program Alternative. Therefore, the analysis and conclusions presented above are applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, when considered in the context of buildout of the Mendocino County General Plan, would result in a ***less-than-significant*** cumulative impact associated with cumulative exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, compared to the No Program Baseline, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, when considered in the context of buildout of the Mendocino County General Plan, would result in a ***less-than-significant*** cumulative effect associated with cumulative exposure of people or structures, either directly or indirectly, to the risk of loss, injury or death involving wildland fires.

Improvement Measure(s)

None recommended.

4.4 NOISE

4.4

NOISE

4.4.1 INTRODUCTION

The purpose of the Noise chapter of this EIR is to describe the existing noise environment within Mendocino County and to evaluate the potential noise level increases and vibration that could occur as a result of implementation of the IWDM Program and the Non-Lethal Program Alternative. Where noise and/or vibration sources are identified, the chapter evaluates associated effects in the context of applicable noise standards. Information included in this chapter is drawn primarily from the Environmental Noise & Vibration Assessment prepared for the proposed project by Bollard Acoustical Consultants, Inc. (BAC) (Appendix F),¹ as well as the Mendocino County General Plan,² and the Mendocino County General Plan EIR.³

4.4.2 EXISTING ENVIRONMENTAL SETTING

The Existing Environmental Setting section includes a discussion of acoustical terminology and existing traffic noise and ambient noise levels in the project vicinity.

Fundamentals and Terminology

Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), such variations can be heard and hence are called sound. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. Thus, the decibel (dB) scale was devised. The dB scale uses the hearing threshold (20 micropascals of pressure), as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the dB scale is that changes in noise levels correspond closely to human perception of relative loudness. Table 4.4-1 shows common noise levels associated with various sources.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level (SPL) and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting network. As a result, all sound levels reported in this chapter are in terms of A-weighted dB.

¹ Bollard Acoustical Consultants. *Environmental Noise & Vibration Assessment. Integrated Wildlife Damage Management Program EIR, Mendocino County, California*. January 29, 2019.

² Mendocino County. *General Plan*. August 2009.

³ Mendocino County. *General Plan Update Draft Environmental Impact Report, SCH: 2008062074*. September 2008.

**Table 4.4-1
 Typical Sound Levels of Common Noise Sources**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	--110--	Rock Band
Jet Fly-over at 300 meters (1,000 feet)	--100--	
Gas Lawn Mower at 1 meter (3 feet)	--90--	
Diesel Truck at 15 meters (50 feet), at 80 kilometers/hour (50 miles/hour)	--80--	Food Blender at 1 meter (3 feet) Garbage Disposal at 1 meter (3 feet)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 meters (100 feet)	--70--	Vacuum Cleaner at 3 meters (10 feet)
Commercial Area Heavy Traffic at 90 meters (300 feet)	--60--	Normal Speech at 1 meter (3 feet)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

Source: Caltrans, Technical Noise Supplement, Traffic Noise Analysis Protocol, November 2009.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn} , and exhibits strong correlation with community response to noise generated by transportation noise sources.

The Day-night Average Level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 dB weighting applied to noise occurring during nighttime (10:00 PM to 7:00 AM) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, the metric tends to disguise short-term variations in the noise environment, and is a poor indicator of anticipated public reaction to brief periods of elevated impulsive noise.

For this analysis, the most pertinent data consist of baseline background (L_{25} and L_{50}) and maximum (L_{max}) noise levels. The L_{25} and L_{50} noise level descriptors represent the average noise levels exceeded 25 and 50 percent of a given hour, respectively. The L_{max} noise level descriptor represents the highest root-square mean measured over a given period of time.

Characteristics of Impulsive Noise

Sounds with noticeable impulsive content, such as the discharge of firearms, have been shown to be more annoying than the A-weighted sound level alone suggests, likely because of the potential “startle effect” of impulsive noise sources. Many noise standards apply a penalty, or correction, of 5 dB to impulsive sounds to account for the higher level of annoyance. By way of example, the Mendocino County Noise Ordinance applies a -5 dB adjustment for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

Noise generated by firearms usage consists of bursts of high-energy impulsive sound. Such a sound type differs from sound generated by common community noise sources which may also be considered impulsive, such as punch presses or other industrial noise sources. In the publication, *A Review of Research on the Annoyance Caused by Impulse Sounds Produced by Small Firearms*, a penalty of 5 dB for firearms is considered to be too small for firearms, and a penalty of 10 dB is reported to be more appropriate. Other methods of assessing noise effects of firearms usage utilize the C-weighting scale. Because the C-weighting scale places greater emphasis on low-frequency noise than the A-weighting scale, the scale is considered to be a better indicator of likely public response to impulsive noises with considerable low-frequency content, such as sonic booms and artillery fire. However, for small arms fire (e.g., hunting rifles, handguns, and shotguns), utilization of the A-weighting scale is appropriate because frequency analysis reveals that most of the sound energy is in the middle and upper frequency bands.

Sound Propagation Characteristics

Effects of Distance on Sound Propagation

In an ideal, homogenous, atmosphere, the sound pressure of a point source decreases at a rate of six dB per doubling of distance from the noise source. The six dB decrease is due to spherical spreading of sound as sound waves radiate away from the source. Due to atmospheric conditions and the presence of obstacles, the sound pressure levels measured outdoors are almost always different than levels predicted based on spherical spreading alone.

The important factors that affect sound propagation are sound absorption in the air, the presence of barriers and ground cover, the effects of wind and temperature gradients, and the acoustic effect of the presence of the ground. Such factors tend to be interrelated, in that the effect of one will often be dependent on the presence of the others.

Atmospheric (Molecular) Absorption and Anomalous Excess Attenuation

Air absorbs sound energy. The amount of absorption is dependent on the temperature and humidity of the air, as well as the frequency of the sound. Families of curves have been developed which relate such variables to molecular absorption coefficients, frequently expressed in terms of dB per thousand feet. For standard day atmospheric conditions, defined as 59 degrees Fahrenheit and 70 percent relative humidity, the molecular absorption coefficient at 1000 hertz is 1.5 dB per thousand feet. Molecular absorption is greater at higher frequencies, and reduced at lower frequencies. In

addition, the molecular absorption coefficients generally increase in drier conditions. Similarly, as temperature increases, molecular absorption coefficients typically increase as well.

Anomalous excess attenuation caused by variations in wind speed, wind direction, and thermal gradients in the air can typically be estimated using an attenuation rate of 1.5 dB per thousand feet for a noise source generating a 1000 hertz signal. As with molecular absorption, anomalous excess attenuation typically decreases with lower frequencies and increases with higher frequencies. For the purposes of this evaluation, a single attenuation factor of 1.5 dB per thousand feet of distance was used for project-generated noise sources.

Effects of Barriers and Ground Cover

A noise barrier is any impediment which intercepts the path of sound as sound waves travels from source to receiver. Such impediments can be natural, such as a hill or other naturally occurring topographic feature which blocks a receptor's view of the source, vegetative, such as heavy tree cover which similarly blocks the source from view of the receptor, or man-made, such as a solid wall, earthen berm, or structure constructed between the noise source and receptor. Regardless of the type of impediment, the physical properties of sound are such that, at the point where the line-of-sight between the source and receiver is interrupted by a barrier, a five dB reduction in sound occurs.

The effectiveness of a barrier is a function of the difference in distance sound travels on a straight-line path from source to receptor versus the distance sound must travel from source to barrier, then barrier to receptor. Such a difference is referred to as the "path length difference", and is used to calculate the Fresnel Number. A barrier's effectiveness is a function of the Fresnel number and frequency content of the source. In general, the more acute the angle of the sound path created by the introduction of a barrier, the greater the noise reduction provided by the barrier.

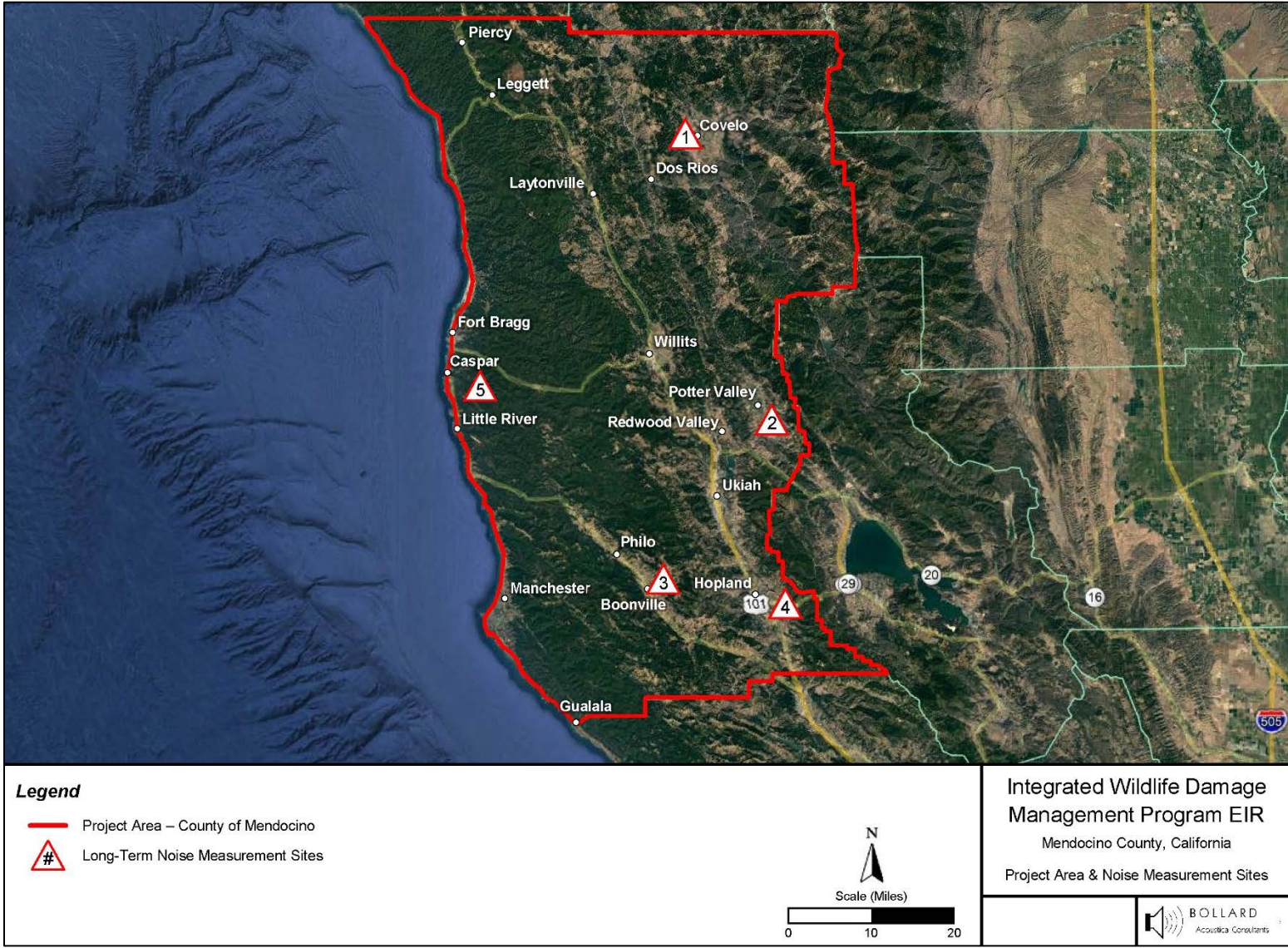
Existing Noise Sensitive Receptors

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the primary intended use of the land. Places where people live, sleep, recreate, worship, and study are generally considered to be sensitive to noise because intrusive noise can be disruptive to such activities. Because of the rural nature of the areas of Mendocino County where the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would most likely be implemented, the noise-sensitive land uses which would potentially be affected by the project consist primarily of rural residential uses.

Existing Ambient Noise Levels

To generally quantify the existing ambient noise environment in the rural areas of the County, BAC conducted continuous noise level measurements at five sites from September 26 through 30, 2018 (see Figure 4.4-1). The locations of the noise measurement sites are described as follows:

**Figure 4.4-1
 Noise Measurement Locations**



1. Approximately 250 feet south of Valley View Cemetery in Covelo, CA.
2. Approximately 50 feet south of Burris Lane in Potter Valley, CA.
3. Approximately 25 feet west of a private road in Boonville, CA.
4. Approximately 25 feet east of Old Toll Road in Hopland, CA.
5. Approximately 25 feet north of Caspar Little Lake Road near Caspar, CA.

The noise measurement site locations were selected in an attempt to break up the vast geographic area within the County into regions, as well as to capture ambient noise levels in areas where wildlife conflicts are most likely to occur.

The ambient measurement surveys spanned the continuous 120-hour period of the measurement dates noted above. Weather conditions present during the monitoring program were typical for the season, with mild evening and morning temperatures, warm afternoons, variable skies, low to moderate relative humidity, and calm to moderate winds. Adverse weather conditions with the potential to have anomalously affected the ambient noise survey results did not occur. The results of the noise measurements are summarized in Table 4.4-2.

Table 4.4-2								
Summary of Long-Term Noise Measurement Survey Results								
Site	Date	L_{dn}, dB	Average Measured Hourly Noise Levels (dB)					
			Daytime (7 AM to 10 PM)			Nighttime (10 PM to 7 AM)		
			L₅₀	L₂₅	L_{max}	L₅₀	L₂₅	L_{max}
1	9/26/18	56	35	37	55	39	41	49
	9/27/18	57	35	37	53	41	43	50
	9/28/18	57	40	43	57	44	46	57
	9/29/18	53	34	37	52	43	44	51
	9/30/18	55	34	37	59	42	43	53
2	9/26/18	41	29	32	54	28	29	46
	9/27/18	48	31	34	61	48	29	46
3	9/26/18	49	38	40	61	40	42	50
	9/27/18	49	38	41	61	41	42	50
	9/28/18	46	38	40	63	34	35	50
	9/29/18	48	38	41	63	40	41	46
	9/30/18	46	37	39	61	37	38	47
4	9/26/18	52	41	43	63	41	43	57
5	9/30/18 to 10/1/18	36	25	29	47	27	27	43
Note: BAC determined that a battery malfunction occurred within the noise meters located at Sites 2, 4 and 5 during the monitoring period. As a result, the summarized data for such sites only include measurement data from certain days. The battery malfunctions did not affect the accuracy of the data reported above.								
<i>Source: Bollard Acoustical Consultants, Inc., 2019.</i>								

As shown in the table above, measured existing ambient L_{dn} noise levels were highest at Site 1 during the monitoring period (five-day average of 56 dB L_{dn}). Averaged measured background noise levels (L₅₀) were approximately 36 and 42 dB during daytime and nighttime hours, respectively. Averaged measured background noise levels (L₂₅) were approximately 38 and 43 dB

during daytime and nighttime hours, respectively. Averaged measured maximum noise levels (L_{\max}) were 55 and 52 dB during daytime and nighttime hours, respectively.

The averaged measured L_{dn} value for Site 2 over the two-day monitoring period was 45 dB. Averaged measured L_{50} noise levels were approximately 30 and 38 dB during daytime and nighttime hours, respectively. Averaged measured L_{25} levels were approximately 33 and 29 dB during daytime and nighttime hours, respectively. The averaged measured maximum noise levels were 58 and 46 dB L_{\max} during daytime and nighttime hours, respectively.

The averaged measured L_{dn} for Site 3 over the five-day monitoring period was 48 dB. Averaged measured L_{50} noise levels during daytime and nighttime hours were consistent (38 and 39 dB, respectively). The averaged measured L_{25} noise level during both daytime and nighttime hours was approximately 40 dB. The averaged maximum noise levels measured at Site 3 were 62 and 49 dB L_{\max} during daytime and nighttime hours, respectively.

The measured L_{dn} at Site 4 was 48 dB over the monitoring period. The measured L_{50} noise level was approximately 41 dB during both daytime and nighttime hours. Similarly, the measured L_{25} level was approximately 43 dB during both daytime and nighttime hours. Finally, the averaged maximum noise levels at Site 4 were approximately 63 and 57 dB L_{\max} during daytime and nighttime hours, respectively.

The measured day-night noise level of 36 dB L_{dn} at Site 5 was the lowest of all of the monitoring sites. This was most likely due to a combination of the rural nature of the site and infrequency of vehicle passbys during the monitoring period. The measured L_{50} noise levels during daytime and nighttime hours were relatively consistent (25 and 27 dB, respectively), as were the measured L_{25} noise levels during daytime and nighttime hours (29 and 27 dB, respectively). The averaged maximum noise levels at Site 5 were approximately 47 and 43 dB L_{\max} during daytime and nighttime hours, respectively.

Existing Vibration Environment

During site visits on September 26, 2018, vibration levels were below the threshold of perception at the noise monitoring sites. However, the existing vibration environment within the overall County is highly dependent upon proximity to vibration sources (e.g., vehicle traffic, heavy equipment, etc.), and is thereby difficult to quantify. Thus, it is expected that the vibration environment within close proximity to roadways or heavy equipment operations would be elevated when compared to locations more rural in nature. As a result, the existing vibration environment throughout Mendocino County is highly variable.

The Caltrans 2013 publication, *Transportation and Construction Vibration Guidance Manual*, contains criteria for the assessment of human response to vibration. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. The Caltrans criteria applicable to human responses to vibration are shown below in Table 4.4-3.

Table 4.4-3 Human Response to Transient Vibration	
Human Response/Structure	Peak Particle Velocity (in/sec)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035
<i>Source: Bollard Acoustical Consultants, Inc., 2019.</i>	

4.4.3 REGULATORY CONTEXT

The following discussion contains a summary of the regulatory controls pertaining to noise and vibration, including federal, State, and local laws and ordinances.

Federal Regulations

Federal regulations related to noise and vibration are summarized in the following sections.

U.S. Forest Service

The County of Mendocino contains land that is managed by the United States Forest Service (USFS), which is an agency within the United States Department of Agriculture (USDA). The USFS is subject to regulations established in Title 36 (Parks, Forests, and Public Property) of the Code of Federal Regulations (CFR). Should the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative be implemented on USFS land, the project would be subject to CFR criteria. The CFR criteria applicable to the project have been reproduced and are provided below:

36 CFR 261.1a – Special use authorizations, contracts and operating plans.

The Chief, each Regional Forester, each Forest Supervisor, and each District Ranger or equivalent officer may issue special-use authorizations, award contracts, or approve operating plans authorizing the occupancy or use of a road, trail, area, river, lake or other part of the National Forest System in accordance with authority which is delegated elsewhere in this chapter or in the Forest Service Manual. These Forest Officers may permit in the authorizing document or approved plan an act or omission that would otherwise be a violation of a [36 CFR 261] subpart A or subpart C regulation or a [36 CFR 261] subpart B order. In authorizing such uses, the Forest Officer may place such conditions on the authorization as that officer considers necessary for the protection or administration of the National Forest System, or for the promotion of public health, safety, or welfare.

36 CFR 261 Subpart A contains a broad discussion of prohibitions applicable to acts and omissions occurring in the National Forest System or on a National Forest System road or trail, as well as property administered by the USFS. 36 CFR 261 Subpart B describes the process by which the Chief, each Regional Forester, each Experiment Station Director, the Administrator of the Lake Tahoe Basin Management Unit, and each Forest Supervisor may issue orders which close or

restrict the use of described areas within the area over which they have jurisdiction. Lastly, 36 CFR 261 Subpart C provides for issuance of regulations by the Chief, and each Regional Forester to whom the Chief has delegated authority, prohibiting acts or omissions within all or any part of the area over which they have jurisdiction.

36 CFR 261.10 – Occupancy and use.

The following are prohibited:

- (d) Discharging a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:
 - (1) In or within 150 yards of a residence, building, campsite, developed recreation site, or occupied area, or
 - (2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any person or property is exposed to injury or damage as a result in such discharge.
 - (3) Into or within any cave.
- (i) Operating or using in or near a campsite, developed recreation site, or over an adjacent body of water without a permit, any device which produces noise, such as a radio, television, musical instrument, motor or engine in such manner and at such a time so as to unreasonably disturb any person.
- (k) Use or occupancy of National Forest System land or facilities without special-use authorization when such authorization is required.
- (l) Violating any term or condition of a special-use authorization, contract or approved operating plan.
- (p) Use or occupancy of National Forest System lands or facilities without an approved operating plan when such authorization is required.

36 CFR 261.16 – Developed recreation sites.

The following are prohibited:

- (j) Bringing in or possessing an animal, other than a service animal, unless it is crated, caged, or upon a leash not longer than six feet, or otherwise under physical restrictive control.
- (k) Bringing in or possessing in a swimming area an animal, other than a service animal.

U.S. Department of Defense – U.S. Army Corps of Engineers

The County of Mendocino contains public land that is managed by the United States Army Corps of Engineers (USACE), which is an agency within the United States Department of Defense (DOD). The USACE is subject to regulations established in Title 36 (Parks, Forests, and Public Property) of the CFR. Should WS-CA staff implement the IWDM Program on USACE land, the program would be subject to CFR criteria. The CFR criteria applicable to the project has been reproduced and is provided below:

36 CFR 327.11 – Control of animals.

- (a) No person shall bring or allow dogs, cats, or other pets into developed recreation areas or adjacent waters unless penned, caged, on a leash under six feet in length, or otherwise physically restrained. No person shall allow animals to impede or restrict otherwise full and free use of project lands and waters by the public. No person shall allow animals to bark or emit other noise which unreasonably disturbs other people. Animals and pets, except properly trained animals assisting those with disabilities (such as seeing-eye dogs), are prohibited in sanitary facilities, playgrounds, swimming beaches, and any other areas so designated by the District Commander. Abandonment of any animal on project lands or waters is prohibited. Unclaimed or unattended animals are subject to immediate impoundment and removal in accordance with state and local laws.

36 CFR 327.12 – Restrictions.

- (b) Quiet shall be maintained in all public use areas between the hours of 10 p.m. and 6 a.m., or those hours designated by the District Commander. Excessive noise during such times which unreasonably disturbs persons is prohibited.
- (d) The operation or use of any sound producing or motorized equipment, including but not limited to generators, vessels or vehicles, in such a manner as to unreasonably annoy or endanger persons at any time or exceed state or local laws governing noise levels from motorized equipment is prohibited.

36 CFR 327.13 – Explosives, firearms, other weapons and fireworks.

- (a) The possession of loaded firearms, ammunition, loaded projectile firing devices, bows and arrows, crossbows, or other weapons is prohibited unless:
 - (1) In the possession of a Federal, state or local law enforcement officer; or
 - (4) Written permission has been received from the District Commander.
- (b) Possession of explosives or explosive devices of any kind, including fireworks or other pyrotechnics, is prohibited unless written permission has been received from the District Commander.

Bureau of Land Management

The County of Mendocino contains public land that is managed by the Bureau of Land Management (BLM), which is an agency within the United States Department of the Interior (DOI). The BLM is subject to regulations established in Title 43 (Public Land: Interior) of the CFR. Should the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative be implemented on BLM land, the project would be subject to CFR criteria. The CFR criteria applicable to the project have been reproduced and are provided below:

43 CFR 8365.2-5 – Public health, safety and comfort.

- On developed recreation sites and areas, unless otherwise authorized, no person shall:
- (a) Discharge or use firearms, other weapons, or fireworks;
 - (b) Bring an animal, except a Seeing Eye or Hearing Ear dog, to a swimming area.

43 CFR 8365.2-2 – Audio devices.

On developed recreation sites, or areas, unless otherwise authorized, no person shall:

- (a) Operate or use any audio device such as a radio, television, musical instrument, or other noise producing device or motorized equipment in a manner that makes unreasonable noise that disturbs other visitors.

State Regulations

The following are the State environmental laws and policies relevant to noise and vibration.

California Department of Parks and Recreation

The County of Mendocino contains land that is managed by the California Department of Parks and Recreation (CA State Parks), which is an agency of the State of California. The CA State Parks is subject to regulations established in Division 3 of Title 14 (Department of Parks and Recreation) of the California Code of Regulations (CCR). Should the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative be implemented on CA State Parks land, the program would be subject to CCR criteria. The CCR criteria applicable to the project have been reproduced and are provided below:

Special Permits (14 CCR 4309)

The Department may grant a permit to remove, treat, disturb, or destroy animals or geological, historical, archaeological or paleontological materials; and any person who has been properly granted such a permit shall to that extent not be liable for prosecution for violation of the foregoing.

Control of Animals (14 CCR 4312)

- (a) No person shall permit a dog to run loose, or turn loose any animal in any portion of a unit, except upon written authorization by the District Superintendent.
- (b) No person shall keep an animal in any unit except under his/her immediate control.
- (c) No person shall keep a noisy, vicious, or dangerous dog or animal or one which is disturbing to other persons, in any unit and remain therein after he/she has been asked by a peace officer to leave.
- (d) No person shall permit a dog or a cat to remain outside a tent, camper, or enclosed vehicle during the night.
- (e) No person shall bring a dog into, permit a dog to enter or remain, or possess a dog in units under control of Department of Parks and Recreation unless the dog is on leash of no more than six feet in length and under the immediate control of a person or confined in a vehicle.
- (f) No person shall bring a dog into, permit a dog to enter or remain, or possess a dog:
 - 1) beyond the limits of campgrounds, picnic areas, parking areas, roads, structures or in posted portions of units except as provided elsewhere in this section.
 - 2) on any beach adjacent to any body of water in any unit except in portions of units designated for dogs.

- (g) In state recreation areas open to hunting pursuant to Public Resources Code, Section 5003.1, dogs may be used to assist in hunting. Such dogs shall not be permitted to pursue or take any wildlife other than that being hunted.
- (h) Subsections e) and f) shall not apply to trained "seeing eye," "signal," or "service" dogs used to guide a physically impaired person there present, or dogs that are being trained to become "seeing eye," "signal," or "service" dogs.
- (g) Grazing. No person shall graze, herd or permit livestock to enter or remain inside a unit without specific written authorization of the Department, except for grazing by animals used for riding or packing under direct control of visitors or concessionaires

Peace and quiet (14 CCR 4320)

- (c) No person shall, at any time, use outside machinery or electronic equipment including electrical speakers, radios, phonographs, televisions, or other devices, at a volume which is, or is likely to be, disturbing to others without specific permission of the Department.

California Department of Forestry and Fire Protection (CAL FIRE) – Jackson Demonstration State Forest

Mendocino County includes Jackson Demonstration State Forest (JDSF), which is managed by CAL FIRE. Demonstration State Forests are public lands that by legislative mandate have a unique and distinctly different purpose from parks and wilderness areas. Demonstration State Forests are mandated to conduct research, demonstration, and education on sustainable forestry practices using active forest management, including periodic timber harvests. Jackson Demonstration State Forest is a 48,652-acre redwood/Douglas-fir forest located in Mendocino County between Fort Bragg and Willits.

While wildlife damage management assistance may be requested within the JDSF, from a noise perspective, there are no noise standards applicable to such operations on State Demonstration Forests. The only specific noise criteria are related to recreational use (cf. CCR, Title 14, Division 1.5, Chapter 9, Subchapter 1, Article 3). Wildlife damage management operations are not considered a recreational use, and thus, such noise standards in Article 3 - Section 1412 are not applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.

Local Regulations

The following are the local environmental goals and policies relevant to noise.

Mendocino County General Plan

The following goals and policies from the Mendocino County General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal DE-5 A county in which existing residential and other sensitive uses are protected from excessive noise and in which noise-intensive uses are protected from encroachment by residential and other noise-sensitive uses.

Policy DE-98: The County will protect residential areas and other noise-sensitive uses from excessive noise by doing the following:

- 1) Requiring that new land uses, new roadways, and other new noise sources do not create unacceptable noise levels on adjacent parcels.
- 3) Requiring that County decisions which would cause or allow an increase in noise created by stationary or mobile sources be informed by a noise analysis and accompanied by noise reduction measures to keep noise at acceptable levels.

Policy DE-99: To implement Policy DE-98, the following shall apply:

- 1) No new use regulated by the County shall be permitted to generate noise that would cause the ambient noise on any adjacent parcel to exceed the “completely compatible” 24-hour guidelines shown in Policy DE-101 or the 30-minute noise standards in Policy DE-100.
- 2) The County shall ensure that noise mitigation to achieve a “completely compatible” 24-hour exterior noise level and conformance with the 30-minute exterior noise standard is provided in conjunction with any decision it makes that would cause a violation of item 1) above.

Action Item DE-99-2: Require acoustical studies for:

- 1) Significant new noise generators;

If information on the noise environment at a project site is not available, a measurement of the noise environment by a qualified acoustical engineer may be needed to make a determination whether or not a proposed project complies with the guidelines and standards in Policy DE-100 or DE-101.

Policy DE-100: The following are the County’s standards for maximum exterior noise levels for residential land uses (see Table 4.4-4).

Table 4.4-4 Exterior Noise Level Standards (Levels Not to Be Exceeded More Than 30 Minutes in Any Hour)		
Land Use Type	Time Period	Maximum Noise Level, dBA
Single-Family Homes and Duplexes	10 p.m. to 7 a.m.	50
	7 a.m. to 10 p.m.	60
Multiple Residential 3 or More Units Per Building (Triplex +)	10 p.m. to 7 a.m.	55
	7 a.m. to 10 p.m.	60

Source: Mendocino County, General Plan, 2009.

- Where existing ambient noise levels exceed these standards, the ambient noise level shall be the highest allowable noise level as measured in dBA L_{eq} (30 minutes).
- The noise levels specified above shall be lowered by 5 dB for simple tonal noises (such as hammering sounds), noises consisting primarily of speech or music, or for recurring impulsive noises (such as pile drivers, punch presses, and similar machinery).
- The County may impose exterior noise standards which are less restrictive than those specified above, provided that:
 - 1) The noise impact on the residential or other noise-sensitive use is addressed in an environmental analysis,
 - 2) A finding is made by the approving body stating the reasons for accepting a higher exterior noise standard, and
 - 3) Interior noise standards will comply with those identified in Policy DE-103.

Policy DE-103: The following are the County’s standards for acceptable indoor intermittent noise levels for various types of land uses (see Table 4.4-5). These standards should receive special attention when projects are considered in “Tentatively Compatible” or “Normally Incompatible” areas, and new uses shall incorporate design features to ensure that these standards are met.

Table 4.4-5 Maximum Acceptable Interior Noise Levels Created By Exterior Noise Sources	
Land Use Type	Acceptable Noise Level, L_{dn} or CNEL (dBA)
Residential Living and Sleeping Areas, Daytime	45
Private School Classrooms	55
Commercial, Educational, Office, Light and Heavy Industrial, Warehousing	Conform with applicable state and federal workplace safety standards
<i>Source: Mendocino County, General Plan, 2009.</i>	

- Standards for public schools are set and enforced by the State of California and are not regulated by the County.
- Noise created inside a residential home, classroom, or library shall not count toward the acceptable noise levels to be maintained in accordance with this policy.

Policy DE-104: New or expanded uses shall comply with adopted noise standards to ensure minimal impact on established noise-sensitive uses.

Policy DE-105: A 5 dB increase in CNEL or L_{dn} noise levels shall be normally considered to be a significant increase in noise.

Mendocino County Coastal Element

The Mendocino County Coastal Element is a component of the Mendocino County General Plan that was prepared pursuant to the California Coastal Act of 1976. The Coastal Element includes the Mendocino Town Plan, which provides specific policies for new and existing development within the Town of Mendocino.

The User’s Guide of the Mendocino County Coastal Element states the following related to noise standards:

“The term Coastal Element includes the Land Use Plan, as well as additional policies or programs which do not refer to specific sites, such as hazards policies. Goals and Policies contained within other elements of the General Plan such as Noise, Seismic Safety, Housing, Circulation, Recreation, Conservation, Open Space, Scenic Highways, and Safety will also apply within the Coastal Zone...”

Based on the above, the Coastal Element does not contain any unique noise standards beyond those included in the County General Plan.

Ukiah Valley Area Plan

Section 1.2 of the Ukiah Valley Area Plan (Elements of the Ukiah Valley Area Plan) states the following:

“The UVAP addresses the following topics: land use, community design, transportation, water management, health and safety, open space and conservation, and parks and recreation. The policies in the Mendocino County General Plan Housing and Noise Elements will apply in the Ukiah Valley and are not addressed specifically in the UVAP.”

Based on the above, the Ukiah Valley Area Plan does not contain any unique noise standards beyond those included in the County General Plan.

Mendocino County Noise Ordinance

For the protection of noise-sensitive land uses, the County has adopted noise standards. Such noise standards are identified in the County’s Inland Zoning Code (Title 20, Division I, Appendix C) and Coastal Zoning Code (Title 20, Division II, Appendix B). The County’s noise standards are summarized in Table 4.4-6 below, and are identified based on the receiving land use designation and time of day.

In addition, the Mendocino County Code of Ordinances also establishes criteria for noise on County-owned lands. Pursuant to Section 14.16.020, it is unlawful for any person, except personnel of law enforcement or governmental agencies acting in furtherance of a law enforcement or governmental objective, to willfully make, continue to make, or cause to be made, or continued, any loud, unusually penetrating or boisterous noise, disturbance or commotion which unreasonably interferes with County governmental operations and personnel, provided such noise is generated upon property owned or occupied by the County of Mendocino.

It should be noted that the Mendocino Town Zoning Code, which is included in Division III, Title 20, of the Code of Ordinances, does not include additional noise-related criteria that would be applicable to the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative.

Table 4.4-6
Exterior Noise Level Limit Standards
(Levels not to be exceeded more than 30 minutes in any hour)
Mendocino County Inland and Coastal Zoning Code

Receiving Land Use Category ^{3,4}	Time Period	Noise Level Standard, dBA ^{1,2}	
		Rural/Suburban	Urban/Highways ⁵
One and Two Family Residential	10:00 pm – 7:00 am	40	50
	7:00 am – 10:00 pm	50	60
Multi-Family Public Spaces	10:00 pm – 7:00 am	45	55
	7:00 am – 10:00 pm	50	60
Limited Commercial, Some Multi-Family	10:00 pm – 7:00 am	55	
	7:00 am – 10:00 pm	60	
Commercial	10:00 pm – 7:00 am	60	
	7:00 am – 10:00 pm	55	
Light Industrial	Any Time	70	
Heavy Industrial	Any Time	75	
Adjustments to Noise Level Standard			
Duration	Time Period	Adjustment Factor	
L ₅₀	30 minutes per hour	No adjustment	
L ₂₅	15 minutes per hour	Standard +5 dB	
L ₀	Maximum permissible level	Standard +20 dB	
Character		Adjustment Factor	
Character: Tone, whine, screech, hum, or impulsive, hammering, riveting, or music or speech		Standard +5 dB	
Ambient Noise Level ¹ – Existing ambient L ₅₀ , L ₂₅		Standard +5 dB	
Ambient Noise Level ¹ – Existing ambient L ₀		Existing maximum	
Notes:			
¹ When an acoustical study demonstrates that ambient levels exceed the noise standard, then the ambient levels become the standard. ² Higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. ³ County staff shall recommend which receiving land use category applies to a particular project, based on the mix of uses and community noise levels. Industrial noise limits intended to be applied at the boundary of industrial zones, rather than within industrial areas. ⁴ The “rural/suburban” standards should be applied adjacent to noise-sensitive uses such as hospitals or convalescence homes. ⁵ “Highways” apply to roads and highways where average daily traffic (ADT) exceeds 10,000.			
Source: Mendocino County Code of Ordinances.			

Noise Standards in Incorporated Cities

Mendocino County includes four incorporated cities. After a review of the noise related policies and ordinances associated with each jurisdiction, BAC determined that the performance standards for non-transportation noise sources, which would be applicable to program operations, were generally similar (range of 5 to 10 dB). Further, the Fort Bragg Coastal General Plan was identified as having some of the strictest noise related criteria. As such, noise sources which are in compliance with the standards established in the Fort Bragg Coastal General Plan would also comply with the noise standards in effect within the other three incorporated cities in the County.

Thus, to provide a conservative assessment of noise levels associated with the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, the noise related criteria identified in the Fort Bragg Coastal General Plan were applied in the assessment of noise-generating program operations within the incorporated city jurisdictions of Mendocino County.

The Noise Element (Chapter 8) of the Fort Bragg Coastal General Plan contains goals, policies, and programs to ensure that the incorporated City of Fort Bragg residents are not subjected to noise beyond acceptable levels. The Fort Bragg Coastal General Plan goals, policies, and programs which are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative are reproduced below.

Goal N-1: Protect City residences from harmful and annoying effects of exposure to excessive noise.

Policy N-1.1: General Noise Levels: The maximum allowable noise levels are established in this Element.

Policy N-1.2: Reduce Noise Impacts: Avoid or reduce noise impacts first through site planning and project design. Barriers and structural changes may be used as mitigation techniques only when planning and design prove sufficient.

Program N-1.2.2: Consider requiring an acoustical study and mitigation measures for projects that would cause a “substantial increase” in noise as defined by the following criteria or would generate unusual noise which could cause significant adverse community response:

- a. cause the L_{dn} in existing residential areas to increase by 3 dB or more; or
- b. cause the L_{dn} in existing residential areas to increase by 2 dB or more if the L_{dn} would exceed 70 dB.

Program N-1.2.3: Consider requiring an acoustical study and mitigation measures for proposed projects that City staff finds may generate unusual noise that would cause significant adverse community response, such as, but not limited to, nighttime, single-event noise, or recurring impulsive noise.

Policy N-1.5: Non-Transportation Noise Generation: For new non-transportation noise generators, Table N-5 (see Table 4.4-7) describes the maximum noise level at the nearest residential property line:

Table 4.4-7 Noise Level Performance Standards for New Projects Affected by or Including Non-Transportation Noise Sources		
Noise Level Descriptor	Daytime (7:00 AM to 10:00 PM)	Nighttime (10:00 PM to 7:00 AM)
Hourly L_{eq} , dB	55	45
Maximum level, dB	75	65

Source: City of Fort Bragg, 2008.

4.4.4 IMPACTS AND MITIGATION MEASURES

The following section describes the standards of significance and methodology used to analyze and determine the proposed project’s potential impacts related to noise and vibration. A discussion of the project’s impacts, as well as mitigation measures where necessary, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines and professional judgment, a significant impact would occur if the IWDM Program, the Non-Lethal Program Alternative, or the proposed variation to the Non-Lethal Program Alternative would result in the following:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive groundborne vibration or groundborne noise levels; or
- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

Issues Not Discussed Further

Per the Environmental Noise & Vibration Impact Assessment prepared for the project, after a review of the wildlife control methods that could be implemented under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, BAC, Inc. determined that such methods would not produce appreciable groundborne vibration or groundborne noise levels. Therefore, a less-than-significant impact would occur related to the following:

- Generation of excessive groundborne vibration or groundborne noise levels.

Furthermore, while implementation of wildlife control methods under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative could occur in close proximity to airports or airstrips within the County, exposure of wildlife specialists to aircraft overflight noise would be considered an effect of the environment on the project. Such effects are not typically considered significant under CEQA. In addition, the duration of time a

staff member would be exposed to elevated noise exposure from aircraft would be relatively temporary, and be inconsequential relative to a long-term noise level metric (e.g., 8-hour PEL, 24-hour CNEL, etc.). Lastly, WS-CA safety program contains standard operating procedures that require utilization of personal protection equipment (PPE) in situations as appropriate. Thus, a less-than-significant impact would occur related to the following:

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

Discussion of Noise Level Standards

Applicable noise standards for areas located within the jurisdiction of Mendocino County, USFS, USACE, BLM, and CA State Parks are discussed in the following sections.

It should be noted that a total of 10 tribal nations are located within the County of Mendocino – all of which are federally recognized as sovereign nations. Federally recognized tribal sovereignty grants the inherent authority of tribal nations to govern themselves within the U.S. Because sovereign tribal nations are recognized as “domestic dependent nations”, the tribal lands located within the County would be subject to only federal and tribal laws. This EIR reasonably assumes that any proposed wildlife damage management operations on the sovereign tribal nations within the County of Mendocino would comply with all applicable federal and individual tribal nations laws. As a result, an evaluation of noise impacts associated with the implementation of IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative on sovereign nation lands within the County of Mendocino is not included in this assessment.

Mendocino County Jurisdiction

Implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative on lands within the jurisdiction of the County of Mendocino would be subject to the noise criteria identified in the Mendocino County General Plan and Zoning Code.

The Mendocino County General Plan contains noise level limits that are expressed in terms of $L_{dn}/CNEL$ and L_{50} . The Mendocino County Zoning Code also contains noise level limits that are expressed in terms of L_{50} , but include adjustments to the standards based on duration and character of the noise source. The noise-generating wildlife control methods that could be implemented under the IWDM Program, the Non-Lethal Program Alternative, and/or the variation to the Non-Lethal Program Alternative consist of noise sources that are impulsive or short-term in nature. Because the General Plan $L_{dn}/CNEL$ noise level descriptors do not correlate well with impulsive or short-term noise sources affecting humans, the assessment of noise impacts due to the proposed wildlife control methods are more appropriately subject to the short-term noise level descriptors identified in the County Zoning Code. Satisfaction with the short-term noise level limits of the County Zoning Code would ensure satisfaction of the less strict short-term noise level limits of the County General Plan.

As noted in Table 4.4-6, the County Zoning Code includes various adjustments to noise limits which are applied based on duration, character, and ambient noise level. The adjustment criteria from Table 4.4-6 are as follows:

- **Duration:** If the duration of a noise source occurs for 30 minutes per hour or more (L_{50}), no adjustment to the standard is applied. If the noise source occurs for 15 minutes per hour (L_{25}), a +5 dB adjustment is applied. If the noise source is instantaneous in nature, an adjustment of +20 dB is applied to the standard (maximum permissible noise level limit, L_0 or L_{max}).
- **Character:** If the character of the noise source consists of a tone, whine, screech, hum, or impulsive, hammering, riveting, or music or speech, a +5 dB adjustment is applied.
- **Ambient Noise Level:** When measured existing ambient L_{50} or L_{25} noise levels exceed the standard, a +5 dB adjustment is applied. When measured existing ambient L_{max} noise levels exceed the standard, the measured maximum noise level becomes the standard.

Based on the duration and character of the control methods that could be implemented under the IWDM Program, the Non-Lethal Program Alternative, and/or the variation to the Non-Lethal Program Alternative, BAC applied adjustments to the County noise standards shown in Table 4.4-6. Given that measured ambient noise levels within the County did not exceed the County’s established noise standards, adjustments to the County Zoning Code noise level limits were not made pursuant to criteria 3 above. Table 4.4-8 and Table 4.4-9 below provide the adjusted County standards for the following control methods: firearms, frightening devices, tracking dogs, electronic distress sounds, and livestock protection dogs.

Table 4.4-8 Adjusted Mendocino County Exterior Noise Limits Applied to Firearms, Electronic Distress Devices, Tracking Dogs, and Frightening Devices							
Land Use	Time Period	Unadjusted Standards, dB (L_{50})		Adjustments, dB		Adjusted Standards, dB (L_{max})	
		Rural	Urban	Duration	Character	Rural	Urban
One and Two Family Residential	10 PM – 7 AM	40	50	+20	+5	65	75
	7 AM – 10 PM	50	60			75	85
Multi-Family Public Spaces	10 PM – 7 AM	45	55			70	80
	7 AM – 10 PM	50	60			75	85
Limited Commercial, Some Multi-Family	10 PM – 7 AM	55				80	
	7 AM – 10 PM	60				85	
Commercial	10 PM – 7 AM	60				85	
	7 AM – 10 PM	65				90	
Light Industrial	10 PM – 7 AM	70				95	
Heavy Industrial	7 AM – 10 PM	75				100	

Note: Noise from tracking dogs typically occurs when the target animal is located and/or cornered (accompanied with its handler), and would occur for a relatively short duration. Because these noise sources are instantaneous in duration (L_{max}) and impulsive in character, these noise sources would be subject to the adjustments of +20 dB and +5 dB, respectively.

Source: *Bollard Acoustical Consultants, Inc., 2019.*

**Table 4.4-9
 Adjusted Mendocino County Exterior Noise Limits Applied to
 Livestock Protection Dogs**

Land Use	Time Period	Unadjusted Standards, dB (L ₅₀)		Adjustments, dB		Adjusted Standards, dB (L ₂₅)	
		Rural	Urban	Duration	Character	Rural	Urban
One and Two Family Residential	10 PM – 7 AM	40	50	+5	+5	50	60
	7 AM – 10 PM	50	60			60	70
Multi-Family Public Spaces	10 PM – 7 AM	45	55			55	65
	7 AM – 10 PM	50	60			60	70
Limited Commercial, Some Multi-Family	10 PM – 7 AM	55				65	
	7 AM – 10 PM	60				70	
Commercial	10 PM – 7 AM	60				70	
	7 AM – 10 PM	65				75	
Light Industrial	10 PM – 7 AM	70				80	
Heavy Industrial	7 AM – 10 PM	75				85	

Note: Noise from livestock protection dogs would occur when alerted to a nearby predator. Based on such information, BAC reasonably assumed that noise from livestock protection dogs would occur infrequently, for short durations at a time. For the purposes of this analysis, the noise level descriptor corresponding to a 15-minute duration of an hour (L₂₅) was conservatively applied to program livestock protection dog noise levels – which would be subject to an adjustment of +5 dB. In addition, because a dog bark could be considered an impulsive noise source, livestock protection dog noise levels would be subject to an adjustment of +5 dB.

Source: *Bollard Acoustical Consultants, Inc., 2019.*

As mentioned previously, the County of Mendocino establishes criteria for noise on County-owned lands (Section 14.16.020 of the County Code of Ordinances). However, the Code provides for an exemption for personnel of law enforcement or governmental agencies acting in furtherance of a law enforcement or governmental objective. Because the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative could be implemented on County-owned land by WS-CA staff (a federal government program), noise related to the implementation of the program would be exempt. As a result, for the purpose of this analysis, the noise criteria contained in Section 14.16.020 of the County Code of Ordinances was not applied.

Incorporated City Jurisdictions – Fort Bragg Coastal General Plan

As discussed previously, the noise criteria identified in the City of Fort Bragg Coastal General Plan have been conservatively applied in the assessment of noise-generating program operations within incorporated city jurisdictions of Mendocino County. As a result, the noise related performance standards for non-transportation noise sources identified in Table 4.4-7 were applied to implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative within incorporated city jurisdictions within Mendocino County.

USFS Jurisdiction

Implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative on National Forest Service managed land (by WS-CA staff) would be subject to CFR criteria. Specifically, code sections 36 CFR 261.1(a), 36 CFR 261.10, and 36 CFR 261.16 have been identified as applicable to the noise-generating wildlife control methods that could occur on National Forest Service land.

U.S. Army Corps of Engineers

Implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative on USACE managed land would be subject to CFR criteria. Specifically, code sections 36 CFR 327.11, 36 CFR 327.12, and 36 CFR 327.13 have been identified as applicable to the noise-generating wildlife control methods proposed on USACE land.

BLM Jurisdiction

Implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative on BLM managed land would be subject to CFR criteria. Specifically, 43 CFR 8365.2-5 and 43 CFR 8365.2-2 have been identified as applicable to the noise-generating wildlife control methods that could occur on BLM land.

CA State Parks Jurisdiction

Implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative on CA State Parks managed land would be subject to California Code of Regulations (CCR) criteria. Specifically, 14 CCR 4309 and 14 CCR 4320 have been identified as applicable to the noise-generating wildlife control methods that could occur on CA State Parks land.

Discussion of Project-Related Noise Level Increase Criteria

Applicable noise level increase criteria for areas located within the jurisdiction of Mendocino County and State and federal lands are discussed in the following sections.

County of Mendocino Jurisdiction

Per Policy DE-105 of the Mendocino County General Plan, a 5 dB increase in CNEL or L_{dn} noise levels shall be normally considered to be a significant increase in noise. As a result, a 5 dB CNEL/L_{dn} increase was applied in the assessment of project-related noise level increases at sensitive receptors located within the jurisdiction of Mendocino County.

Incorporated City Jurisdictions

As noted previously, the noise criteria identified in the Fort Bragg Coastal General Plan was conservatively applied in the assessment of noise-generating program operations within

incorporated city jurisdictions of Mendocino County. According to Policy N-1.2 (Program N-1.2.2) of the Fort Bragg Coastal General Plan, a substantial increase is determined if a project were to cause the L_{dn} in existing residential areas to increase by 3 dB or more, or 2 dB or more if the L_{dn} would exceed 70 dB.

USFS, USACE, BLM, and CA State Parks Jurisdictions

The code sections of the identified State and federal agencies do not contain numerical noise level standards that would be directly applicable to the noise-generating wildlife control methods proposed under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative. Quantification of the thresholds of significance for project-related noise level increases within such jurisdictions is difficult. Based on the character and implementation techniques, the noise-generating wildlife control methods proposed by the project can be categorized as temporary in nature. In addition, the noise generating from the proposed wildlife control methods are similar to those noise sources already occurring within the County of Mendocino, and could be interpreted as being a part of the existing ambient environment. Due to the variability of allowable uses within the County of Mendocino's state and federal lands, the significance of project-related noise level increases within the County's state (CA State Parks) and federal lands (USFS, USACE, and BLM) are qualitatively evaluated separately within this chapter.

Method of Analysis

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used to conduct the ambient noise level survey performed as part of the Environmental Noise & Vibration Impact Assessment prepared for the project. The meters were calibrated before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4). The sound level meters were programmed to log a variety of statistical acoustical data.

WS-CA provided BAC with a list of equipment/control methods that could be used under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.⁴ Based on the provided information, BAC obtained reference noise level data for each of the control methods. Such reference noise level data was used to calculate anticipated noise levels at various distances from the noise source, accounting for effects of distance, ground absorption, and other relevant factors. It should be noted that because shielding of the noise-generating aspects of a project varies both by source and receptor location, this analysis includes a conservative approach of not applying any downward adjustments to the propagation of noise levels generated by the control methods to be implemented under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.

⁴ Shannon Chandler. Personal Communication [email] with Nick Pappani, Vice President, Raney Planning & Management, Inc. November 6, 2018.

Project-Specific Impacts and Mitigation Measures

The proposed project would include implementation of a variety of wildlife control methods by WS-CA staff (with IWDM Program oversight), some of which would result in the creation of noise. The Non-Lethal Program Alternative would involve the use of wildlife control methods that would be implemented under the proposed project, with the exception of the lethal control and live capture methods, as the outcome typically results in euthanizing the animal. In addition, this analysis includes consideration of a variation to the Non-Lethal Program Alternative, which would include the limited use of lethal control (gunshot only) in instances only where wildlife poses a threat to public health or safety.

Noise impacts due to the implementation of wildlife control methods of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative are assessed relative to the applicable local, State, federal, and CEQA Appendix G checklist noise criteria. For each impact statement, two baseline scenarios are evaluated: a “CEQA Baseline” and a “No Program Baseline”. Additional information related to the baseline scenarios is included in Chapter 1, Introduction, of this EIR. The impact statements presented below are organized as follows:

CEQA Baseline

This baseline scenario recognizes the fact that the County has had a wildlife damage management program since 1989, and as such, it is part of the environmental baseline pursuant to CEQA Guidelines Section 15125. While the County’s most recent Work Plan with WS-CA expired in June of 2015, WS-CA has continued to implement the IWDM Program in Mendocino County without funding from the County. For any significant impacts identified under the CEQA Baseline, this chapter provides mitigation measures to reduce the impacts to the maximum extent feasible.

No Program Baseline

The No Program Baseline treats the IWDM Program as a new program and, thus, does not account for the fact that such a program is part of the baseline. This approach enables the County to provide an informational analysis as to the potential environmental effects of the IWDM Program. For any significant effects identified under the No Program Baseline, this chapter provides improvement measures to reduce the effects to the maximum extent feasible.

4.4-1 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to firearm discharge. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. No impact would occur for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. Even with improvement measures, the effect is *significant and unavoidable* for the IWDM Program and the variation to the Non-Lethal Program Alternative. No effect would occur for the Non-Lethal Program Alternative.**

CEQA Baseline

IWDM Program

Use of firearms as a wildlife control method has been a component of WS-CA operations within the County under prior implementation of the IWDM Program since 1989. As such, use of firearms for wildlife damage management purposes is part of the environmental baseline, and continued use of firearms under the IWDM Program would not represent a new noise source. Thus, the IWDM Program would not cause exposure of sensitive receptors to excess noise levels beyond what has previously occurred under the IWDM Program, and no impact would occur related to firearm discharge noise.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not include the use of firearms. Thus, no impact would occur related to firearm discharge noise.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would only permit the lethal use of firearms in exceptional cases where a risk to public health and safety is posed by wildlife. Given that use of firearms would be reduced relative to what has previously occurred under the IWDM Program, firearms noise would be less intensive relative to existing conditions. Thus, no impact would occur related to firearm discharge noise.

No Program Baseline

IWDM Program

The project includes the use of firearms as one of the wildlife control methods to be implemented by WS-CA staff. The primary noise source associated with this method is the discharge of firearms. As noted previously, the No Program Baseline sections treat the IWDM Program as a new program and, thus, does not account for the fact that such a program is already occurring. Thus, under this baseline scenario, use of firearms under the

IWDM Program would be considered a net change from existing conditions. The following sections describe potential noise effects associated with use of firearms under the IWDM Program within the jurisdiction of Mendocino County, incorporated cities, USFS, USACE, BLM, and CA State Parks.

Mendocino County Jurisdiction

To quantify project firearms noise generation, BAC utilized a combination of file data and published measured noise level data for the firearms proposed to be utilized by WS-CA staff. Suppressors can be used with all models, with the exception of 12-gauge shotguns. According to the non-profit organization Americans for Responsible Solutions (ARS), the average suppression level, according to independent tests done on a variety of commercially available suppressors, is approximately 30 dB.

Table 4.4-10 shows the noise levels associated with such firearms models, based on BAC file data and published measurement data, and associated calculated noise contours for each model, which are also the adjusted Mendocino County Zoning Code L_{max} noise standards identified in Table 4.4-8. The calculated noise contours take into consideration a standard spherical spreading of sound (i.e., a 6 dB decrease per each doubling of distance from source), and include an offset of -1.5 dB per 1,000 feet to account for atmospheric absorption of sound. Because WS-CA implements the use of suppressors, for the purposes of this analysis, the Table 4.4-10 presents the noise levels associated with the use of suppressed project firearms based on the cited average noise reduction achieved with the implementation of a suppressor (30 dB). As previously mentioned, according to WS-CA staff, suppressors would not be used for shotguns.

Footnote 2 of Table 4.4-6 above (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature and character of the noise source, project firearms discharges could be considered temporary, short-term or intermittent.

The utilization of project firearms within close proximity to sensitive receptors could occur in instances where wildlife poses a threat to public health or safety, or in situations where it is generally not feasible to maintain the distances indicated in Table 4.4-10. Furthermore, the Table 4.4-10 data indicate that project firearms could still exceed the applicable noise level standards with the use of suppressors.

**Table 4.4-10
 Firearms Model Noise Levels and Projected Noise Contours – Mendocino County**

Model	Type	L _{max} , dB at 150 feet	Noise Contours/Adjusted County Standards (L _{max} dBA) and Associated Distance from Source (feet)							
			65	70	75	80	85	90	95	100
12-gauge shotgun	Unsuppressed	115	9,403	7,432	5,668	4,146	2,894	1,924	1,221	745
.357 pistol	Unsuppressed	115	9,403	7,432	5,668	4,146	2,894	1,924	1,221	745
	Suppressed	85	1,221	745	442	256	147	83	47	26
.204 rifle	Unsuppressed	112	8,198	6,346	4,723	3,361	2,278	1,472	912	546
	Suppressed	82	912	546	319	183	104	59	33	18
22-250 rifle	Unsuppressed	110	7,432	5,668	4,146	2,894	1,924	1,221	745	442
	Suppressed	80	745	442	256	147	83	47	26	15
.22 rifle LR	Unsuppressed	109	7,062	5,343	3,873	2,677	1,763	1,110	673	397
	Suppressed	79	673	397	229	131	74	42	23	13
AR-10 .308	Suppressed	90	1,924	1,221	745	442	256	147	83	47

Note: Unsuppressed firearms reference noise levels based on a combination of firearms measurements conducted by BAC and published measurement noise levels. Suppressed firearms reference noise levels include a 30 dB noise level reduction based on published conclusions from independent testing of commercial suppression equipment.

Source: *Bollard Acoustical Consultants, Inc., 2019.*

The use of firearms for recreational shooting and hunting purposes is permitted (and actively occurs) on both public and private lands within Mendocino County. In addition, the firearms models that would be used under the IWDM Program are models commonly used for recreational shooting and hunting purposes. Consequently, discharges emitted from project firearms and those generated from recreation and hunting purposes already occurring within the County could sound similar. Therefore, it could be difficult to determine the difference between project firearms discharges and those that already occur within the existing noise environment. Nonetheless, should a sensitive receptor be located within the noise contours identified in Table 4.4-10, project-related firearms (suppressed or unsuppressed) could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards, and a significant effect could temporarily occur.

Incorporated Cities Jurisdiction

Mendocino County includes four incorporated cities: the City of Fort Bragg, the City of Ukiah, the City of Point Arena, and the City of Willits. Because noise levels generated from firearms discharges are categorized as instantaneous, noise exposure associated with firearms discharge within incorporated cities within Mendocino County have been assessed relative to the Fort Bragg Coastal General Plan maximum (L_{max}) noise level limits (Table 4.4-7). This analysis for the urban/incorporated areas of the County is conservative from the standpoint that the Fort Bragg Coastal General Plan noise level standards are more restrictive than the noise level standards of the other incorporated cities within the County.

Table 4.4-11 shows the noise levels associated with such firearms models, based on BAC file data and published measurement data, and associated calculated noise contours for each model, which are also the Fort Bragg Coastal General Plan maximum (L_{max}) noise level limits identified in Table 4.4-7.

The utilization of project firearms within close proximity to residential uses could occur in instances where wildlife poses a threat to public health or safety, or in situations where it is generally not feasible to maintain the distances indicated in Table 4.4-11. Further, the Table 4.4-11 data indicate that project firearms could still exceed the applicable noise level standards with the use of suppressors. Based on the nature of the IWDM Program operations, it is expected that implementation of program wildlife control methods would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor be located within the 65 dB or 75 dB noise contours identified in Table 4.4-11, project-related firearms (suppressed or unsuppressed) could exceed the Fort Bragg Coastal General Plan noise level standards. Thus, a significant effect could temporarily occur due to implementation of the IWDM Program within incorporated cities in the County.

Table 4.4-11 WS-CA Firearms Model Noise Levels and Projected Noise Contours – City of Fort Bragg				
Model	Type	L_{max}, dB at 150 feet	Noise Contours/Adjusted City Standards (L_{max} dBA) and Associated Distance from Source (feet)	
			65	75
12-gauge shotgun	Unsuppressed	115	9,403	5,668
.357 pistol	Unsuppressed	115	9,403	5,668
	Suppressed	85	1,221	442
.204 rifle	Unsuppressed	112	8,198	4,723
	Suppressed	82	912	319
22-250 rifle	Unsuppressed	110	7,432	4,146
	Suppressed	80	745	256
.22 rifle LR	Unsuppressed	109	7,062	3,873
	Suppressed	79	673	229
AR-10 .308	Suppressed	90	1,924	745
Note: Unsuppressed firearms reference noise levels based on a combination of firearms measurements conducted by BAC and published measurement noise levels. Suppressed firearms reference noise levels include a 30 dB noise level reduction based on published conclusions from independent testing of commercial suppression equipment.				
Source: <i>Bollard Acoustical Consultants, Inc., 2019.</i>				

USFS Jurisdiction

Mendocino County includes a total of 174,000 acres of land under the jurisdiction of the USFS, or approximately 7.7 percent of the total land within the County.⁵ Within the County, the USFS maintains approximately 11 developed campsites and trailheads. In addition, multiple private campgrounds are located on USFS land within the County.⁶

Pursuant to 36 CFR 261.10(d), the following are prohibited on National Forest Service land:

- (d) Discharging of a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:
 - (1) In or within 150 yards of a residence, building, campsite, developed recreation site or occupied area, or
 - (2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any

⁵ Mendocino County. *General Plan* [Table 3-A]. August 2009.

⁶ U.S. Forest Service. *Mendocino National Forest, General Campgrounds & Trailheads, Recreation Map*. Available at: <https://www.fs.usda.gov/recarea/mendocino/recreation/hiking/recarea/?recid=25250&actid=51>. Accessed March 2019.

person or property is exposed to injury or damage as a result in such discharge.

- (3) Into or within any cave.

Beyond this restriction of discharging firearms within 150 yards of a residence, building, campsite, developed recreation site, or occupied area, actual quantitative noise thresholds for USFS lands do not exist.

The use of firearms for recreational shooting and hunting purposes is permitted (and actively occurs) on USFS lands within the County. Furthermore, the firearms models proposed to be utilized by the IWDM Program are models commonly used for recreational shooting and hunting purposes. Consequently, discharges emitted from project firearms and those generated from recreation and hunting purposes already occurring on USFS lands within the County could sound similar. Differentiating between project firearms discharges and those that already occur within the existing noise environment would likely be difficult. Furthermore, implementation of the IWDM Program within developed USFS recreation areas would be expected to be minimal.

This analysis reasonably assumes that WS-CA employees operating under the IWDM Program would comply with 36 CFR 261.10(d), as summarized above, while on National Forest Service land. In addition, code section 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans – which would be applicable to IWDM Program firearm operations on USFS land. WS-CA would only provide wildlife damage management control assistance on USFS lands if requested by USFS or resource managers (e.g., grazing manager holding a lease with USFS), at which time the USFS, being the underlying property owner, would review the proposed methods and grant any required authorization/permits. Given compliance with applicable federal regulations, and because noise generated from project firearms discharges on USFS lands within Mendocino County would be similar to those that already legally occur on such lands, the effect would be less than significant.

USACE Jurisdiction

The CFR does not include any code sections that would be directly applicable to IWDM Program firearms noise levels on USACE lands. However, 36 CFR 327.13(a)(4) states that the possession of loaded firearms, ammunition, loaded projectile firing devices, bows and arrows, crossbows, or other weapons is prohibited unless written permission is received from the District Commander.

The use of firearms for hunting purposes is permitted (and actively occurs) on USACE lands within the County of Mendocino, namely, Lake Mendocino.⁷

⁷ U.S. Army Corps of Engineers. *Hunting at Lake Mendocino*. Available at : <https://www.spn.usace.army.mil/Missions/Recreation/Lake-Mendocino/Hunting/>. Accessed March 25, 2019.

Further, the firearms models proposed to be utilized by the WS-CA program are models commonly used for recreational shooting and hunting purposes. Thus, discharges emitted from project firearms and those generated from recreation and hunting purposes already occurring on USACE lands within the County of Mendocino could sound similar. Differentiating between project firearms discharges and those that already occur within the existing noise environment would likely be difficult.

This analysis reasonably assumes that WS-CA employees operating under the IWDM Program would comply with 36 CFR 327.13(a)(4) while on USACE lands – including obtaining written permission from the District Commander. WS-CA would only provide wildlife damage management control assistance on USACE lands if requested by USACE or resource managers, at which time the USACE would review the proposed methods and grant any required authorization/permits. Given compliance with applicable federal regulations, and because noise generated from project firearms discharges on USACE lands within Mendocino County would be similar to those that already legally occur on such lands in the Lake Mendocino environs, the effect would be less than significant.

BLM Jurisdiction

Overall, Mendocino County includes a total of 120,730 acres of land under the jurisdiction of BLM, or approximately 5.4 percent of the total land within the County.⁸ Of the BLM land within the County, only a small portion comprises developed recreation sites. Pursuant to 43 CFR 8365.2-5(a), no person shall discharge or use firearms, other weapons, or fireworks on developed BLM recreation sites and areas, unless otherwise authorized. The use of firearms for recreational shooting and hunting purposes is permitted (and actively occurs) on BLM lands within the County. Further, the firearms models proposed to be utilized by the IWDM Program are models commonly used for recreational shooting and hunting purposes. Thus, discharges emitted from project firearms and those generated from recreation and hunting purposes already occurring on BLM lands within the County could sound similar. Differentiating between project firearms discharges and those that already occur within the existing noise environment would likely be difficult.

This analysis reasonably assumes that WS-CA employees operating under the IWDM Program would comply with 43 CFR 8365.2-5(a) while on BLM lands – including obtaining the appropriate authorization. WS-CA would only provide wildlife damage management control assistance on BLM lands if requested by BLM or resource managers, at which time the BLM would review the methods proposed and grant any required authorization/permits. Given compliance with applicable federal regulations, and because noise generated from project firearms

⁸ Mendocino County. *General Plan* [Table 3-A]. August 2009.

discharges on BLM lands within Mendocino County would be similar to those that already legally occur on such lands, the effect would be less than significant.

CA State Parks Jurisdiction

Overall, Mendocino County includes a total of 30,336 acres of land under the jurisdiction of CA State Parks, or approximately 1.4 percent of the total land within the County.⁹ Pursuant to 14 CCR 4313(a), no person shall carry, possess or discharge across, in or into any portion of any unit any weapon, firearm, spear, bow and arrow, trap, net, or device capable of injuring, or killing any person or animal, or capturing any animal on CA State Parks land. However, Public Resources Code Section 5003.1 allows for hunting within designated areas. In addition, 14 CCR Part 4309 states that the CA State Parks may grant a permit to remove, treat, disturb, or destroy animals – which would be applicable to IWDM Program firearms operations on CA State Parks land. WS-CA would only provide wildlife damage management control assistance on CA State Parks lands if requested by CA State Parks or resource managers, at which time the CA State Parks would review the methods proposed and grant any required authorization/permits. Based on the required compliance with the identified code sections, the relatively small amount of CA State Parks land within the County, and because the CA State Parks Department does not provide noise criteria that would be directly applicable to project firearms on CA State Parks land, the effect would be less than significant.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not include the use of firearms. Thus, no effect would occur related to firearm discharge noise.

Variation to the Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of firearms proposed by the IWDM Program and the variation to the Non-Lethal Program Alternative within the County of Mendocino are similar. Therefore, the conclusion and associated Improvement Measure identified below for the proposed project would be applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, the Non-Lethal Program Alternative would not involve the use of firearms and, thus, would not result in associated noise level increases. Under the IWDM Program and the variation to the Non-Lethal Program Alternative, because firearm use throughout the County for wildlife damage management purposes is part of the

⁹ Mendocino County. *General Plan* [Table 3-A]. August 2009.

environmental baseline, the proposed use of firearms would not represent any changes. Thus, *no impact* would occur under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, the Non-Lethal Program Alternative would not involve the use of firearms and, thus, would not result in associated noise level increases. Thus, *no effect* would occur. Under the IWDM Program and the variation to the Non-Lethal Program Alternative, firearm use on USFS land, USACE land, BLM land, and CA State Parks land would not conflict with applicable qualitative standards. However, within areas under the jurisdiction of Mendocino County or incorporated cities, firearms use associated with the IWDM Program and the variation to the Non-Lethal Program Alternative (suppressed or unsuppressed) could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards and the conservative standards used for incorporated areas established in the Fort Bragg General Plan, if a sensitive receptor is located within the noise contours identified in Table 4.4-10 and Table 4.4-11. Thus, the IWDM Program and the variation to the Non-Lethal Program Alternative could result in temporary increases in noise in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, and a *significant* effect could occur.

Improvement Measure(s)

Implementation of the following improvement measure, which would include compliance with the Table 4.4-10 and Table 4.4-11 setback distances, would reduce noise exposure due to firearm discharge to a less-than-significant level within the jurisdiction of Mendocino County and incorporated cities. For incorporated cities, by complying with the Fort Bragg noise standards, use of firearms would be in compliance with the less stringent standards established by the cities of Willits, Point Arena, and Ukiah.

However, circumstances may occur in which wildlife specialists would be required to discharge firearms within the vicinity of sensitive receptors, and compliance with the recommended noise contours, or selection of an alternative non-noise generating wildlife control method, would be infeasible. Thus, the County has chosen a conservative approach to the No Program Baseline analysis by concluding *significant and unavoidable*.

IWDM Program and Variation to the Non-Lethal Program Alternative

4.4-1 Mendocino County Jurisdiction

To the extent feasible, firearm discharge shall occur outside of the noise contours shown in Table 4.4-10 of this EIR, as applicable to

the corresponding time period and land use categories shown in Table 4.4-8.

Incorporated Cities Jurisdiction

To the extent feasible, firearm discharge shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-11 of this EIR, if a sensitive receptor is located within those distances.

OR

Alternatively, if feasible, the wildlife specialist shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-10 (County jurisdiction) and Table 4.4-11 (incorporated cities jurisdiction) for the selected firearm.

4.4-2 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to electronic distress device noise exposure. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. *No impact* would occur for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. Even with improvement measures, the effect is *significant and unavoidable* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

CEQA Baseline

IWDM Program

Use of electronic distress devices as a wildlife control method has been a component of WS-CA operations within the County under prior implementation of the IWDM Program since 1989. As such, use of electronic distress devices for wildlife damage management purposes is part of the environmental baseline, and continued use of electronic distress devices under the IWDM Program would not represent a new noise source. Thus, the IWDM Program would not cause exposure of sensitive receptors to excess noise levels beyond what has previously occurred under the IWDM Program, and no impact would occur related to electronic distress devices.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of electronic distress devices proposed by the IWDM Program and the Non-Lethal Program Alternative within

the County are similar. Therefore, the impact conclusion identified for the IWDM Program would be applicable to the Non-Lethal Program Alternative.

Variation to the Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of electronic distress devices proposed by the IWDM Program and the variation to the Non-Lethal Program Alternative within the County are similar. Therefore, the impact conclusion identified for the IWDM Program would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

The IWDM Program would include the use of electronic distress device sounds as one of the wildlife control methods to be implemented by WS-CA staff. This wildlife control method involves the playback of distress and alarm calls from either fixed or mobile equipment in the immediate or surrounding vicinity of a site. The primary noise source associated with the control method is the electronic playback of distress and alarm calls. It is important to note for this analysis that WS-CA would not be involved in the routine use of electronic distress devices as part of the IWDM Program. At most, at the request of the landowner, WS-CA may provide limited field demonstration of such equipment to the landowner. After demonstration, the ongoing use of the electronic distress device would be the sole responsibility of the landowner. Since Program funds would only be used for the short-term field demonstration by WS-CA, and not ongoing use of such equipment by the landowner, this noise analysis can be focused on the very limited instances of WS-CA field demonstrations.

As noted previously, the No Program Baseline sections treat the IWDM Program as a new program and, thus, does not account for the fact that such a program is already occurring. Thus, under this baseline scenario, use of electronic distress devices under the IWDM Program would be considered a net change from existing conditions. The following sections describe potential noise effects associated with use of electronic distress devices under the IWDM Program within the jurisdiction of Mendocino County, incorporated cities, USFS, USACE, BLM, and CA State Parks.

Mendocino County Jurisdiction

To quantify project electronic distress device noise generation, BAC utilized equipment manufacturer reference noise level data for a range of device models used in both homeowner and commercial (agricultural) applications. Table 4.4-12 shows the reference noise levels associated with such devices, and associated calculated noise contours for each model, which are also the adjusted Mendocino County Zoning Code noise standards identified in Table 4.4-8. The calculated noise contours take into consideration a standard spherical spreading of sound (i.e., a 6

dB decrease per each doubling of distance from source), and include an offset of - 1.5 dB per 1,000 feet to account for atmospheric absorption of sound.

Device Model	SPL (dB) at 3 feet	Noise Contours/Adjusted County Noise Standards, L_{max} (dBA) and Associated Distance from Source (feet)							
		65	70	75	80	85	90	95	100
Bird Gard Super Pro	125	2,232	1,440	890	533	311	179	102	58
Bird-X Mega Blaster Pro	125	2,232	1,440	890	533	311	179	102	58
Bird-X Birdxpeller Pro	110	533	311	179	102	58	33	19	11
Bird-X Broadband Pro	105	311	179	102	58	33	19	11	6
Bird B Gone Super Sonic	100	179	102	58	33	19	11	6	4

Note: Device model reference noise level data obtained from equipment manufacturer literature.

Source: *Bollard Acoustical Consultants, Inc., 2019.*

Footnote 2 of Table 4.4-6 above (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature and character of the noise source, project electronic distress devices could be considered temporary, short-term or intermittent. However, should a sensitive receptor be located within the noise contours identified in Table 4.4-12, noise from project-related electronic distress devices could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards, and a significant effect could occur.

Incorporated Cities Jurisdiction

The IWDM Program could be implemented within each of the four incorporated cities within the County. Because IWDM Program electronic distress devices would only be in operation for short durations during WS-CA demonstrations, noise exposure associated with electronic distress signals within incorporated cities within Mendocino County have been assessed relative to the Fort Bragg Coastal General Plan hourly (L_{max}) noise level limits (Table 4.4-7). This analysis for the urban/incorporated areas of the County is conservative from the standpoint that the Fort Bragg Coastal General Plan noise level standards are more restrictive than the noise level standards of the other incorporated cities within the County.

Table 4.4-13 shows the reference noise levels associated with electronic distress devices and associated calculated noise contours for each device model, which are

also the Fort Bragg Coastal General Plan L_{max} noise level limits identified in Table 4.4-7.

Device Model	SPL (dB) at 3 feet	Noise Contours/Adjusted City Noise Standards, L_{max} (dBA) and Associated Distance from Source (feet)	
		65	75
Bird Gard Super Pro	125	2,232	890
Bird-X Mega Blaster Pro	125	2,232	890
Bird-X Birdxpeller Pro	110	533	179
Bird-X Broadband Pro	105	311	102
Bird B Gone Super Sonic	100	179	58
Note: Device model reference noise level data obtained from equipment manufacturer literature.			
Source: Bollard Acoustical Consultants, Inc., 2019.			

Based on the nature of the IWDM Program operations, it is expected that implementation of program wildlife control methods, including electronic distress devices, would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor be located within the 65 dB (nighttime) or 75 dB (daytime) noise contours identified in Table 4.4-13, project-related electronic distress devices could exceed the Fort Bragg Coastal General Plan noise level standards – which could also exceed standards established by other incorporated cities within Mendocino County. Thus, a significant effect could occur due to implementation of the IWDM Program within incorporated cities in the County.

USFS Jurisdiction

As noted previously, approximately 7.7 percent of the total land within the County is under the jurisdiction of the USFS,¹⁰ including approximately 11 developed campsites and trailheads. Pursuant to 36 CFR 261.10(i), operating or using in or near a campsite, developed recreation site, or over an adjacent body of water without a permit, any device which produces noise, such as a radio, television, musical instrument, motor or engine in such a manner and at such a time so as to unreasonably disturb any person while on National Forest Service land is prohibited. Given that the IWDM Program would serve primarily to deter predators within areas where livestock is raised, it is reasonable to assume that implementation of program distress devices on USFS lands would primarily occur within rural agricultural areas, as compared to developed recreation areas. In the event that use of electronic distress devices occurs within or near developed

¹⁰ Mendocino County. *General Plan* [Table 3-A]. August 2009.

recreation areas of USFS lands (e.g., campsites, recreation sites, etc.), this analysis reasonably assumes that WS-CA would ensure compliance with 36 CFR 261.10(i).

In addition, 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans, which could be utilized, if necessary, for the IWDM Program operations. WS-CA would only provide wildlife damage management control assistance on USFS lands if requested by USFS or resource managers, at which time the USFS would review the methods proposed and grant any required authorization/permits. Given compliance with applicable federal regulations, the effect would be less-than-significant.

USACE Jurisdiction

Pursuant to 36 CFR 327.12(b), quiet shall be maintained in all public use areas between the hours of 10:00 PM and 6:00 AM., or those hours designated by the District Commander. In addition, the code section states that excessive noise during such times which unreasonably disturbs persons is prohibited.

This analysis reasonably assumes that use of electronic distress devices under the IWDM Program would comply with 36 CFR 32.12(b) while on USACE land. WS-CA would only provide wildlife damage management control assistance on USACE lands if requested by USACE or resource managers, at which time the USACE would review the methods proposed and grant any required authorization/permits. Given compliance with applicable federal regulations and approval by the USACE prior to implementation, the effect would be less than significant.

BLM Jurisdiction

As noted previously, Mendocino County includes a total of 120,730 acres of land under BLM jurisdiction, or approximately 5.4 percent of the total land within the County.¹¹ Of the BLM land within the County, only a small portion comprises developed recreation sites. Pursuant to 43 CFR 8365.2-2, no person shall operate or use any audio device such as a radio, television, musical instrument, or other noise producing device or motorized equipment in a manner that makes unreasonable noise that disturbs other visitors while on developed BLM recreation sites and areas, unless otherwise authorized. Given that the IWDM Program would serve primarily to deter predators within areas where livestock is raised, it is reasonable to assume that implementation of program distress devices on BLM lands would primarily occur within rural areas, as compared to developed recreation sites and areas. In the event that use of electronic distress devices within or near developed recreation sites or areas of BLM lands is deemed an appropriate IWDM method, program electronic distress device noise would be required to comply with 43 CFR 8365.2-2.

¹¹ Mendocino County. *General Plan* [Table 3-A]. August 2009.

This analysis reasonably assumes that the IWDM Program would comply with applicable federal regulations while on BLM lands, including obtaining the appropriate authorization from BLM prior to implementation if deemed necessary. WS-CA would only provide wildlife damage management control assistance on BLM lands if requested by BLM or resource managers, at which time the BLM would review the methods proposed and grant any required authorization/permits. Thus, the effect would be less than significant.

CA State Parks Jurisdiction

Overall, Mendocino County includes a total of 30,336 acres of land under the jurisdiction of CA State Parks, or approximately 1.4 percent of the total land within the County.¹² Pursuant to 14 CCR 4320(b), no person shall at any time, use outside machinery or electronic equipment including electrical speakers, radios, phonographs, televisions, or other devices, at a volume which is, or is likely to be, disturbing to others without specific permission of the Department while on CA State Parks land.

This analysis reasonably assumes that the IWDM Program would comply with 14 CCR 4320(b) while on CA State Parks land. In addition, 14 CCR Section 4309 states that the CA State Parks Department may grant a permit to remove, treat, disturb, or destroy animals – which would be applicable to electronic device operations used under the IWDM Program on CA State Parks land. WS-CA would only provide wildlife damage management control assistance on CA State Parks lands if requested by CA State Parks or resource managers, at which time the CA State Parks would review the methods proposed and grant any required authorization/permits. Given compliance with applicable regulations, the effect would be less than significant.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of electronic distress devices proposed by the IWDM Program and the Non-Lethal Program Alternative within the County of Mendocino are similar. Therefore, the conclusion and associated improvement measure identified below for the proposed project would be applicable to the Non-Lethal Program Alternative.

Variation to the Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of electronic distress devices proposed by the IWDM Program and the variation to the Non-Lethal Program Alternative within the County of Mendocino are similar. Therefore, the conclusion and associated improvement measure identified for the proposed project would be applicable to the variation to the Non-Lethal Program Alternative.

¹² Mendocino County. *General Plan* [Table 3-A]. August 2009.

Conclusion

CEQA Baseline

Under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, because use of electronic distress devices throughout the County for wildlife damage management purposes is part of the environmental baseline, the proposed use of electronic distress devices would not represent any changes. Thus, ***no impact*** would occur under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative

Mitigation Measure(s)

None required.

No Program Baseline

Under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, use of electronic distress devices on USFS land, USACE land, BLM land, and CA State Parks land would not conflict with applicable qualitative standards. However, within areas under the jurisdiction of Mendocino County and incorporated cities, noise from such devices could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards and the standards established in the Fort Bragg General Plan, if a sensitive receptor is located within the noise contours identified in Table 4.4-12 and Table 4.4-13, respectively. Thus, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative could result in a substantial temporary increase in ambient noise in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies electronic due to distress device noise exposure, and a ***significant*** effect could occur.

Improvement Measure(s)

Implementation of the following improvement measure, which would include compliance with the Table 4.4-12 and Table 4.4-13 setback distances, would reduce noise exposure due to use of electronic distress devices to a less than significant level within the jurisdiction of Mendocino County and incorporated cities. For incorporated cities, by complying with the Fort Bragg noise standards, use of electronic distress devices would be in compliance with the less stringent standards established by the cities of Willits, Point Arena, and Ukiah.

However, circumstances may occur in which wildlife specialists would be required to employ use of electronic distress devices within the vicinity of sensitive receptors, and compliance with the recommended noise contours, or selection of an alternative non-noise generating wildlife control method, would be infeasible. Thus, the County has chosen a conservative approach to the No Program Baseline analysis by concluding ***significant and unavoidable***.

IWDM Program, Non-Lethal Program Alternative, and Variation to the Non-Lethal Program Alternative

4.4-2 *Mendocino County Jurisdiction*

To the extent feasible, use of electronic distress devices shall occur outside of the noise contours shown in Table 4.4-12 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.

Incorporated Cities Jurisdiction

To the extent feasible, use of electronic distress devices shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-13 of this EIR, if a sensitive receptor is located within those distances.

OR

Alternatively, if feasible, the wildlife specialist shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-12 (County jurisdiction) and Table 4.4-13 (incorporated cities jurisdiction) for the selected equipment.

4.4-3 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from tracking dogs. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. *No impact* would occur for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. Even with improvement measures, the effect is *significant and unavoidable* for the IWDM Program. *No effect* would occur for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative.**

CEQA Baseline

IWDM Program

Use of tracking dogs as a wildlife control method has been a component of WS-CA operations within the County under prior implementation of the IWDM Program since 1989. As such, use of tracking dogs for wildlife damage management purposes is part of the environmental baseline, and continued use of tracking dogs under the IWDM Program would not represent a new noise source. Thus, the IWDM Program would not cause

exposure of sensitive receptors to excess noise levels beyond what has previously occurred under the IWDM Program, and no impact would occur related to tracking dog noise.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not involve the use of tracking dogs within the County of Mendocino or incorporated cities, USFS land, USACE land, BLM land, or CA State Parks land, as predators that are targeted by tracking dogs are typically euthanized upon capture. The Non-Lethal Program Alternative does not include euthanization. Therefore, no impact would occur.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would not involve the use of tracking dogs within the County of Mendocino or incorporated cities, USFS land, USACE land, BLM land, or CA State Parks land. Under the variation, the only lethal control method that would be permitted would be gunshot unaided by the live capture method of tracking dogs. Therefore, no impact would occur.

No Program Baseline

IWDM Program

The IWDM Program would include the use of tracking dogs as one of the wildlife control methods to be implemented by WS-CA staff. Specifically, trained dogs would be used to locate, pursue, or decoy animals. The primary noise source associated with use of tracking dogs is dog howling upon the discovery of the target animal. As noted previously, the No Program Baseline sections treat the IWDM Program as a new program and, thus, does not account for the fact that such a program is already occurring. Thus, under this baseline scenario, use of tracking dogs under the IWDM Program would be considered a net change from existing conditions. The following sections describe potential noise effects associated with use of tracking dogs under the IWDM Program within the jurisdiction of Mendocino County, incorporated cities, USFS, USACE, BLM, and CA State Parks.

Mendocino County Jurisdiction

According to the project description, common tracking dogs include breeds of hounds such as blue tick, red-bone, and walker. However, due to the lack of reliable noise level measurements that were available for these breeds, BAC utilized published reference noise level data for a golden retriever bark in order to quantify project tracking dog noise generation. According to the Guinness World Records, the golden retriever has the loudest measured bark of any dog breed. Therefore, the noise level data used for a golden retriever in the assessment of project tracking dog noise exposure is considered to be conservative.

As noted by BAC, a single golden retriever dog bark produces a noise level of approximately 113 dB at a distance of four feet. Table 4.4-14 shows the dog bark reference noise level, and associated calculated noise contours, which are also the adjusted Zoning Code noise standards identified in Table 4.4-8. The calculated noise contours take into consideration a standard spherical spreading of sound (i.e., a 6 dB decrease per each doubling of distance from source), and include an offset of -1.5 dB per 1,000 feet to account for atmospheric absorption of sound.

Table 4.4-14 Dog Bark Reference Noise Levels and Projected Noise Contours – Mendocino County									
Source	SPL (dB) at 4 feet	Noise Contours/Adjusted County Noise Standards, L_{max} (dBA) and Associated Distance from Source (feet)							
		65	70	75	80	85	90	95	100
Golden retriever bark	113	869	519	303	173	99	56	32	18
Note: Reference noise level data obtained from Guinness World Records online library.									
Source: <i>Bollard Acoustical Consultants, Inc., 2019.</i>									

Footnote 2 of Table 4.4-6 above (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature and character of the noise source, project tracking dog noise levels could be considered temporary, short-term, or intermittent. However, should a sensitive receptor be located within the noise contours identified in Table 4.4-14, noise from project-related tracking dogs could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards, and a significant effect could occur.

Incorporated Cities Jurisdiction

Because noise from tracking dogs typically only occurs when the target animal is located and/or cornered with its handler, tracking dog noise levels generated from these events are expected to occur within a short duration. Further, dog barking noise is considered to be impulsive in character. Based on this information, noise exposure associated with tracking dog use within incorporated cities within Mendocino County has been assessed relative to the Fort Bragg Coastal General Plan L_{max} noise level limits (Table 4.4-7). This analysis for the urban/incorporated areas of the County is conservative from the standpoint that the Fort Bragg Coastal General Plan noise level standards are more restrictive than the noise level standards of the other incorporated cities within the County. Table 4.4-15 shows the noise levels associated with tracking dogs, and associated calculated noise contours, which are also the Fort Bragg Coastal General Plan noise level limits identified in Table 4.4-7.

Table 4.4-15 Dog Bark Reference Noise Levels and Projected Noise Contours – City of Fort Bragg			
Source	SPL (dB) at 4 feet	Noise Contours/Adjusted City Noise Standards, L_{max} (dBA) and Associated Distance from Source (feet)	
		65	75
Golden retriever bark	113	869	303
Note: Reference noise level data obtained from Guinness World Records online library.			
<i>Source: Bollard Acoustical Consultants, Inc., 2019.</i>			

Based on the nature of the IWDM Program operations, it is expected that implementation of program wildlife control methods, including tracking dogs, would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor be located within the 65 dB (nighttime) or 75 dB (daytime) noise contours identified in Table 4.4-15, project-related tracking dog use could exceed the Fort Bragg Coastal General Plan noise level standards – which could also exceed standards established by other incorporated cities within Mendocino County. Thus, a significant temporary effect could occur due to implementation of the IWDM Program within incorporated cities in the County.

USFS Jurisdiction

The USFS does not provide noise-related criteria that would be directly applicable to project tracking dog noise exposure on USFS land. However, 36 CFR 261.16(j) states that bringing in or possessing an animal, other than a service animal, unless it is crated, caged, or upon a leash not longer than six feet, or otherwise under physical restrictive control while on USFS land is prohibited. In addition, code section 36 CFR 26.16(k) states that bringing in or possessing an animal (other than a service animal) is prohibited.

However, 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans. Such authorizations would be applicable to IWDM Program tracking dog operations on USFS land. This analysis reasonably assumes that the IWDM Program would comply with 36 CFR 261.1a while on USFS land by WS-CA obtaining proper authorization for special use of dogs, if deemed an appropriate wildlife damage management method. WS-CA would only provide wildlife damage management control assistance on USFS lands if requested by USFS or resource managers, at which time the USFS would approve of the methods and grant authorization. Given compliance with identified code sections, and because the USFS does not provide noise related criteria that would be directly applicable to project tracking dog noise exposure on USFS land, the effect would be less than significant.

USACE Jurisdiction

Within Mendocino County, USACE lands are limited to Lake Mendocino, which represents a relatively small area relative to the overall County. Pursuant to 36 CFR 327.11(a), no person shall bring dogs, cats, or other pets into developed recreation areas or adjacent waters unless penned, caged, on a leash under six feet in length, or otherwise physically restrained. Further, the code section identifies that no person shall allow animals to bark or emit other noise which unreasonably disturbs other people.

This analysis reasonably assumes that use of tracking dogs under the IWDM Program would comply with 36 CFR 327.11(a) while on USACE land. WS-CA would only provide wildlife damage management control assistance on USACE lands if requested by USACE or resource managers, at which time the USACE would review the methods proposed and grant any required authorization/permits. Given compliance with applicable federal regulations, the lack of qualitative noise criteria directly applicable to project tracking dog noise exposure on USACE lands, and approval by the USACE prior to implementation, the effect would be less than significant.

BLM Jurisdiction

The BLM does not provide noise-related criteria that would be directly applicable to project tracking dog noise exposure on BLM lands. However, 43 CFR 8365.2-5(b) states that, on developed recreation sites and areas, unless otherwise authorized, no person shall bring an animal, except a Seeing Eye or Hearing Ear dog, to a swimming area on BLM lands. As noted previously, developed recreation sites and areas comprise a relatively small portion of BLM lands, and the likelihood of needing to perform wildlife damage management near such sites/areas is limited.

This analysis reasonably assumes that the IWDM Program would comply with 43 CFR 8365.2-5(b) while on BLM lands, including WS-CA obtaining the appropriate authorization from BLM to use tracking dogs if deemed an appropriate wildlife damage management method. WS-CA would only provide wildlife damage management control assistance on BLM lands if requested by BLM or resource managers, at which time the BLM would review the methods proposed and grant any required authorization/permits. Given compliance with the identified code section, and because BLM does not provide noise standards that would be applicable to use of tracking dogs, the effect would be less than significant.

CA State Parks Jurisdiction

The CA State Parks Department does not provide noise-related criteria that would be directly applicable to project tracking dog noise exposure on CA State Parks land. However, 14 CCR 4312 establishes criteria pertaining to the control of animals on CA State Parks lands. Specifically, 14 CCR 4312 notes that currently,

where hunting is allowed in CA State Parks lands, tracking dogs may be used. This analysis reasonably assumes that the IWDM Program would comply with 14 CCR 4312 while on CA State Parks land. In addition, 14 CCR 4309 states that the Department may grant a permit to remove, treat, disturb, or destroy animals, which would be applicable to IWDM Program dog tracking operations on CA State Parks land. Lastly, pursuant to code section 14 CCR 4309(g), dogs may be used to assist in hunting in state recreation areas open to hunting, provided that such dogs do not pursue or take any wildlife other than that being hunted. WS-CA would only provide wildlife damage management control assistance on CA State Parks lands if requested by CA State Parks or resource managers, at which time the CA State Parks would review the methods proposed and grant any required authorization/permits. Given compliance with the identified code sections, including obtaining appropriate authorization, as well as the lack of noise criteria applicable to tracking dogs, a less-than-significant effect would occur.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would not involve the use of tracking dogs within the County of Mendocino, as predators that are targeted by tracking dogs are typically euthanized upon capture. Therefore, no effect would occur.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would not involve the use of tracking dogs within the County of Mendocino. Under the variation, the only lethal control method that would be permitted would be gunshot unaided by the live capture method of tracking dogs. Therefore, no effect would occur.

Conclusion

CEQA Baseline

Based on the above, the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative would not involve the use of tracking dogs and, thus, would not result in associated noise level increases. Under the IWDM Program, because tracking dog use throughout the County for wildlife damage management purposes is part of the environmental baseline, the proposed use of tracking dogs would not represent any changes. Thus, ***no impact*** would occur under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.

Mitigation Measure(s)

None required.

No Program Baseline

Under the IWDM Program, use of tracking dogs on USFS land, USACE land, BLM land, and CA State Parks land would not conflict with applicable qualitative standards. Tracking dogs would not be used under the Non-Lethal Program Alternative or the variation to the Non-Lethal Program Alternative. Thus, *no effect* would occur under the Non-Lethal Program Alternative or the variation to the Non-Lethal Program Alternative.

However, within areas under the jurisdiction of Mendocino County and incorporated cities, barking associated with use of tracking dogs could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards and the standards established in the Fort Bragg General Plan, if a sensitive receptor is located within the noise contours identified in Table 4.4-14 and Table 4.4-15, respectively. Thus, the IWDM Program could result in substantial generation of noise due to tracking dogs in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, and a *significant* effect could occur.

Improvement Measure(s)

Implementation of the following improvement measure, which would include compliance with the Table 4.4-14 and Table 4.4-15 setback distances, would reduce noise exposure due to tracking dogs to a less-than-significant level within the jurisdiction of Mendocino County and incorporated cities. For incorporated cities, by complying with the Fort Bragg noise standards, use of tracking dogs would be in compliance with the less stringent standards established by the cities of Willits, Point Arena, and Ukiah.

However, circumstances may occur in which wildlife specialists would be required to use tracking dogs within the vicinity of sensitive receptors, and compliance with the recommended noise contours, or selection of an alternative non-noise generating wildlife control method would be infeasible. Thus, the County has chosen a conservative approach to the No Program Baseline analysis by concluding *significant and unavoidable*.

IWDM Program Only

4.4-3 Mendocino County Jurisdiction

To the extent feasible, use of tracking dogs shall occur outside of the noise contours shown in Table 4.4-14 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.

Incorporated Cities Jurisdiction

To the extent feasible, use of tracking dogs shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in

Table 4.4-11 of this EIR, if a sensitive receptor is located within those distances.

OR

Alternatively, if feasible, a WS-CA staff shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-14 (County jurisdiction) and Table 4.4-15 (incorporated cities jurisdiction).

4.4-4 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from frightening devices. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. No impact would occur for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. Even with improvement measures, the effect is significant and unavoidable for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

CEQA Baseline

IWDM Program

Use of frightening devices as a wildlife control method has been a component of WS-CA operations within the County under prior implementation of the IWDM Program since 1989. As such, use of frightening devices for wildlife damage management purposes is part of the environmental baseline, and continued use of frightening devices under the IWDM Program would not represent a new noise source. Thus, the IWDM Program would not cause exposure of sensitive receptors to excess noise levels beyond what has previously occurred under the IWDM Program, and no impact would occur related to frightening devices noise.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of frightening devices proposed by the IWDM Program and the Non-Lethal Program Alternative within the County of Mendocino are similar. Therefore, the impact conclusion identified for the proposed project would be applicable to the Non-Lethal Program Alternative.

Variation to the Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of frightening devices proposed by the IWDM Program and the variation to the Non-Lethal Program Alternative within the County of Mendocino are similar. Therefore, the impact conclusion identified

for the proposed project would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

The IWDM Program would include the use of frightening devices as one of the wildlife control methods to be implemented by WS-CA staff. Frightening devices are a type of equipment that creates impulsive bursts of sound to disperse animals from the area to be protected. It is important to note for this analysis that WS-CA would not be involved in the routine use of frightening devices as part of the IWDM Program. At most, at the request of the landowner, WS-CA may provide limited field demonstration of such equipment to the landowner. After demonstration, the ongoing use of the frightening devices would be the sole responsibility of the landowner. Since Program funds would only be used for the short-term field demonstration by WS-CA, and not ongoing use of such equipment by the landowner, this analysis focuses on the very limited instances of WS-CA field demonstrations.

As noted previously, the No Program Baseline sections treat the IWDM Program as a new program and, thus, do not account for the fact that such a program is already occurring. Thus, under this baseline scenario, use of frightening devices under the IWDM Program would be considered a net change from existing conditions. The following sections describe potential noise effects associated with use of frightening devices under the IWDM Program within the jurisdiction of Mendocino County, incorporated cities, USFS, USACE, BLM, and CA State Parks.

Mendocino County Jurisdiction

To quantify project frightening device noise generation, BAC utilized equipment information and reference noise level data for devices commonly used by WS-CA. Table 4.4-16 shows the reference noise levels associated with these devices, and associated calculated noise contours for each device, which are also the adjusted Zoning Code noise standards identified in Table 4.4-8.

Footnote 2 of Table 4.4-6 above (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature and character of the noise source, noise from project frightening devices could be considered temporary, short-term or intermittent. However, should a sensitive receptor be located within the noise contours identified in Table 4.4-16, noise from such devices could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards, and a temporary significant effect could occur.

Table 4.4-16 Frightening Device Reference Noise Levels and Projected Noise Contours – Mendocino County									
Device Model	SPL (dB) at 3 feet	Noise Contours/Adjusted County Noise Standards, L_{max} (dB) and Associated Distance from Source (feet)							
		65	70	75	80	85	90	95	100
CAPA	150	10,178	8,139	6,294	4,678	3,324	2,250	1,452	898
Bird Banger EXP	130	3,324	2,250	1,452	898	537	314	180	103
Shell Cracker	130	3,324	2,250	1,452	898	537	314	180	103
M14 Propane Cannon	130	3,324	2,250	1,452	898	537	314	180	103
Guardian G2 Propane Cannon	120	1,452	898	537	314	180	103	58	33
Note: Reference noise level information obtained from product manufacturers (Reed-Joseph International Company and Good Life).									
<i>Source: Bollard Acoustical Consultants, Inc., 2019.</i>									

The calculated noise contours take into consideration a standard spherical spreading of sound (i.e., a 6 dB decrease per each doubling of distance from source), and include an offset of -1.5 dB per 1,000 feet to account for atmospheric absorption of sound.

Incorporated Cities Jurisdiction

Because noise from IWDM Program frightening devices are categorized as instantaneous, noise exposure associated with frightening device use within incorporated cities within Mendocino County has been assessed relative to the Fort Bragg Coastal General Plan maximum (L_{max}) noise level limits (see Table 4.4-7). This analysis for the urban/incorporated areas of the County is conservative from the standpoint that the Fort Bragg Coastal General Plan noise level standards are more restrictive than the noise level standards of the other incorporated cities within the County.

Table 4.4-17 shows the noise levels associated with IWDM Program frightening device models, and associated calculated noise contours for each model, which are also the Fort Bragg Coastal General Plan maximum (L_{max}) noise level limits identified in Table 4.4-7.

Table 4.4-17 Frightening Device Reference Noise Levels and Projected Noise Contours – City of Fort Bragg			
Device Model	SPL (dB) at 3 feet	Noise Contours/Adjusted City Noise Standards, L_{max} (dB) and Associated Distance from Source (feet)	
		65	75
CAPA	150	10,178	6,294
Bird Banger EXP	130	3,324	1,452
Shell Cracker	130	3,324	1,452
M14 Propane Cannon	130	3,324	1,452
Guardian G2 Propane Cannon	120	1,452	537
Note: Reference noise level information obtained from product manufacturers (Reed-Joseph International Company and Good Life).			
<i>Source: Bollard Acoustical Consultants, Inc., 2019.</i>			

Based on the nature of the IWDM Program operations, it is expected that implementation of program wildlife control methods, including frightening devices, would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor be located within the 65 dB (nighttime) or 75 dB (daytime) noise contours identified in Table 4.4-17, project-related frightening device use could exceed the Fort Bragg Coastal General Plan noise level standards – which could also exceed standards established by other incorporated cities within Mendocino County. Thus, a temporary significant effect could occur due to implementation of the IWDM Program within incorporated cities in the County.

USFS Jurisdiction

Pursuant to 36 CFR 261.10(i), operating or using in or near a campsite, developed recreation site, or over an adjacent body of water without a permit, any device which produces noise, such as a radio, television, musical instrument, motor or engine in such a manner and at such a time so as to unreasonably disturb any person while on USFS land is prohibited. As noted previously, only 7.7 percent of the land within Mendocino County is under the jurisdiction of the USFS, within which the USFS maintains approximately 11 developed campsites and trailheads. This analysis reasonably assumes that the IWDM Program would comply with 36 CFR 261.10(i) while on USFS. In addition, 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans, which could be utilized, if necessary, during IWDM Program operations. WS-CA would only provide wildlife damage management control assistance on USFS lands if requested by USFS or resource managers, at which time the USFS would approve of the methods and grant authorization. Given compliance with the above-mentioned code sections, a less-than-significant effect would occur.

USACE Jurisdiction

Pursuant to 36 CFR 327.12(b), quiet shall be maintained in all public use areas between the hours of 10:00 PM and 6:00 AM., or those hours designated by the District Commander. In addition, the code section states that excessive noise during such times which unreasonably disturbs person is prohibited.

This analysis reasonably assumes that use of frightening devices under the IWDM Program would comply with 36 CFR 32.12(b) while on USACE land. Additionally, WS-CA would only provide wildlife damage management control assistance on USACE lands if requested by USACE or resource managers, at which time the USACE would approve of the methods and grant authorization. Given compliance with applicable federal regulations and approval by the USACE prior to implementation, the effect would be less than significant.

BLM Jurisdiction

Pursuant to 43 CFR 8365.2-2, no person shall operate or use any audio device such as a radio, television, musical instrument, or other noise producing device or motorized equipment in a manner that makes unreasonable noise that disturbs other visitors while on developed BLM recreation sites and areas, unless otherwise authorized. As noted previously, the distribution of BLM recreation sites and areas within the County is relatively limited. This analysis reasonably assumes that the IWDM Program would comply with 43 CFR 8365.2-2 while on BLM lands. WS-CA would only provide wildlife damage management control assistance on BLM lands if requested by BLM or resource managers, at which time the BLM would approve of the methods and grant authorization. Based on the required compliance with the identified code section, a less-than-significant effect would occur.

CA State Parks Jurisdiction

Pursuant to 14 CCR 4320(b), no person shall at any time, use outside machinery or electronic equipment including electrical speakers, radios, phonographs, televisions, or other devices, at a volume which is, or is likely to be, disturbing to others without specific permission of the Department while on CA State Parks land. This analysis reasonably assumes that the IWDM Program would comply with 14 CCR 4320(b) while on CA State Parks land. In addition, 14 CCR 4309 states that the CA State Parks Department may grant a permit to remove, treat, disturb, or destroy animals, which would be applicable to use of frightening devices on CA State Parks land under the IWDM Program. WS-CA would only provide wildlife damage management control assistance on CA State Parks lands if requested by CA State Parks or resource managers, at which time the CA State Parks would approve of the methods and grant authorization. Based on the required compliance with the identified code sections, a less-than-significant effect would occur.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of frightening devices proposed by the IWDM Program and the Non-Lethal Program Alternative within Mendocino County are similar. Therefore, the conclusion and associated improvement measure identified below for the proposed project would be applicable to the Non-Lethal Program Alternative.

Variation to the Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of frightening devices proposed by the IWDM Program and the variation to the Non-Lethal Program Alternative within Mendocino County are similar. Therefore, the conclusion and associated improvement measure identified below for the proposed project would be applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, because use of frightening devices throughout the County for wildlife damage management purposes is part of the environmental baseline, the proposed use of frightening devices would not represent any changes. Thus, ***no impact*** would occur under the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.

Mitigation Measure(s)

None required.

No Program Baseline

Under the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative, use of frightening devices on USFS land, USACE land, BLM land, and CA State Parks land would not conflict with applicable qualitative standards. However, within areas under the jurisdiction of Mendocino County and incorporated cities, frightening device noise could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards and the standards established in the Fort Bragg General Plan, if a sensitive receptor is located within the noise contours identified in Table 4.4-16 and Table 4.4-17, respectively. Thus, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative could result in generation of noise from frightening devices in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, and a temporary ***significant*** effect could occur.

Improvement Measure(s)

Implementation of the following improvement measure, which would include compliance with the Table 4.4-16 and Table 4.4-17 setback distances, would reduce noise exposure due to use of frightening devices to a less-than-significant level within the jurisdiction of Mendocino County and incorporated cities. For incorporated cities, by complying with the Fort Bragg noise standards, use of frightening devices would be in compliance with the less stringent standards established by the cities of Willits, Point Arena, and Ukiah.

However, circumstances may occur in which wildlife specialists would be required to employ use of frightening devices within the vicinity of sensitive receptors, and compliance with the recommended noise contours or selection of an alternative non-noise generating wildlife control method would be infeasible. Thus, the County has chosen a conservative approach to the No Program Baseline analysis by concluding *significant and unavoidable*.

IWDM Program, Non-Lethal Program Alternative, and Variation to the Non-Lethal Program Alternative

4.4-4 Mendocino County Jurisdiction

To the extent feasible, use of frightening device shall occur outside of the noise contours shown in Table 4.4-16 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-8.

Incorporated Cities Jurisdiction

To the extent feasible, use of frightening device shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-17 of this EIR, if a sensitive receptor is located within those distances.

OR

Alternatively, if feasible, a WS-CA staff shall rely on a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-16 (County jurisdiction) and Table 4.4-17 (incorporated cities jurisdiction) for the selected device.

4.4-5 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from livestock protection dogs. Based on the analysis below, the findings are as follows:

- **CEQA Baseline.** Even with mitigation, the impact is *significant and unavoidable* for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative. *No impact* would occur for the IWDM Program.
- **No Program Baseline.** Even with improvement measures, the effect is *significant and unavoidable* for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative. *No effect* would occur for the IWDM Program.

CEQA Baseline

IWDM Program

According to the project description, the use of livestock protection dogs as a wildlife control method would not be directly implemented by WS-CA staff, but rather only recommended to private land owners for implementation. In the event that the use of livestock protection dogs is recommended and subsequently implemented, the private land owner would be financially responsible for all associated cost. Because this wildlife control method would not be directly implemented or funded by the IWDM Program, no effect would occur related to use of livestock protection dogs under the IWDM Program.

Non-Lethal Program Alternative

Unlike the IWDM Program, the Non-Lethal Program Alternative is anticipated to include a cost-share/reimbursement mechanism for the use of livestock protection dogs by private land owners. As a result, compared to the IWDM Program, provision of funding for use of livestock protection dogs under the Non-Lethal Program Alternative is considered a new control method. Thus, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs within the jurisdiction of Mendocino County, incorporated cities, USFS, USACE, BLM, and CA State Parks is provided herein.

Mendocino County Jurisdiction

Under the Non-Lethal Program Alternative, livestock protection dogs would be integrated with the livestock to be protected and would repel predators. The primary noise source associated with this control method would be dogs barking at predatory animals. Common livestock protection dog breeds include breeds such as Great Pyrenees, Anatolian Shepherds, Komondors, and Maremmas. However, due to the lack of reliable noise level measurements that were available for such breeds, BAC utilized published reference noise level data for a golden retriever in order to quantify tracking dog noise generation. As noted previously, the bark of a golden retriever has been measured to be the loudest of any dog. Therefore, the

noise level data used for a golden retriever in the assessment of livestock protection dog noise exposure is considered to be conservative.

As noted previously, a single golden retriever dog bark produces a noise level of approximately 113 dB at a distance of four feet. Table 4.4-18 shows the dog bark reference noise level, and associated calculated noise contours, which are also the adjusted Zoning Code noise standards identified in Table 4.4-9. The calculated noise contours take into consideration a standard spherical spreading of sound (i.e., a 6 dB decrease per each doubling of distance from source), and include an offset of -1.5 dB per 1,000 feet to account for atmospheric absorption of sound.

Table 4.4-18 Dog Bark Reference Noise Levels and Projected Noise Contours – Mendocino County									
Source	SPL (dB) at 4 feet	Noise Contours/Adjusted County Noise Standards, L₂₅ (dBA) and Associated Distance from Source (feet)							
		50	55	60	65	70	75	80	85
Golden retriever bark	113	3,221	2,172	1,396	861	515	300	173	99
Note: Reference noise level data obtained from Guinness World Records online library.									
Source: Bollard Acoustical Consultants, Inc., 2019.									

Footnote 2 of Table 4.4-6 (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature and character of the noise source, livestock protection dog noise levels occurring under the Non-Lethal Program Alternative could be considered temporary, short-term or intermittent. However, should a sensitive receptor be identified within the Table 4.4-18 noise contours, Non-Lethal Program Alternative livestock protection dog noise levels could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards. Thus, a significant impact could occur.

Incorporated Cities Jurisdiction

One of the purposes of livestock protection dogs is to alert (bark) in the event that a predator threatens the livestock. It is reasonable to assume that predators would not continuously be within close proximity of the protected livestock. Thus, noise from livestock protection dogs in the act of protecting the livestock would occur infrequently. It is further expected that those infrequent, impulsive barking events would be of relatively short duration. Based on this information, noise exposure associated with program livestock protection dogs was determined to be most appropriately assessed relative to the Fort Bragg Coastal General Plan hourly (L_{max}) noise level limits (see Table 4.4-7). The noise contours for such limits are shown in Table 4.4-15 above.

Based on the nature of the Non-Lethal Program Alternative operations, it is expected that implementation of program wildlife control methods, including livestock protection dogs, would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor be located within the 45 dB (nighttime) and 55 dB (daytime) noise contours identified in Table 4.4-15, use of livestock protection dogs under the Non-Lethal Program Alternative could exceed the Fort Bragg Coastal General Plan noise level standards – which could also exceed standards established by other incorporated cities within Mendocino County. Thus, a temporary significant impact could occur due to implementation of the IWDM Program within incorporated cities in the County.

USFS Jurisdiction

The Non-Lethal Program Alternative is anticipated to include a cost-share/reimbursement mechanism for the use of livestock protection dogs by private livestock owners. According to WS-CA, private livestock owners are actively engaged in grazing leases on USFS lands within Mendocino County. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs on leased USFS lands within Mendocino County is included herein.

The USFS does not provide identified noise-related criteria that would be directly applicable to livestock protection dog noise exposure on USFS lands. However, 36 CFR 261.16(j) states that bringing in or possessing an animal, other than a service animal, unless it is crated, caged, or upon a leash not longer than six feet, or otherwise under physical restrictive control while on USFS land is prohibited. In addition, 36 CFR 26.16(k) states that bringing in or possessing an animal (other than a service animal) is prohibited.

This analysis reasonably assumes that the use of livestock protection dogs under the Non-Lethal Program Alternative would comply with 36 CFR 261.16(j) and 36 CFR 261.16(k) while on USFS land. Furthermore, 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans – which would be applicable to the indirect implementation of livestock protection dog operations on leased USFS land. Although livestock owners with grazing leases on USFS land may contact WS-CA directly for wildlife damage management, WS-CA would only provide wildlife damage management control assistance on USFS lands following coordination with USFS, at which time the USFS would review the methods proposed and grant any required authorization/permits. Given compliance with the above-mentioned code sections, a less-than-significant impact would occur.

USACE Jurisdiction

According to WS-CA, lands owned or managed by the USACE are commonly grazed. Thus, private livestock owners could engage in grazing leases on USACE land. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs on leased USACE land within Mendocino County is included herein.

Pursuant to 36 CFR 327.11(a), no person shall bring dogs, cats, or other pets into developed recreation areas or adjacent waters unless penned, caged, on a leash under six feet in length, or otherwise physically restrained. In addition, the code section also identifies that no person shall allow animals to bark or emit other noise which unreasonably disturbs other people. This analysis reasonably assumes that the use of livestock protection dogs under the Non-Lethal Program Alternative would comply with 36 CFR 327.11(a) while on USACE land. Although livestock owners with grazing leases on USACE land may contact WS-CA directly for wildlife damage management, WS-CA would only provide wildlife damage management control assistance on USACE lands following coordination with USACE, at which time USACE would review the methods proposed and grant any required authorization/permits. Given compliance with the above-mentioned code sections, including obtaining proper authorization, a less-than-significant impact would occur.

BLM Jurisdiction

According to WS-CA, private livestock owners are actively engaged in grazing leases on BLM lands within Mendocino County. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs on leased BLM lands within Mendocino County is included in this assessment.

The BLM does not provide identified noise-related criteria that would be directly applicable to livestock protection dog noise exposure on BLM lands. However, code section 43 CFR 8365.2-5(b) states that, on developed recreation sites and areas, unless otherwise authorized, no person shall bring an animal, except a Seeing Eye or Hearing Ear dog, to a swimming area on BLM lands. This analysis reasonably assumes that the use of livestock protection dogs under the Non-Lethal Program Alternative program would comply with 43 CFR 8365.2-5(b) while on BLM lands. Although livestock owners with grazing leases on BLM lands may contact WS-CA directly for wildlife damage management, WS-CA would only provide wildlife damage management control assistance on BLM lands following coordination with BLM, at which time the BLM would review the methods proposed and grant any required authorization/permits. Given compliance with the above-mentioned code sections, including obtaining proper authorization, a less-than-significant impact would occur.

CA State Parks Jurisdiction

According to WS-CA, lands owned or managed by CA State Parks are commonly grazed. Thus, private livestock owners may engage in grazing leases on CA State Parks land. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs on leased CA State Parks land within Mendocino County is included herein.

The CA State Parks Department does not provide identified noise-related criteria that would be directly applicable to livestock protection dog noise exposure on CA State Parks land. However, 14 CCR 4312 establishes criteria pertaining to the control of animals on CA State Parks land. This analysis reasonably assumes that use of livestock protection dogs under the Non-Lethal Program Alternative would comply with 14 CCR 4312 while on CA State Parks land. Although livestock owners with grazing leases on CA State Parks lands may contact WS-CA directly for wildlife damage management, WS-CA would only provide wildlife damage management control assistance on CA State Parks lands following coordination with CA State Parks, at which time the CA State Parks would review the methods proposed and grant any required authorization/permits. Given compliance with the above-mentioned code sections, including obtaining proper authorization, a less-than-significant impact would occur.

Variation to the Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of livestock protection dogs proposed by the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative within the County of Mendocino are identical. Therefore, the impact conclusion and associated mitigation identified below for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

As noted above, because use of livestock protection dogs would not be directly implemented or funded by the IWDM Program, an evaluation of noise impacts associated with the use of livestock protection dogs under the IWDM Program is not required.

Non-Lethal Program Alternative

Provision of funding for use of livestock protection dogs under the Non-Lethal Program Alternative is considered a new control method. As such, the analysis and conclusions presented above for the CEQA Baseline are identical for the No Program Baseline. Specifically, within the jurisdiction of Mendocino County, should a sensitive receptor be identified within the Table 4.4-18 noise contours, Non-Lethal Program Alternative

livestock protection dog noise levels could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards. Thus, a significant effect could occur.

In addition, within the jurisdiction of incorporated cities, should a sensitive receptor be located within the 45 dB (nighttime) and 55 dB (daytime) noise contours identified in Table 4.4-15, use of livestock protection dogs under the Non-Lethal Program Alternative could exceed the Fort Bragg Coastal General Plan noise level standards – which could also exceed standards established by other incorporated cities within Mendocino County. Thus, a temporary significant effect could occur due to implementation of the IWDM Program within incorporated cities in the County.

Variation to the Non-Lethal Program Alternative

The methodology and related noise exposure associated with the use of livestock protection dogs proposed by the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative within the County are similar. Therefore, the impact conclusion identified for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, the IWDM Program would not directly fund the use of livestock protection dogs and, thus, *no effect* would occur. Under the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative, use of livestock protection dogs on USFS land, USACE land, BLM land, and CA State Parks land would not conflict with applicable qualitative standards. However, within areas under the jurisdiction of Mendocino County and incorporated cities, barking and other noise associated with use of livestock protection dogs could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards and the standards established in the Fort Bragg General Plan, if a sensitive receptor is located within the noise contours identified in Table 4.4-18 and Table 4.4-15, respectively. Thus, the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative could result in generation of livestock protection dog noise exposure in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, and a *significant* impact could occur.

Mitigation Measure(s)

Implementation of the following mitigation measure, which would include compliance with the Table 4.4-18 and Table 4.4-15 setback distances, would reduce noise exposure due to use of livestock protection dogs to a less-than-significant level within the jurisdiction of Mendocino County and incorporated cities, respectively. For incorporated cities, by complying with the Fort Bragg noise standards, use of livestock protection dogs would be in compliance with the standards established by the cities of Willits, Point Arena, and Ukiah.

However, circumstances may occur in which wildlife specialists would be required to employ use of livestock protection dogs within the vicinity of sensitive receptors, and compliance with the recommended noise contours or selection of an alternative non-noise generating wildlife control method would be infeasible. Thus, the County has chosen a conservative approach to the CEQA Baseline analysis by concluding *significant and unavoidable*.

Non-Lethal Program Alternative and Variation to the Non-Lethal Program Alternative

MM 4.4-5 Mendocino County Jurisdiction

To the extent feasible, use of livestock protection dogs shall occur outside of the noise contours shown in Table 4.4-18 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-9.

Incorporated Cities Jurisdiction

To the extent feasible, use of livestock protection dogs shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-15 of this EIR, if a sensitive receptor is located within those distances.

OR

Alternatively, if feasible, wildlife specialists shall utilize/recommend a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-18 (County jurisdiction) and Table 4.4-15 (incorporated cities jurisdiction).

No Program Baseline

The analysis and conclusions presented above for the CEQA Baseline regarding livestock protection dogs would be identical for the No Program Baseline. As discussed above, the IWDM Program would not directly fund the use of livestock protection dogs and, thus, *no effect* would occur. However, the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative could result in generation of livestock protection dog noise exposure in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, and a *significant* effect could occur.

Improvement Measure(s)

Implementation of the following improvement measure, which would include compliance with the Table 4.4-18 and Table 4.4-15 setback distances, would reduce noise exposure due to use of livestock protection dogs to a less-than-significant

level within the jurisdiction of Mendocino County and incorporated cities. For incorporated cities, by complying with the Fort Bragg noise standards, use of livestock protection dogs would be in compliance with the standards established by the cities of Willits, Point Arena, and Ukiah.

However, circumstances may occur in which wildlife specialists would be required to employ use of livestock protection dogs within the vicinity of sensitive receptors, and compliance with the recommended noise contours or selection of an alternative non-noise generating wildlife control method would be infeasible. Thus, the County has chosen a conservative approach to the No Program Baseline analysis by concluding *significant and unavoidable*.

Non-Lethal Program Alternative and Variation to the Non-Lethal Program Alternative

4.4-5 *Mendocino County Jurisdiction*

To the extent feasible, use of livestock protection dogs shall occur outside of the noise contours shown in Table 4.4-18 of this EIR, as applicable to the corresponding time period and land use categories shown in Table 4.4-9.

Incorporated Cities Jurisdiction

To the extent feasible, use of livestock protection dogs shall occur outside of the daytime (75 dB) and nighttime (65 dB) noise contours shown in Table 4.4-15 of this EIR, if a sensitive receptor is located within those distances.

OR

Alternatively, if feasible, wildlife specialists shall utilize/recommend a non-noise-generating wildlife control method if sensitive receptors are located within the distances shown in Table 4.4-18 (County jurisdiction) and Table 4.4-15 (incorporated cities jurisdiction).

4.4-6 Generation of a substantial temporary or permanent increase in ambient noise levels. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

CEQA Baseline

IWDM Program

As noted in Impacts 4.4-1 through 4.4-5 above, use of noise-generating wildlife control methods such as firearms, electronic distress devices, tracking dogs, and frightening devices has been a component of WS-CA operations within the County under prior implementation of the IWDM Program since 1989. The IWDM Program would not involve use of any new control methods that have not previously been used by WS-CA within the County and, thus, reinstatement of the IWDM Program would not result in new noise sources with the potential to substantially increase ambient noise levels. Therefore, the IWDM Program would not result in the generation of a substantial temporary or permanent increase in ambient noise levels, and a less-than-significant impact would occur.

Non-Lethal Program Alternative

As noted under Impact 4.4-1 above, the Non-Lethal Program Alternative would not include the use of firearms. Thus, increases in ambient noise related to firearm discharge noise would not occur. In addition, as discussed under Impacts 4.4-2 and 4.4-4, the use of electronic distress devices and frightening devices already occurs and, thus, would not represent a net change from the baseline setting.

As noted under Impact 4.4-5, provision of funding for use of livestock protection dogs under the Non-Lethal Program Alternative is considered a new control method requiring analysis. However, dog bark noise associated with use of livestock protection dogs is characterized by a relatively brief exposure period (L_{max} or L_{25}). Both Mendocino County and the City of Fort Bragg rely on CNEL or L_{dn} noise level descriptors to determine whether an increase in ambient noise levels is considered significant. Due to the situational nature and infrequency of implementation, noise associated with livestock protection dogs would have a relatively insignificant effect on a 24-hour averaged CNEL/ L_{dn} value. Thus, the control method would not result in a substantial increase in ambient noise levels at nearby receptors as defined in General Plan Policy DE-106 (increase of 5 dB CNEL or L_{dn} above ambient conditions) or Policy N-1.2 (Program N-1.2.2) of the Fort Bragg Coastal General Plan, and a less-than-significant impact would occur.

With regard to federal and State lands, the applicable jurisdictions (i.e., USFS, USACE, BLM, CA State Parks) do not provide quantitative thresholds for noise associated with

dogs. Thus, use of livestock protection dogs under the Non-Lethal Program Alternative within such areas would not conflict with any established standards. Furthermore, wildlife damage management control operations would only be provided on federal and State lands if requested by the relevant jurisdiction or resource manager, at which time the jurisdiction would review the methods proposed and grant any required authorization/permits. Thus, a less-than-significant impact would occur.

Variation to the Non-Lethal Program Alternative

With respect to firearms usage under this alternative, firearms are currently used for wildlife damage management in the County and, thus, are considered part of the baseline condition. The impact conclusion identified above for the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

No Program Baseline

IWDM Program

As noted in Impacts 4.4-1 through 4.4-5 above, the IWDM Program would include the implementation of noise-generating wildlife control methods. The control methods would be used for wildlife damage management purposes, and are expected to be implemented only when a problem with a target species presents itself. The duration and character of the noise levels generated from the IWDM Program wildlife control methods identified above are more closely categorized as temporary and short-term in duration, as opposed to long-term and continuous.

As noted previously, the No Program Baseline sections treat the IWDM Program as a new program and, thus, does not account for the fact that such a program is part of the baseline. Thus, wildlife control methods under the IWDM Program would be considered a net change from existing conditions. The following sections describe potential effects related to increases in ambient noise levels under the IWDM Program within the jurisdiction of Mendocino County, incorporated cities, USFS, USACE, BLM, and CA State Parks.

Mendocino Jurisdiction

According to Policy DE-106 of the Mendocino County General Plan, a 5 dB increase in CNEL or L_{dn} noise levels above ambient conditions shall normally be considered to be a significant increase in noise. As indicated in Impacts 4.4-1 through 4.4-5 above, noise levels associated with the implementation of the noise-generating wildlife controls methods under the IWDM Program could result in exceedances of the County's applicable noise level standards at sensitive receptors.

However, as noted previously, the control methods associated with the IWDM Program are characterized by brief exposure periods (L_{max}). Based on the impulsive character, short duration, and frequency of implementation, noise levels associated with program wildlife control methods would have a relatively insignificant effect

on a 24-hour averaged CNEL/ L_{dn} value. Thus, an increase of 5 dB CNEL or L_{dn} noise levels above ambient conditions at nearby receptors attributed to program wildlife control methods is not expected. In conclusion, given the character, duration, and frequency of implementation, program-generated increases in CNEL or L_{dn} noise levels would not be substantial relative to the Mendocino County General Plan criteria. Based on the above, a less-than-significant impact would occur.

Incorporated Cities Jurisdiction

According to Policy N-1.2 (Program N-1.2.2) of the Fort Bragg Coastal General Plan, a substantial increase is determined if a project were to cause the L_{dn} in existing residential areas to increase by 3 dB or more, or 2 dB or more if the L_{dn} would exceed 70 dB. As indicated in the impact discussions above, noise levels associated with the implementation of the noise-generating wildlife controls methods proposed by the project could result in exceedances of the Fort Bragg Coastal General Plan noise standards at sensitive receptors – which, given the restrictiveness of the standards, could also exceed noise level limits established by other incorporated cities within Mendocino County.

However, as noted previously, the control methods associated with the IWDM Program are characterized by a brief exposure period (L_{max}). Based on the impulsive character, short duration, and frequency of implementation, noise levels associated with program wildlife control methods would have a relatively insignificant effect on a 24-hour averaged L_{dn} value. Thus, an increase of 2 dB CNEL or L_{dn} noise levels above ambient conditions at nearby receptors attributed to program wildlife control methods is not expected. In conclusion, given the character, duration, and frequency of implementation, it is expected that program-generated increases in L_{dn} noise levels would not be substantial relative to the Fort Bragg Coastal General Plan criteria. Furthermore, program-generated increases in L_{dn} noise levels would not be substantial relative to increase significance criteria established by other incorporated cities within Mendocino County. Therefore, a less-than-significant effect would occur.

USFS, USACE, and BLM Jurisdictions

This analysis reasonably assumes that WS-CA staff would comply with applicable code sections while on USFS, USACE, and BLM lands, including the obtaining of a special-use authorization, contract, and/or operating plan prior to conducting any work on such lands. The CFR does not contain any noise level increase significance criteria that would be applicable to quantification of noise generated by project wildlife control methods on federal lands.

WS-CA would only provide wildlife damage management control assistance on federal lands if requested by the appropriate jurisdiction or resource manager (i.e., grazing manager) operating under leases within USFS, USACE, or BLM land.

Should the appropriate jurisdiction or resource manager request WS-CA services, such services would only be provided following consultation between WS-CA and the appropriate federal agency, at which time the jurisdiction would review the methods proposed and grant any required authorization/permits. In addition, noise generated from recreation activities (e.g., hunting) that already legally occur on federal lands likely result in temporary increases in ambient noise levels at nearby receptors on such lands, which may make it difficult to distinguish program-related noise from the existing noise environment. Based on the frequency in which the IWDM Program wildlife controls methods would be requested and implemented on federal lands, and because increases in ambient noise levels at receptors on federal lands already likely occur from legal recreation activities, it is believed that the implementation of project wildlife control methods on federal lands within the County would not result in substantial temporary or permanent increases in noise levels at nearby receptors. Thus, a less-than-significant effect would occur.

CA State Parks Jurisdiction

The CCR does not contain any noise level increase significance criteria that would be applicable to quantification of noise generated by project wildlife control methods on CA State Parks land. It is expected that the implementation of project wildlife control methods on CA State Parks land would occur infrequently, and only in situations when requested by CA State Parks authorities or resource managers operating under leases within CA State Parks lands. In the event of such requests, either by CA State Parks staff directly or by resource managers, WS-CA staff would perform work on CA State Parks land under needed permits/authorizations. Based on the frequency in which the IWDM Program wildlife controls methods would be requested and implemented on CA State Parks land, and because WS-CA staff would be performing work on CA State Parks land under after authorization to do so, implementation of project wildlife control methods on CA State Parks land would not result in substantial temporary or permanent increases in noise levels at nearby receptors. Thus, a less-than-significant effect would occur.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would involve implementation of the same wildlife control methods proposed for the IWDM Program, with the exception of methods categorized as lethal (e.g., firearms). As noted previously, while tracking dogs do not kill target predators, target predators are typically euthanized by wildlife specialists upon capture. Thus, for the purpose of this analysis, use of tracking dogs is considered a lethal control method that would not be performed under the Alternative. Excluding consideration of lethal wildlife control methods, noise level increases at nearby receptors associated with implementation of the wildlife control methods of the IWDM Program within the County or incorporated cities, USFS land, USACE land, BLM land, and CA State Parks land are similar with the IWDM Program.

Similar to the conclusion discussed above for the IWDM Program, none of the control methods included under the Non-Lethal Program Alternative, including livestock protection dogs, would contribute meaningfully to the CNEL or L_{dn} noise level descriptors used by the Mendocino County and the City of Fort Bragg to determine whether an increase in ambient noise levels is considered significant.

Furthermore, noise generated from recreational activities that already legally occur on federal and State lands, including firearms discharges, would be similar to or louder than noise that would be generated from the implementation of non-lethal wildlife control methods. It is likely that the noise levels generated from recreational activities that already occur results in temporary increases in ambient noise levels at nearby receptors on federal and State lands, thus making it harder to distinguish program-related noise from the existing noise environment. Based on the frequency in which wildlife controls methods would be requested and implemented on federal and State lands, and because increases in ambient noise levels at receptors on federal and State lands already likely occur from legal recreation activities, implementation of Non-Lethal Program Alternative wildlife control methods on federal and State lands would not result in substantial temporary or permanent increases in noise levels at nearby receptors on such lands.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would allow for use of firearms in specific circumstances where a risk to public health or safety exists, but would not include any other lethal control methods. Thus, the potential noise level increases associated with the variation are similar with the Non-Lethal Program Alternative, with the exception of firearm noise, which would be similar to the IWDM Program. The conclusion identified below for the IWDM Program and the Non-Lethal Program Alternative would be applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative within Mendocino County would not result in substantial temporary or permanent increases in noise levels at existing sensitive receptors. Thus, under the CEQA Baseline, a *less-than-significant* impact would occur.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative within Mendocino

County would not result in substantial temporary or permanent increases in noise levels at existing sensitive receptors. Thus, under the No Program Baseline, a *less-than-significant* effect would occur.

Improvement Measure(s)

None recommended.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

The following discussion of impacts is based on the implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative in combination with other proposed and pending projects in the region. Other proposed and pending projects in the region under the cumulative context would include buildout of the Mendocino County General Plan.

4.4-7 Generation of a substantial temporary or permanent cumulative increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The cumulative impact is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The cumulative effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

The Mendocino County General Plan EIR includes an analysis of non-transportation noise impacts associated with buildout of the General Plan. Specifically, the General Plan EIR notes that subsequent land use activities associated with implementation of the General Plan could result in the future development of land uses that generate noise levels in excess of applicable County standards. With implementation of applicable General Plan policies, including policies DE-99 through DE-106 related to noise compatibility, as well as compliance with the County’s Noise Ordinance, the General Plan EIR concluded that cumulative impacts related to non-transportation noise sources would be less than significant. Per the General Plan Land Use Map, new development would primarily occur within the vicinity of existing community areas. However, the potential exists for buildout of the General Plan to result in the development of new sensitive receptors (e.g., residences) within the vicinity of rural agricultural and forest areas within the County.

CEQA Baseline

IWDM Program

As noted in Impacts 4.4-1 through 4.4-5 above, use of noise-generating wildlife control methods such as firearms, electronic distress devices, tracking dogs, and frightening devices has been a component of WS-CA operations within the County under prior implementation of the IWDM Program since 1989. The IWDM Program would not involve use of any new control methods that have not previously been used by WS-CA within the County and, thus, reinstatement of the IWDM Program would not result in new noise sources. As such, noise level increases associated with the IWDM Program would not combine with noise from cumulative development within the County to create new significant cumulative impacts and the cumulative impact of the IWDM Program would be less than significant.

Non-Lethal Program Alternative

As noted under Impact 4.4-1 above, the Non-Lethal Program Alternative would not include the use of firearms. Thus, increases in ambient noise related to firearm discharge noise would not occur. In addition, as discussed under Impacts 4.4-2 and 4.4-4, the use of electronic distress devices and frightening devices already occurs as part of the baseline and, thus, use of such control methods under the Non-Lethal Program Alternative does not represent a net change from the baseline condition.

As noted under Impact 4.4-5, compared to the CEQA Baseline, provision of funding for use of livestock protection dogs under the Non-Lethal Program Alternative is considered a new control method. However, dog bark noise associated with use of livestock protection dogs is characterized by a relatively brief exposure period (L_{max} or L_{25} , depending on County or city standards). Furthermore, the Non-Lethal Program Alternative would primarily be implemented within rural agricultural areas of Mendocino County, where other planned development that could generate related noise effects is generally absent. As such, noise level increases associated with the Non-Lethal Program Alternative would not combine with noise from cumulative development within the County to create new significant cumulative impacts and the cumulative impact of the Non-Lethal Program Alternative would be less than significant.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would involve implementation of the same wildlife control methods proposed for the Non-Lethal Program Alternative, as well as use of firearms under specific circumstances where a risk to public safety or health exists. The variation would not include the use of tracking dogs. With respect to firearms usage under this alternative, firearms are currently used for wildlife damage management in the County and, thus, are considered part of the baseline condition.

As noted under Impact 4.4-5, compared to the CEQA Baseline, provision of funding for use of livestock protection dogs under the variation to the Non-Lethal Program Alternative is considered a new control method. However, dog bark noise associated with use of livestock protection dogs is characterized by a relatively brief exposure period (L_{max} or L_{25} , depending on County or city standards). Furthermore, the variation to the Non-Lethal Program Alternative would primarily be implemented within rural agricultural areas of Mendocino County, where other planned development that could generate related noise effects is generally absent. As such, noise level increases associated with the variation to the Non-Lethal Program Alternative would not combine with noise from cumulative development within the County to create new significant cumulative impacts and the cumulative impact of the variation to the Non-Lethal Program Alternative would be less than significant.

No Program Baseline

IWDM Program

As discussed previously, noise sources associated with implementation of the IWDM Program would be considered temporary, short-term, or intermittent. Furthermore, the IWDM Program would primarily be implemented within rural agricultural areas of Mendocino County. As such, noise level increases associated with the IWDM Program would not combine with noise from cumulative development within the County to create new significant cumulative effects and the cumulative effect of the IWDM Program would be less than significant.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would involve implementation of the same wildlife control methods proposed for the IWDM Program with the exception of methods categorized as lethal (e.g., firearms). Similar to the IWDM Program, noise sources associated with implementation of the Non-Lethal Program Alternative would be considered temporary, short-term, or intermittent and would not meaningfully contribute to County or city CNEL/ L_{dn} standards. Furthermore, the Non-Lethal Program Alternative would primarily be implemented within rural agricultural areas of Mendocino County. As such, noise level increases associated with the Non-Lethal Program Alternative would not combine with noise from cumulative development within the County to create new significant cumulative effects and the cumulative effect of the Non-Lethal Program Alternative would be less than significant.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would involve implementation of the same wildlife control methods proposed for the Non-Lethal Program Alternative, as well as use of firearms under specific circumstances where a risk to public safety or health exists. The variation would not include the use of tracking dogs.

Noise sources associated with implementation of the variation to the Non-Lethal Program Alternative would be considered temporary, short-term, or intermittent. Furthermore, the variation to the Non-Lethal Program Alternative would primarily be implemented within rural agricultural areas of Mendocino County. As such, noise level increases associated with the variation to the Non-Lethal Program Alternative would not combine with noise from cumulative development within the County to create new significant cumulative effects and the cumulative effect of the variation to the Non-Lethal Program Alternative would be less than significant.

Conclusion

CEQA Baseline

Based on the above, implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative, combined with buildout of the General Plan, would result in a ***less-than-significant*** cumulative impact related to generation of a substantial temporary or permanent cumulative increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative, combined with buildout of the General Plan, would result in a ***less-than-significant*** cumulative effect related to generation of a substantial temporary or permanent cumulative increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Improvement Measure(s)

None recommended.

4.5 PUBLIC SERVICES

4.5

PUBLIC SERVICES

4.5.1 INTRODUCTION

The Public Services chapter of the EIR evaluates potential increases in demand on local fire protection and law enforcement services that could occur as a result of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative. Potential impacts are identified if the programs would require the development of new facilities or expansion of existing facilities, the construction of which could have adverse physical effects on the environment. Information for this chapter is primarily drawn from the Mendocino County General Plan,¹ the Mendocino County General Plan EIR,² and communications with individual service providers. It should be noted that the Initial Study prepared for the proposed project concluded that other public services/facilities, such as schools and parks, would not be impacted by the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative. Thus, this chapter focuses on fire protection and law enforcement services.

4.5.2 EXISTING ENVIRONMENTAL SETTING

The following section describes the existing fire and Sheriff protection services within Mendocino County.

Fire Protection Services

Fire protection services within Mendocino County are primarily provided by the California Department of Forestry and Fire Protection (CAL FIRE). In addition to CAL FIRE services, several local agencies provide fire protection and mutual aid with CAL FIRE. Generally, such departments are located within incorporated cities or unincorporated towns within the County (see Figure 4.5-1). Table 4.5-1 below provides a summary of the various fire protection service providers within the County and their service areas.

Fire agencies have mutual aid agreements to assist each other in handling fire and other emergency calls.³ For example, the Hopland Fire District maintains a mutual aid agreement with CAL FIRE for wildland fire incidents, as well as mutual aid agreements with the Ukiah Valley Fire District and the Cloverdale City Fire Department in Sonoma County. Each of the fire protection districts within the County are reimbursed for responding to wildfires within the County when responding under mutual aid agreements with CAL FIRE or the U.S. Forest Service (USFS).

¹ Mendocino County. *General Plan*. August 2009.

² Mendocino County. *General Plan Update Draft Environmental Impact Report, SCH: 2008062074*. September 2008.

³ Mendocino Local Agency Formation Commission. *Multi-District Fire Protection Services* [pg. 6]. April 2016.

**Figure 4.5-1
 Fire Protection Districts in Mendocino County**

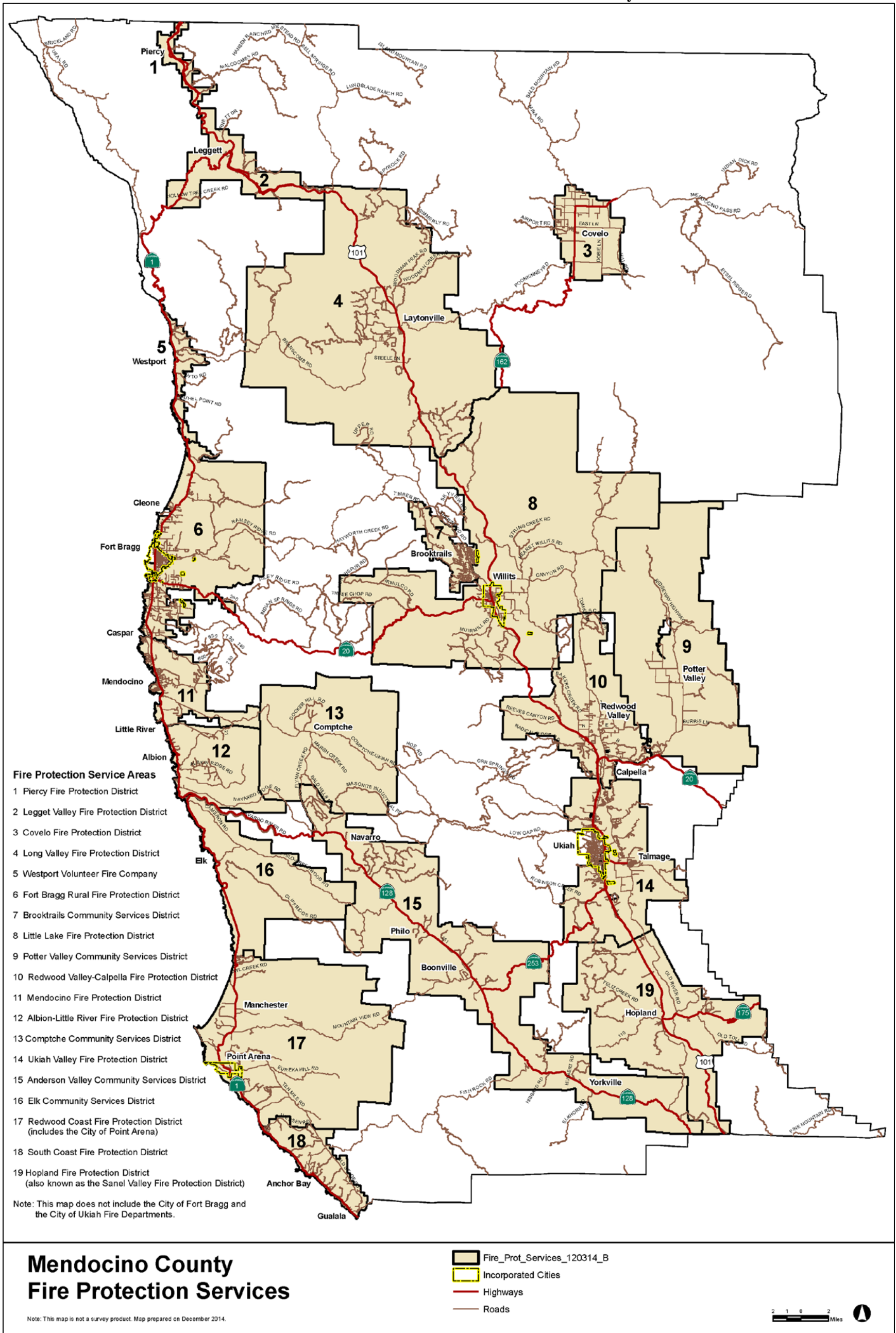


Table 4.5-1 Fire Protection Service Providers in Mendocino County	
Fire Service Agency	Area Served
Local Fire Service Agencies	
Albion Little River Volunteer Fire Department	Albion-Little River area
Anderson Valley Fire Department	Yorkville, Boonville, Philo, Navarro
Brooktrails Fire Department	Brooktrails township subdivision
Comptche Volunteer Fire Department	Comptche and environs
Covelo Fire Department	Covelo and environs
Elk Fire Department	Elk area
Fort Bragg Rural Fire Protection District	Fort Bragg area (the City of Fort Bragg and the District together operate the City of Fort Bragg Fire Department, which provides service to the City and surrounding areas)
Greenwood Ridge Fire Department*	Greenwood Ridge/Elk area
Hopland Fire District	Hopland area
Leggett Valley Fire Protection District	Restricted to State highway corridor area
Little Lake Fire Protection District	Little Lake Valley and surrounding area including the City of Willits
Long Valley Fire Protection District	Laytonville area
Mendocino Fire Protection District	Mendocino area
Piercy Fire Protection District	Piercy area
Redwood Coast Fire Department	Point Arena area, City of Point Arena, Manchester
Redwood Valley-Calpella Fire Department	Redwood Valley and Calpella areas
South Coast Fire Protection District	Gualala and Anchor Bay areas
Ukiah Valley Fire District	Ukiah Valley, Talmage
Westport Volunteer Fire Department	Westport and immediate environs
Whale Gulch Volunteer Fire Department*	Whale Gulch and environs (near Whitethorn)
City Fire Departments	
Fort Bragg Fire Department (City)	City of Fort Bragg (the City of Fort Bragg and the District together operate the City of Fort Bragg Fire Department, which provides service to the City and surrounding areas)
Ukiah Fire Department	City of Ukiah
State and Federal Fire Service Agencies	
Cal Fire	State responsibility areas (designated by the state)
U.S. Forest Service	Mendocino National Forest
* Not shown in Figure 4.5-1.	
<i>Source: Mendocino County, General Plan, August 2009.</i>	

The County of Mendocino Office of Emergency Services coordinates emergency response in Mendocino County through the Fire and Rescue Mutual Aid Coordinator. The Fire and Rescue Mutual Aid Coordinator functions within the California Fire Service and Rescue Emergency Mutual Aid System.

The Multi-District Fire Protection Services Municipal Service Review (MSR) approved by the Mendocino Local Agency Formation Commission (LAFCo) in 2016 evaluated service demands

and facility needs for each of the local fire protection service providers within the County.⁴ Of the 22 local fire service agencies and city fire departments within the County, the MSR identifies only five districts for which facilities are currently inadequate to meet existing demand or are at capacity: the Albion-Little River Fire Protection District; the Comptche Community Services District; the Elk Community Services District; the South Coast Fire Protection District; and the Piercy Fire Protection District. The MSR notes that the Albion-Little River Fire Protection District's existing facilities are inadequate to accommodate existing demand, and new facilities need to be constructed. However, the population within the Albion-Little River Fire Protection District has not increased in recent years and is not expected to increase in the foreseeable future. In addition, the Albion-Little River Fire District service area boundary is relatively small (37.3 square miles). Similarly, while the Comptche Community Services District, Elk Community Services District, and South Coast Fire Protection District facilities are currently at capacity, the population within each service area is anticipated to increase only marginally in the foreseeable future. For the Piercy Fire Protection District, the MSR notes that the population within the District boundaries may decrease in the future due to aging and out-migration.

It should be noted that the five aforementioned fire districts are small relative to the overall County. For example, the Comptche Community Services District boundary is limited to 86.6 square miles, or approximately two percent of the overall County. Similarly, the South Coast Fire Protection District boundary comprises 20 square miles, or 0.5 percent of the overall County. Thus, the majority of the County is served by fire protection service providers with adequate facilities to accommodate existing and projected demand.

Law Enforcement Services

The Mendocino County Sheriff's Office is responsible for providing law enforcement services to the unincorporated areas of the County. In addition, the Sheriff's Office provides contract law enforcement services to the City of Point Arena, the Bureau of Land Management (Cow Mountain Recreation Area), U.S. Army Corps of Engineers (Lake Mendocino), and contract police dispatching services for the City of Fort Bragg. The main Sheriff's station, including dispatch and detention facilities, is located at the Mendocino County Administration Center complex in the City of Ukiah. Substations are located in the cities of Willits and Fort Bragg. The cities of Ukiah, Fort Bragg, and Willits each are served by their own police departments. The California Highway Patrol (CHP) is responsible for traffic enforcement services on State highways and County roads. A CHP office is located in Ukiah.

4.5.3 REGULATORY CONTEXT

The following discussion contains a summary review of regulations pertaining to fire protection and law enforcement services.

⁴ Mendocino Local Agency Formation Commission. *Multi-District Fire Protection Services*. April 2016.

Federal Regulations

Federal regulations related to fire protection and law enforcement services are summarized in the following sections.

U.S. Forest Service

The County of Mendocino contains land that is managed by the USFS, which is an agency within the U.S. Department of Agriculture. The USFS is subject to regulations established by Title 36 (Parks, Forests, and Public Property) of the Code of Federal Regulations (CFR). Should the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative be implemented on USFS land, the project would be subject to CFR criteria. The CFR criteria related to USFS land that are applicable to the project have been reproduced and are provided below:

36 CFR 261.1a – Special use authorizations, contracts and operating plans.

The Chief, each Regional Forester, each Forest Supervisor, and each District Ranger or equivalent officer may issue special-use authorizations, award contracts, or approve operating plans authorizing the occupancy or use of a road, trail, area, river, lake or other part of the National Forest System in accordance with authority which is delegated elsewhere in this chapter or in the Forest Service Manual. These Forest Officers may permit in the authorizing document or approved plan an act or omission that would otherwise be a violation of a subpart A or subpart C regulation or a subpart B order. In authorizing such uses, the Forest Officer may place such conditions on the authorization as that officer considers necessary for the protection or administration of the National Forest System, or for the promotion of public health, safety, or welfare.

36 CFR 261.10 – Occupancy and use.

The following are prohibited:

- (d) Discharging a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:
 - (1) In or within 150 yards of a residence, building, campsite, developed recreation site, or occupied area, or
 - (2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any person or property is exposed to injury or damage as a result in such discharge.
 - (3) Into or within any cave.
- (i) Operating or using in or near a campsite, developed recreation site, or over an adjacent body of water without a permit, any device which produces noise, such as a radio, television, musical instrument, motor or engine in such manner and at such a time so as to unreasonably disturb any person.
- (k) Use or occupancy of National Forest System land or facilities without special-use authorization when such authorization is required.
- (l) Violating any term or condition of a special-use authorization, contract or approved operating plan.

- (p) Use or occupancy of National Forest System lands or facilities without an approved operating plan when such authorization is required.

Bureau of Land Management

The County of Mendocino contains public land that is managed by the Bureau of Land Management (BLM), which is an agency within the U.S. Department of the Interior. The BLM is subject to regulations established by Title 43 (Public Land: Interior) of the CFR. Should the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative be implemented on BLM land, the project would be subject to CFR criteria. The CFR criteria related to BLM land that are applicable to the project have been reproduced and are provided below:

43 CFR 8365.2-5 – Public health, safety and comfort.

On developed recreation sites and areas, unless otherwise authorized, no person shall:

- (a) Discharge or use firearms, other weapons, or fireworks;
- (b) Bring an animal, except a Seeing Eye or Hearing Ear dog, to a swimming area.

State Regulations

State regulations applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative are summarized below.

California Health and Safety Code

Sections 12500 through 12728 of the California Health and Safety Code (HSC) are known as the State Fireworks Law. Sections 12503 and 12526 of the HSC specifically define pyrotechnic device to include such devices as agricultural and wildlife fireworks designed and intended by the manufacturer to be used to prevent damage to crops or unwanted occupancy of areas by animals or birds through the employment of sound or light, or both. The State Fireworks Law contains specific regulations related to the administration, classification, licensing, and permitting of pyrotechnics, including specific standards related to fire hazard risk.

California Food and Agricultural Code

Sections 17150 through 17153 of the California Food and Agricultural Code contain specific regulations related to the sale and installation of electric fences. Section 17152 states that “No electrified fences shall be offered for sale, sold, installed, or used in this state, or otherwise connected to a source of electrical current, unless the electrical current is limited and regulated by an electrical controller which meets or exceeds the standards or specifications of the National Electrical Code of the National Fire Protection Association, international standards of the International Electrotechnical Commission, or the Underwriters Laboratories for intermittent type electric fence or electrified fence controllers.”

Local Regulations

Local policies and regulations related to fire protection and law enforcement services are summarized in the following sections.

Mendocino County General Plan

The following goals and policies related to fire protection and law enforcement services from the Mendocino County General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal DE-25 To protect life, property and natural resources by ensuring that development is compatible with fire protection capabilities.

Policy DE-218 The County supports effective and economically viable fire protection and emergency response provided by fire protection agencies.

Policy DE-219 Encourage fire protection districts to determine and report capabilities to adequately serve existing and potential development.

Goal DE-26 To coordinate planning activities and development proposals with law enforcement capabilities to create communities, neighborhoods and conditions that enhance community health, safety and effective law enforcement.

Policy DE-229 Increase compliance with regulations intended to protect public, community and environmental health and safety. Measures include:

- Working with law enforcement agencies to improve coordination during the land use and development process.
- Working with affected agencies and interests to find cost effective solutions to significant compliance issues.
- Educating employers and the public, including conducting school programs, about the benefits of regulations intended to protect public, community and environmental health and safety.
- Establish and maintain adequate code enforcement staffing for an effective compliance program.

Mendocino County Coastal Element

The Mendocino County Coastal Element is a component of the Mendocino County General Plan that was prepared pursuant to the California Coastal Act of 1976. The following policy related to public services from the Mendocino County Coastal Element is applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Policy 3.2-5 All new development shall meet the requirements for fire protection and fire prevention as recommended by responsible fire agencies.

City of Ukiah General Plan

The following goal and policy related to fire protection services from the City of Ukiah General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal SF-12 Establish “Fire Safety Standards”.

Policy SF-12.1 In coordination with the State Fire Safe Standards (14 CCR 1207), ensure locally-oriented fire safety requirements.

City of Point Arena General Plan

The following goal and policies related to fire protection services from the City of Point Arena General Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal VII.1 Strive to protect the community from injury, loss of life, and property damage resulting from natural catastrophes and hazardous conditions.

Policy VII.3.4.1 Potential fire hazards, including existing fire-vulnerable buildings, shall be mitigated where appropriate, through proper fire-protection methods and fire-fighting practices, by clearing vacant land of excessive vegetation, and by updating fire protection regulations for new construction and remodeled buildings.

Policy VII.3.4.12. When brush clearance is required for fire safety, brushing techniques that minimize impacts to native vegetation, ESHA and that minimize erosion, runoff, and sedimentation shall be utilized.

City of Fort Bragg General Plan

The following goal and policies related to fire protection services from the City of Fort Bragg Plan are applicable to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative:

Goal SF-5 Reduce fire hazards.

Policy SF-5.2 Maintain a High Level of Fire Protection: Work with the Fire Protection Authority to ensure a continued high level of fire protection.

Policy SF-5.3 Mutual Aid Agreements: Continue to maintain mutual aid agreements.

4.5.4 IMPACTS AND MITIGATION MEASURES

The section below describes the standards of significance and methodology used to analyze and determine the potential impacts related to public services associated with implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative. In addition, a discussion of the project's impacts, as well as impacts associated with the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative, is also presented.

Standards of Significance

Consistent with Appendix G of the CEQA Guidelines, the effects of a project are evaluated to determine if they would result in a significant adverse impact on the environment. For the purposes of this EIR, an impact is considered significant if the proposed project, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:
 - Fire protection;
 - Sheriff protection;
 - Schools;
 - Maintenance of public facilities, including roads; or
 - Other government services;

Issues Not Discussed Further

As discussed in the Initial Study (see Appendix B), management activities associated with implementation of the IDWM Program, the Non-Lethal Program Alternative, or the variation to

the Non-Lethal Program Alternative would not increase demand on schools, parks, or other public facilities. Thus, no impact would occur related to the following:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:
 - Schools;
 - Maintenance of public facilities, including roads; or
 - Other government services;

Accordingly, impacts related to the above are not further analyzed or discussed in this EIR.

Method of Analysis

Evaluation of potential impacts of the proposed project and the Non-Lethal Program Alternative on fire protection and law enforcement services is based on the following: the Mendocino County General Plan, the associated EIR, the Mendocino County Code of Ordinances, and communications with individual service providers in the County. The standards of significance listed above are used to delineate the significance of any potential impacts.

Project-Specific Impacts and Mitigation Measures

The proposed project would include implementation of a variety of wildlife control methods by WS-CA staff, some of which could result in increased demand for fire and law enforcement. The Non-Lethal Program Alternative would involve the use of wildlife control methods that would be implemented under the proposed project, with the exception of the lethal control and live capture methods. Live capture methods are considered lethal, as their outcome typically results in euthanizing the captured animal. In addition, this analysis includes consideration of a variation to the Non-Lethal Program Alternative, which would include the limited use of lethal gunshot only in instances where wildlife poses a threat to public health or safety.

Impacts to public services due to the implementation of wildlife control methods of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative are assessed relative to the applicable local, State, federal, and CEQA Appendix G checklist criteria. For each impact statement, two baseline scenarios are evaluated: a “CEQA Baseline” and a “No Program Baseline”. Additional information related to the baseline scenarios is included in Chapter 1, Introduction, of this EIR. The impact statements presented below are organized as follows:

CEQA Baseline

This baseline scenario recognizes the fact that the County has had a wildlife damage management program since 1989, and as such, it is part of the environmental baseline pursuant to CEQA Guidelines Section 15125. While the County’s most recent Work Plan with WS-CA expired in

June of 2015, WS-CA has continued to implement the IWDM Program in Mendocino County without funding from the County.

No Program Baseline

The No Program Baseline treats the IWDM Program as a new program and, thus, does not account for the fact that such a program is part of the baseline. This approach enables the County to provide an informational analysis as to the potential environmental effects of the IWDM Program.

4.5-1 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. *No impact* would occur for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

As discussed previously, Mendocino County is served by a total of 22 local fire service agencies and city fire departments, as well as CAL FIRE and the USFS, each of which have mutual aid agreements to assist each other in handling fire and other emergency calls. While a portion of the local fire protection service providers within the County were operating at capacity as of 2016, and would require facility upgrades to accommodate new growth, population growth within such districts is anticipated to be minimal for the foreseeable future. With the exception of the relatively small Albion-Little River Fire Protection District, which comprises a total of 37.3 square miles, the local fire service agencies within the County are capable of serving existing development within the County without new or expanded facilities.

As demonstrated in further detail below, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not substantially increase demands on local fire protection service providers such that new or expanded fire protection facilities would be required.

CEQA Baseline

IWDM Program

Wildlife damage management operations to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods have been historically carried out by WS-CA in Mendocino County since 1989. As such, use of the proposed lethal and non-lethal methods under the IWDM Program are part of the environmental baseline, and continued use would not represent a

net change. Thus, no impact would occur related to creation of substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to residents reporting wildlife damage. For example, with respect to deterrent methods, field technicians would instruct property owners or managers how to use deterrent tools in ways that maximize their effectiveness while minimizing the potential for wildlife to habituate to the deterrents.

Similar to the IWDM Program, the Non-Lethal Program Alternative would involve implementation of wildlife control methods similar to methods that have been historically carried out by WS-CA in Mendocino County since 1989. This includes those types of methods that could have an associated wildfire risk, such as pyrotechnics and propane cannons. Thus, such methods are part of the baseline, and are not a net new change from the baseline condition.

In addition, the Non-Lethal Program Alternative would include a cost-share/reimbursement mechanism for the use of electric fences by private land owners. As a result, compared to the IWDM Program, provision of funding for use of electric fences under the Non-Lethal Program Alternative is considered a new control method. However, installation of electric fences would be subject to Section 17152 of the California Food and Agricultural Code, clearing of brush and dry vegetation along the intended alignment of the electric fence would be required to ensure that electrified wires do not directly contact dry vegetation. Wildlife specialists would meet with landowners prior to installation of electric fences to advise landowners on proper installation and use, including maintenance of vegetation within the vicinity of electrified wires. Thus, use of electric fences under the Alternative would not increase demand on fire protection services within the County.

Based on the above, similar to the proposed project, the Non-Lethal Program Alternative would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services. No impact would occur.

Variation to the Non-Lethal Program Alternative

Similar to the IWDM Program, use of firearms would represent a continuation of control methods that have been historically carried out by WS-CA in Mendocino County since

1989. In addition, firearms do not pose a substantial fire hazard. Fire risk associated with other new control methods for which the variation would include a cost-share/reimbursement mechanism, such as electric fences, would be identical to the Non-Lethal Program Alternative discussed above. Thus, no impact would occur related to creation of substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services.

No Program Baseline

IWDM Program

Approval of the IWDM Program would enable WS-CA to provide assistance to landowners to protect agricultural and livestock commodities, human health and safety, natural resources, and property from wildlife damage using a variety of methods, which have been historically carried out by WS-CA in Mendocino County. The IWDM Program could include the use of frightening devices, such as pyrotechnics and propane exploders. Pyrotechnics, including devices such as noise bombs and whistle bombs, can be used to frighten birds or mammals, but are most often used to prevent crop depredation by birds or to discourage birds from undesirable roost locations. Noise bombs are firecrackers that travel about 75 feet before exploding. Whistle bombs are similar to noise bombs, but whistle in flight and do not explode. Propane exploders/cannons consist of a tubular metal barrel with an ignition device coupled with a propane tank fuel source, which produces a loud concussive noise. In addition, under the IWDM Program, WS-CA may loan non-lethal electrified fladry (turbo fladry) to private parties. Turbo fladry is a series of cloth or plastic flags attached to an electrified wire.

It should be noted that turbo fladry is currently only used by WS-CA in instances where wolf conflicts occur, due to its efficacy in deterring wolf movements into pastures. Given that wolves are not known to exist within Mendocino County at this time, use of turbo fladry under the IWDM Program would likely be rare or nonexistent. Nonetheless, research projects are currently underway to investigate potential modifications to existing turbo fladry designs to improve efficacy for use with coyotes. Thus, the potential exists that a future modified turbo fladry design could be used under the IWDM Program to deter movements of other target wildlife species, such as coyote, thus minimizing risk of predation within the County.

As discussed in Chapter 4.3, Hazards and Hazardous Materials, of this EIR, pyrotechnics, propane cannons, and turbo fladry, when used improperly, could pose a risk of causing wildfires within the County. For example, without proper clearance, electrified wires associated with turbo fladry may ignite dry vegetation if such vegetation comes into contact with the wires for an extended period of time. Increased prevalence of wildfires within the County would result in increased demand for fire protection services.

Neither pyrotechnics nor propane exploders have been used during the past 10 years within Mendocino County. The infrequent use of pyrotechnics in Mendocino can be primarily attributed to the infrequent requests for assistance with the type of damage such particular tools were designed to alleviate. Pyrotechnics are most effective at causing a startle response in flocking birds feeding or loafing in open environments such as cropland or airport settings. Pyrotechnic use in Mendocino County is limited by the varied topography, type of agricultural resources grown, and the lack of high-traffic airports. As discussed in Chapter 4.3, Hazards and Hazardous Materials, of this EIR, in the event that pyrotechnics are used under the IWDM Program, such use would occur in accordance with WS-CA Directive 2.627, Pyrotechnics. In addition, WS-CA staff would follow all manufacturer safety directions for use of propane cannons, including keeping the cannon and associated propane tank away from any flammable material, such as crops, and kept clear of any heat sources.

With regard to the loaning of turbo fladry, WS-CA would meet with landowners prior to installation. Oftentimes the CDFW, other federal and State agencies, and environmental organizations are involved as well. WS-CA would advise landowners on where and how to install the fladry, proper maintenance, duration of use, etc. To date, multiple agencies, including WS-CA, landowner(s), and environmental organizations have worked together as a team to install turbo fladry. Prior to installation, WS-CA would require clearing of brush and dry vegetation along the intended alignment of the turbo fladry to ensure that electrified wires do not directly contact dry vegetation. Once installed, as is routine, WS-CA would perform regular maintenance checks to ensure that turbo fladry is functioning properly.

Overall, risk of wildfire would be managed through evaluation of the environment prior to tool selection, occupational safety information, and agency directives. As required by WS Directive 2.101, WS-CA staff would evaluate all methods for use with the biological, environmental, social, and cultural conditions present at the location. Risk of wildfire falls into the environmental category of evaluation. While pyrotechnics might be a biologically and socially acceptable way to deal with bird damage to crops, a neighboring dry brush field is an environmental factor that may lead a specialist to choose another tool such as scarecrows or distress calls. Specialists may also modify tool use in certain environmental situations, such as restricting use of methods to cooler times of day or recommending vegetation management take place prior to application of a technique.

Based on the above, the IWDM Program would not substantially increase daily demand for services associated with the various fire protection service providers within the County. In the unlikely event that the IWDM Program results in a temporary need for fire protection services, such need would be met by existing service providers through established mutual aid agreements, including agreements with CAL FIRE and USFS that provide for reimbursement when responding to wildfires within the County. Furthermore, any increase in demand for fire protection services would be temporary and somewhat speculative. Fire agencies do not plan their infrastructure upgrades for such episodic demands but, rather, predictable demands such as those which could occur from a new subdivision or other physical development with long-term fire protection needs. Thus, the IWDM Program

would not result in increased demand for fire protection services such that construction of new fire protection facilities or expansion of existing facilities would be required and a less-than-significant effect would occur.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would involve the use of all wildlife control methods that would be implemented under the IWDM Program, with the exception of the lethal methods and those methods typically associated with lethal disposition of animals, such as live capture devices, including cage and corral traps, snares, nets, tracking dogs, and chemical immobilization. Specifically, the Non-Lethal Program Alternative would involve field assistance when specialists may need to provide field application of exclusion, repellent, or deterrent methods for specialized equipment (i.e., propane cannons, light/siren devices, pyrotechnics). Specialists may make field visits to carry out technical assistance recommendations, including education on techniques and proper installation of loaned equipment (i.e., turbo fladry), when they deem it needed to resolve wildlife conflicts. Consequently, the Non-Lethal Program Alternative could involve the use of pyrotechnics and propane exploders. As noted above, such devices have the potential to result in wildfire hazards if used improperly. In addition, under the Alternative, property owners could be reimbursed for the purchase and installation of electric fences and/or turbo fladry as a predator deterrent. When improperly installed, electric fences and turbo fladry have the potential to ignite dry brush and/or grasses, resulting in wildfire hazards.

Similar to the IWDM Program, under the Non-Lethal Program Alternative, pyrotechnics and propane exploders would be used highly infrequently. In addition, use of pyrotechnics would occur in compliance applicable Occupational Safety and Health Administration (OSHA) guidelines. Furthermore, wildlife specialists would meet with landowners prior to installation of electric fences and/or turbo fladry to advise landowners on proper installation and use, including maintenance of vegetation within the vicinity of electrified wires. As would occur under the IWDM Program, under the Non-Lethal Program Alternative, wildlife specialists would require clearing of brush and dry vegetation along the intended alignment of the turbo fladry to ensure that electrified wires do not directly contact dry vegetation. Once installed, wildlife specialists would perform regular maintenance checks to ensure that turbo fladry is functioning properly.

Based on the above, the Non-Lethal Program Alternative would not substantially increase daily demand for services associated with the various fire protection service providers within the County. In the unlikely event that the Non-Lethal Program Alternative results in a temporary need for fire protection services, such need would be met by existing service providers through established mutual aid agreements, including agreements with CAL FIRE and USFS that provide for reimbursement when responding to wildfires within the County. Thus, similar to the proposed project, the Non-Lethal Program Alternative would not result in increased demand for fire protection services such that construction of new fire protection facilities or expansion of existing facilities would be required and a less-than-significant effect would occur.

Variation to the Non-Lethal Program Alternative

While the Non-Lethal Program Alternative would not involve use of lethal methods, this EIR evaluates a variation of the Alternative under which firearms may be used in instances when public health and safety is in danger. Use of lethal force by WS-CA in such situations is subject to authorization by CDFW. Use of firearms under the variation to the Non-Lethal Program Alternative would not result in increased demand for fire protection facilities compared to the Non-Lethal Program Alternative. Fire risk associated with other new control methods for which the variation would include a cost-share/reimbursement mechanism, such as electric fences and turbo fladry, would be identical to the Non-Lethal Program Alternative discussed above. Thus, the analysis and conclusions presented above would be applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not result in increased demand for fire protection services provided by local fire service agencies, city fire departments, CAL FIRE, or USFS such that construction of new fire protection facilities or expansion of existing facilities would be required, and ***no impact*** would occur.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, the use of pyrotechnics and/or propane exploders under the IDWM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would be infrequent, and would be subject to compliance with applicable regulations and guidelines designed to minimize fire hazard risks. In addition, while the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative could include, and seek reimbursement for, installation of electric fences and potentially turbo fladry, electrical current used for such fences would be required to meet established standards. As noted previously, risk of wildfire would be managed through evaluation of the environment prior to tool selection, occupational safety information, and agency directives. The implementing entity would evaluate all methods for use with the biological, environmental, social, and cultural conditions present at the location, including wildfire risks.

Therefore, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not result in increased demand for fire protection services provided by local fire service agencies, city fire departments, CAL FIRE, or USFS such that construction of new fire protection facilities or expansion of existing facilities would be required, and a ***less-than-significant*** effect would occur.

Improvement Measure(s)
None recommended.

4.5-2 Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services. Based on the analysis below, the findings are as follows:

- **CEQA Baseline.** *No impact* would occur for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.
- **No Program Baseline.** The effect is *less than significant* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.

CEQA Baseline

IWDM Program

Wildlife damage management operations to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods have been historically carried out by WS-CA in Mendocino County since 1989. As such, use of the proposed lethal and non-lethal methods under the IWDM Program are part of the environmental baseline, and continued use would not represent a net change. Thus, no impact would occur related to creation of substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services.

Non-Lethal Program Alternative

Similar to the IWDM Program, the Non-Lethal Program Alternative would involve implementation of wildlife control methods similar to methods that have been historically carried out by WS-CA in Mendocino County since 1989. This includes those types of methods that could have an associated increase in law enforcement services, such as use of pyrotechnics and other scare devices. Thus, such methods are part of the baseline, and are not a net new change from the baseline condition.

In addition, the Non-Lethal Program Alternative would include a cost-share/reimbursement mechanism for specific control methods, such as installation of fencing, that were not previously implemented by WS-CA within the County. However, such new control methods would not increase demand on law enforcement services within the County. Thus, similar to the proposed project, the Non-Lethal Program Alternative would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which

could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services. No impact would occur.

Variation to the Non-Lethal Program Alternative

Similar to the IWDM Program, use of firearms would represent a continuation of control methods that have been historically carried out by WS-CA in Mendocino County since 1989. Thus, use of firearms is part of the baseline, and is not a net new change from the baseline condition. Demand for law enforcement services associated with other new control methods for which the variation would include a cost-share/reimbursement mechanism, such as electric fences, would be identical to the Non-Lethal Program Alternative discussed above. Therefore, no impact would occur related to creation of substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for law enforcement services.

No Program Baseline

IWDM Program

Pyrotechnic devices and other scare devices, such as electronic distress sounds, may cause disturbances in the area where such techniques are employed. The use of such measures is anticipated to occur primarily in the less dense, rural portions of the County, where agricultural activity is currently located, though some such measures may be implemented in proximity to residences. Use of pyrotechnic or other scare devices in proximity to existing residences may result in increased reports of disturbances to the Mendocino County Sheriff's Office. Similarly, lethal control methods, such as shooting, may result in increased reports of disturbances to the Mendocino County Sheriff's Office. Response to increased reports of disturbances would increase demand on law enforcement services within the County.

Consistent with OSHA guidelines for pyrotechnic use, WS-CA staff would notify the Sheriff's Office prior to shooting any pyrotechnics or other similar equipment to ensure that any reports of disturbance are handled appropriately. In addition, as discussed in Chapter 4.4, Noise, of this EIR, implementation of Mitigation Measures 4.4-1 through 4.4-4 under the IWDM Program would ensure that noise-generating control methods are not used in close proximity to existing sensitive receptors to the maximum extent feasible.

Furthermore, while calls to the Sheriff's Office could potentially increase, such increases would be relatively modest relative to the overall volume of calls received. The Sheriff's Office has indicated that implementation of the IWDM Program would not result in

increased demands on law enforcement officers or support staff.⁵ Thus, new or expanded law enforcement facilities would not be required and a less-than-significant effect would occur.

Non-Lethal Program Alternative

While the Non-Lethal Program Alternative would not involve the use firearms, similar to the proposed project, the Non-Lethal Program Alternative may result in the use of pyrotechnic and other scare devices in proximity to existing residences. The use of such devices may result in increased disturbance calls to the Mendocino County Sheriff's Office. However, as noted above, the implementing entity would notify the Sheriff's Office prior to shooting any pyrotechnics or other similar equipment to ensure that any reports of disturbance are handled appropriately. In addition, implementation of Mitigation Measures 4.4-2, 4.4-4, and 4.4-5 set forth within this EIR would ensure that noise-generating control methods are not used in close proximity to existing sensitive receptors to the maximum extent feasible. Overall, potential effects related to law enforcement services under the Non-Lethal Program Alternative would be less than significant, similar to the IWDM Program.

Variation to the Non-Lethal Program Alternative

Similar to the IWDM Program, gunshot noise occurring under the variation to the Non-Lethal Program Alternative could result in increased reports of disturbances to the Mendocino County Sheriff's Office. However, shooting would only be used in instances when public health and safety is in danger. As noted previously, use of lethal force by WS-CA in such situations is subject to authorization by CDFW. In addition, as discussed in Chapter 4.4, Noise, of this EIR, Mitigation Measures 4.4-1, 4.4-2, 4.4-4, and 4.4-5 would be required to reduce the identified noise impacts for the variation to the Non-Lethal Program Alternative to the maximum extent feasible. Furthermore, the implementing entity would notify the Sheriff's Office prior to shooting any pyrotechnics or other similar equipment to ensure that any reports of disturbance are handled appropriately. Such measures would help to limit unnecessary expenditure of Sheriff's office resources and overburdening of existing facilities. Thus, similar to the IWDM Program and the Non-Lethal Program Alternative, effects related to law enforcement services under the variation to the Non-Lethal Program Alternative would be less than significant.

Conclusion

CEQA Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not result in increased demand for

⁵ Matt Kendall, Undersheriff, Mendocino County Sheriff's Office. Personal communication [phone] with Nick Pappani, Vice President, Raney Planning and Management, Inc. January 15, 2019.

law enforcement services such that construction of law enforcement facilities or expansion of existing facilities would be required. Thus, a *less-than-significant* impact would occur.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would not result in increased demand for law enforcement services such that construction of new law enforcement facilities or expansion of existing facilities would be required. Thus, a *less-than-significant* effect would occur.

Improvement Measure(s)

None recommended.

Cumulative Impacts and Mitigation Measures

As defined in Section 15355 of the CEQA Guidelines, “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable, or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects.

The following discussion of impacts is based on the implementation of the IWDM Program, the Non-Lethal Program Alternative, or the variation to the Non-Lethal Program Alternative in combination with buildout of the Mendocino County General Plan. Determination of impacts is based on the thresholds of significance presented above.

4.5-3 Cumulative impacts on fire protection and law enforcement services. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. The project’s incremental contribution to this significant cumulative impact is *less than cumulatively considerable* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**
- **No Program Baseline. The project’s incremental contribution to this significant cumulative impact is *less than cumulatively considerable* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.**

The Mendocino County General Plan EIR includes an analysis of impacts to fire protection and law enforcement services associated with buildout of the General Plan. As noted in the General Plan EIR, future development and population growth within the County would increase demand for fire protection and law enforcement services, potentially exacerbating

existing issues related to underfunded rural fire districts and Sheriff's Office staffing deficiencies. Implementation of applicable General Plan policies and associated action items, as well as compliance with Section 8.80.020 of the Mendocino County Code (related to response to emergencies in unincorporated areas of the County that are not within a legal fire or rescue protection jurisdiction), as well as Chapter 9.05 of the Code (related to the County's emergency and pre-hospital medical service system) would help to reduce potential impacts to fire protection services. Similarly, compliance with General Plan policies DE-214 through DE-217 would reduce impacts associated with increased demand for law enforcement services. Nonetheless, the General Plan EIR concluded that with buildout of the General Plan, impacts to fire protection and law enforcement services would be significant and unavoidable.

CEQA Baseline

IWDM Program

The proposed continuation of the IWDM Program would not involve any changes to the methods that are already considered part of the baseline conditions and, thus, would not involve changes in the existing environment that could result increased demand for fire protection or law enforcement services. Thus, the IWDM Program, combined with buildout of the General Plan, would result in a less-than-significant incremental contribution to the significant and unavoidable cumulative impacts to fire protection and law enforcement services identified in the County's General Plan EIR.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would involve reimbursement/cost-share for specific non-lethal control methods, such as installation of electrified fencing, that were not previously implemented by WS-CA within the County. However, given required compliance with applicable local, State, and federal regulations and guidance for such methods, associated wildfire risks would be negligible. Wildlife specialists implementing the program would evaluate site-specific environmental conditions, including fire risk, in determining the appropriate control method for a given situation. Thus, such control methods are not anticipated to result in increased demand for fire protection or law enforcement services. Based on the above, the IWDM Program, combined with buildout of the General Plan, would result in a less-than-significant incremental contribution to the significant and unavoidable cumulative impacts to fire protection and law enforcement services identified in the County's General Plan EIR.

Variation to the Non-Lethal Program Alternative

Similar to the IWDM Program, limited use of firearms under the variation to the Non-Lethal Program Alternative would represent a continuation of control methods that have been historically carried out by WS-CA in Mendocino County since 1989 and, thus, would not be considered a net new control method. Increased demand for fire protection and law enforcement services associated with other new control methods for which the variation

would include a cost-share/reimbursement mechanism, such as electric fences, would be identical to the Non-Lethal Program Alternative discussed above. Thus, similar to the IWDM Program and the Non-Lethal Program Alternative, the variation to the Non-Lethal Program Alternative would result in a less-than-significant incremental contribution to the significant and unavoidable cumulative impacts to fire protection and law enforcement services identified in the County's General Plan EIR.

No Program Baseline

IWDM Program

Given that the IWDM Program would not result in land development or population growth, the IWDM Program would not contribute to the cumulative growth trends and associated fire and law enforcement impacts identified for the County in the General Plan EIR. As discussed under Impacts 4.5-1 and 4.5-2 above, the IWDM Program would involve the use of direct control methods, as well as loaning of equipment to landowners, that could involve potential wildfire risks, thereby increasing demands on local fire districts and CAL FIRE within the County. However, given required compliance with applicable local, State, and federal regulations and guidance for such methods, associated wildfire risks would be negligible. WS-CA staff would evaluate site-specific environmental conditions, including fire risk, in determining the appropriate control method for a given situation. Furthermore, WS-CA staff would notify the Sheriff's Office prior to shooting any pyrotechnics or other similar equipment to ensure that any reports of disturbance are handled appropriately. Thus, the IWDM Program would result in a less-than-significant incremental contribution to the significant and unavoidable cumulative effects to fire protection and law enforcement services identified in the County's General Plan EIR.

Non-Lethal Program Alternative

Similar to the IWDM Program, the Non-Lethal Program Alternative would not result in land development or population growth and, thus, would not contribute to the cumulative growth trends and associated fire protection and law enforcement impacts identified for the County in the General Plan EIR. As discussed under Impacts 4.5-1 and 4.5-2 above, the Non-Lethal Program Alternative would involve field assistance when specialists may need to provide field application of exclusion, repellent, or deterrent methods for specialized equipment (i.e., propane cannons, light/siren devices, pyrotechnics). Specialists may make field visits to carry out technical assistance recommendations, including education on techniques and proper installation of loaned equipment (i.e., turbo fladry), when they deem it needed to resolve wildlife conflicts. Use of pyrotechnics, propane cannons, and electric fences/turbo fladry could involve potential wildfire risks, thereby increasing demands on local fire districts within the County. However, given required compliance with applicable local, State, and federal regulations and guidance for such methods, associated wildfire risks would be negligible. wildlife specialists would evaluate site-specific environmental conditions, including fire risk, in determining the appropriate control method for a given situation. Furthermore, the implementing agency would notify the Sheriff's Office prior to shooting any pyrotechnics or other similar equipment to ensure that any reports of

disturbance are handled appropriately. Thus, the Non-Lethal Program Alternative would result in a less-than-significant incremental contribution to the significant and unavoidable cumulative effects to fire protection and law enforcement services identified in the County's General Plan EIR.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would not involve any potential impacts related to increased demand for fire protection and law enforcement services beyond those discussed above for the IWDM Program and the Non-Lethal Program Alternative. Therefore, the analysis and conclusions presented above are applicable to the variation to the Non-Lethal Program Alternative.

Conclusion

CEQA Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would result in a ***less than cumulatively considerable*** contribution to the significant and unavoidable cumulative impact related to fire protection and law enforcement services identified in the County's General Plan EIR.

Mitigation Measure(s)

None required.

No Program Baseline

Based on the above, the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would result in a ***less than cumulatively considerable*** contribution to the significant and unavoidable cumulative impact related to fire protection and law enforcement services identified in the County's General Plan EIR.

Improvement Measure(s)

None recommended.

5. ALTERNATIVES ANALYSIS

5

ALTERNATIVES ANALYSIS

5.1 INTRODUCTION

The Alternatives Analysis chapter of the EIR includes consideration and discussion of a range of reasonable alternatives to the IWDM Program, as required per CEQA Guidelines Section 15126.6. Generally, the chapter includes discussions of the following: the purpose of an alternatives analysis; alternatives considered but dismissed; reasonable range of project alternatives and their associated impacts in comparison to the proposed project’s impacts; and the environmentally superior alternative.

5.2 PURPOSE OF ALTERNATIVES

The primary intent of the alternatives evaluation in an EIR, as stated in Section 15126.6(a) of the CEQA Guidelines, is to “[...] describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.” In the context of CEQA Guidelines Section 21061.1, “feasible” is defined as:

...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Section 15126.6(f) of CEQA Guidelines states, “The range of alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.” Section 15126.6(f) of CEQA Guidelines further states:

The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

In addition, an EIR is not required to analyze alternatives when the effects of the alternative “cannot be reasonably ascertained and whose implementation is remote and speculative.”

The CEQA Guidelines provide the following guidance for discussing alternatives to a proposed project:

- An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives (CEQA Guidelines Section 15126.6[a]).

- Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (CEQA Guidelines Section 15126.6[b]).
- The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination [...] Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts (CEQA Guidelines Section 15126.6[c]).
- The EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison (CEQA Guidelines Section 15126.6[d]).
- If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed (CEQA Guidelines Section 15126.6[d]).
- The specific alternative of "no project" shall also be evaluated along with its impact. The purpose of describing and analyzing a no project alternative is to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The no project alternative analysis is not the baseline for determining whether the proposed project's environmental impacts may be significant, unless it is identical to the existing environmental setting analysis which does establish that baseline (CEQA Guidelines Section 15126.6[e][1]).
- If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (CEQA Guidelines Section 15126.6[e][2]).

Project Objectives

The project alternatives need to feasibly attain most of the basic objectives of the project, but avoid or substantially lessen any of the significant effects of the project.

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible, and establishes that a public agency should not approve a project as proposed if there are feasible alternatives or mitigation measures available that would substantially lessen any significant effects that the project would have on the environment. The law recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors (CEQA Guidelines Section 15021 [Duty To Minimize Environmental Damage And Balance

Competing Public Objectives]). The County has identified the following objectives for the proposed project:

- 1) Provide an administrative mechanism for the private citizens and property owners in Mendocino County to request assistance for wildlife damage management services.
- 2) Facilitate access to on-site educational services (e.g., informational materials, advice, and demonstrations) provided by wildlife specialists regarding wildlife damage management specific to conditions in Mendocino County.
- 3) Implement an integrated approach to wildlife damage management that allows qualified professionals to consider the range of options available for wildlife damage management that take into account the species responsible, magnitude of the problem, environmental conditions, legal restrictions such as listed species and permitting, and other considerations to formulate an appropriate strategy for the situation.
- 4) Have a process through which professionals who specialize in wildlife damage management can continue to provide technical assistance to resource owners about the variety of non-lethal methods that can be used to resolve problems (e.g., animal husbandry practices, guard animals, fencing, frightening) and where it is appropriate for resource owners to resolve the problem themselves.
- 5) Ensure preference is given to non-lethal methods of wildlife damage management when practical and effective.
- 6) Ensure that methods and techniques for lethal control to handle wildlife damage situations that may be difficult or dangerous for the public to use are implemented by professionals who are specially trained in such methods and who provide those services in a legal manner that is protective of human health and the environment.
- 7) Provide a transparent process for monitoring and documenting wildlife damage management activities to ensure accurate reporting of the types of wildlife damage and number of wildlife species removed by lethal methods, and to help assess the impacts of wildlife damage and associated wildlife damage management activities in the County.
- 8) Continue to provide wildlife damage management at similar funding levels and ensure County funds for wildlife damage management are used in a fiscally responsible manner.
- 9) Ensure that processes remain in place for the protection of public safety.

Significant Impacts Identified for the Proposed Project

In addition to attaining the majority of project objectives, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding, identified significant environmental impacts of the proposed project. The impacts identified for the IWDM Program, as well as the Non-Lethal Program Alternative and variation to the Non-Lethal Program Alternative are summarized below.

Significant and Unavoidable

The EIR has determined that the following impacts/effects of the proposed project would remain significant and unavoidable, even after implementation of the feasible mitigation measures/improvement measures set forth in this EIR:

- **Biological Resources.** Under the No Program Baseline, effects related to the take of cougars in Mendocino County were considered to be significant and unavoidable with implementation of the IWDM Program.
- **Noise.** Table 5-1 below provides a summary of the impacts and effects that were determined to be significant and unavoidable under implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative for the CEQA Baseline and No Program Baseline scenarios.

Table 5-1 Summary of Significant Noise Impacts/Effects			
Impact Summary	IWDM Program	Non-Lethal Program Alternative	Variation to the Non-Lethal Program Alternative
CEQA Baseline			
4.4-1: Firearm Discharge	N	N	N
4.4-2: Electronic Distress Devices	N	N	N
4.4-3: Tracking Dogs	N	N	N
4.4-4: Frightening Devices	N	N	N
4.4-5: Livestock Protection Dogs	N	SU	SU
4.4-6: Increase in Ambient Noise Levels	LTS	LTS	LTS
4.4-7: Cumulative Increase in Ambient Noise Levels	LTS	LTS	LTS
No Program Baseline			
4.4-1: Firearm Discharge	SU	N	SU
4.4-2: Electronic Distress Devices	SU	SU	SU
4.4-3: Tracking Dogs	SU	N	N
4.4-4: Frightening Devices	SU	SU	SU
4.4-5: Livestock Protection Dogs	N	SU	SU
4.4-6: Increase in Ambient Noise Levels	LTS	LTS	LTS
4.4-7: Cumulative Increase in Ambient Noise Levels	LTS	LTS	LTS

Notes: N = no impact/no effect; LTS = less than significant; SU = significant and unavoidable.

Less Than Significant Impacts

As discussed in each respective section of this EIR, the proposed project would result in no impacts/effects, less-than-significant impacts/effects, or less than cumulatively considerable impacts/effects related to the following topics associated with the resource area indicated:

- ***Agricultural and Forest Resources.*** The EIR determined that under both the CEQA Baseline and No Program Baseline scenarios, implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would result in no impacts/effects or impacts/effects would be less than significant. Mitigation/improvement measures would not be required.
- ***Biological Resources.*** The EIR determined that under both the CEQA Baseline and No Program Baseline scenarios, impacts/effects related to riparian habitat and other sensitive natural communities, state or federally protected wetlands, wildlife corridors and wildlife nursery sites, conflicts with local policies or ordinances and conflicts with an adopted HCP would be less than significant for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, and mitigation/improvement measures would not be required. Additionally, under the CEQA Baseline, potential impacts to special-status species would be less than significant for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative, while the IWDM Program would result in no impacts, and mitigation would not be required. Under the No Program Baseline, effects related to special-status species would be less than significant for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative, and improvement measures would not be required.
- ***Hazards and Hazardous Materials.*** The EIR determined that under both the CEQA Baseline and No Program Baseline scenarios, implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would result in no impact/effect or less than significant impacts/effects related to all hazards and hazardous materials issue areas. Mitigation/improvement measures would not be required.
- ***Noise.*** The conclusions of the EIR related to potential impacts/effects related to noise are summarized in Table 5-1 above. For those impacts shown to be LTS or N in Table 5-1 did not require mitigation/improvement measures.
- ***Public Services.*** The EIR determined that under both the CEQA Baseline and No Program Baseline scenarios, implementation of the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative would result in no impacts/effects or less-than-significant impacts/effects related to all public services issue areas. Mitigation/improvement measures would not be required.

In addition, the Initial Study (Appendix B to this EIR) prepared for the proposed project determined that no impacts or less-than-significant impacts would occur to the following issue areas, and mitigation would not be required:

- Aesthetics (all items);
- Air Quality (all items);
- Cultural Resources (all items);
- Geology and Soils (all items);
- Greenhouse Gas Emissions (all items);
- Hazards and Hazardous Materials (Items VIII-4 through -7);
- Hydrology & Water Quality (all items);
- Land Use and Planning (all items);
- Mineral Resources (all items);
- Population and Housing (all items);
- Public Services (Items XIV-4 and -5);
- Recreation (all items);
- Transportation and Traffic (all items);
- Tribal Cultural Resources (all items);
- Utilities and Service Systems (all items).

As stated above, reasonable alternatives to the project must be capable of reducing the magnitude of, or avoiding, identified significant environmental impacts of the proposed projects.

5.3 SELECTION OF ALTERNATIVES

The requirement that an EIR evaluate alternatives to the proposed project or alternatives to the location of the proposed project is a broad one; the primary intent of the alternatives analysis is to disclose other ways that the objectives of the project could be attained, while reducing the magnitude of, or avoiding, one or more of the environmental impacts of the proposed project.

Alternatives that are included and evaluated in the EIR must be feasible alternatives. However, the CEQA Guidelines require the EIR to “set forth only those alternatives necessary to permit a reasoned choice.” As stated in Section 15126.6(a), an EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. The CEQA Guidelines provide a definition for “a range of reasonable alternatives” and thus limit the number and type of alternatives that may need to be evaluated in a given EIR. According to the CEQA Guidelines Section 15126.6(f):

The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determined could feasibly attain most of the basic objectives of the project.

First and foremost, alternatives in an EIR must be feasible. In the context of CEQA Guidelines Section 21061.1, “feasible” is defined as:

...capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors.

Finally, an EIR is not required to analyze alternatives when the effects of the alternative “cannot be reasonably ascertained and whose implementation is remote and speculative.”

It is important to note that it is not the purpose of the Draft EIR to promote or advocate a particular strategy for wildlife damage management, to debate or resolve ethical issues (particularly as they relate to lethal control), or to justify costs and benefits of particular methods of control. The purpose of the alternatives analysis in this Draft EIR is to determine, based on available information, whether an alternative could avoid or substantially reduce the proposed project’s environmental impacts.

Alternatives Considered But Dismissed From Further Analysis

Consistent with CEQA, primary consideration was given to alternatives that could reduce significant impacts, while still meeting most of the basic project objectives. As stated in Guidelines Section 15126.6(c), among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are:

- (i) failure to meet most of the basic project objectives,
- (ii) infeasibility, or
- (iii) inability to avoid significant environmental impacts.

Regarding item (ii), infeasibility, among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

The following alternatives were considered but dismissed from detailed analysis in this EIR. The reasons for dismissal, within the context of the three above-outlined permissible reasons, are provided below.

Off-Site Alternative

Because the proposed project consists of a proposed County-wide program, rather than site-specific physical development, analysis of an off-site alternative was dismissed from detailed analysis in this EIR.

WS-CA Non-Lethal Alternative

One of the alternatives suggested during the NOP public review period would consist of the County of Mendocino entering into a contract with WS-CA, whereby only non-lethal measures could be utilized to manage wildlife damage. While WS-CA gives preference to the use of non-lethal methods (see WS-CA Directive 2.101), lethal methods are a component part of the agency's integrated approach to wildlife damage management. This EIR includes an equal-weight analysis of a Non-Lethal Program Alternative, which assumes that a governmental or non-governmental entity other than the County would administer the program. The Non-Lethal Program Alternative could conceivably be administered by WS-CA. Implementation of the Non-Lethal Program Alternative by WS-CA, rather than any other governmental or non-governmental entity would be a purely administrative change that would not affect the analysis of potential impacts presented throughout this EIR resulting from implementation of the Non-Lethal Program Alternative. Because this EIR already presents an analysis of a Non-Lethal Program Alternative, and impacts resulting from the Non-Lethal Program Alternative would not be dependent on the implementing agency, the WS-CA Non-Lethal Alternative has been rejected from further consideration in this EIR.

WS-CA Non-Lethal Variation Alternative

Another alternative suggested during the NOP public review period would consist of the County of Mendocino entering into a contract with WS-CA, whereby the County would require WS-CA to use and exhaust all non-lethal control measures before resorting to the use of lethal control in the very limited exception for instances where public health and safety is in danger. WS-CA is not solely responsible for determining when wildlife pose a threat to public safety. CDFW's Law Enforcement Division is responsible for this determination, and utilizes WS-CA personnel to assist in the response to public safety animals. Furthermore, WS-CA currently gives preference to all non-lethal methods that could reasonably accomplish the wildlife damage management outcome being sought. The requirement that WS-CA exhaust all possible non-lethal control measures prior to the use of lethal control would have the potential to result in an inefficient response to wildlife damage management. For example, establishing what constitutes "all possible non-lethal control measures" could prove difficult, and there may be disagreement among involved parties. Thus, whereas WS-CA may feel they have implemented all non-lethal measures suited for a particular wildlife conflict, as required under the Alternative, another party may disagree. WS-CA has concerns regarding these potential difficulties, and, therefore, is not in favor of this alternative.¹ For this reason, this alternative has been rejected from further consideration in this EIR.

Alternatives Considered in this EIR

Typically, an EIR alternatives analysis focuses on only one "no project" alternative, with other alternatives consisting of off-site options or variations to the proposed project. In the case of the proposed project, the County is considering whether to approve an agreement for wildlife damage management services that the County would fund, but would not directly provide. As a departure

¹ Dennis Orthmeyer, California State Director, USDA APHIS Wildlife Services. Personal communication [phone] with Nick Pappani, Vice President, Raney Planning and Management, Inc. January 14, 2019.

from the typical EIR alternatives analysis approach, the County has chosen to independently evaluate six “no project” alternatives. This approach is a function of the nature of the IWDM Program: to approve or not approve an agreement with WS-CA for wildlife damage management comprising technical assistance and direct control measures that could result in removing animals by lethal means.

In general, there are four possible scenarios if the County does not approve an agreement with WS-CA: (1) the County does not approve the agreement and takes no further action to provide wildlife damage management services in the County (No Project/No Action); (2) the County does not approve the agreement with WS-CA but contracts with an outside governmental or non-governmental agency for a fully non-lethal program; (3) the County does not approve the agreement with WS-CA but contracts with an outside governmental or non-governmental agency for a non-lethal program where the lethal method of gunshot (from the ground) could be utilized for public safety incidents only; and (4) the County does not approve the agreement, and instead would provide wildlife damage management services that would have otherwise been directed to WS-CA. This fourth option has three subcategories related to whether the program would include lethal methods or not, as enumerated below.

Thus, for each of the alternatives, the analysis describes what could be reasonably expected to occur in the foreseeable future and the practical result of non-approval if the County does not approve the agreement with WS-CA. This approach is consistent with CEQA Guidelines Section 15126.6. For ease of reference, only the name of the alternative is used (without reference to “no project”).

In summary, the following alternatives are considered and evaluated in this section:

1. No Project/No Action Alternative;
2. Non-Lethal Program Alternative;
3. Variation to the Non-Lethal Program Alternative;
4. Mendocino County Wildlife Management Services Alternative; and
5. Mendocino County Wildlife Management Services Non-Lethal Alternative.
6. Variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative.

Alternatives 2 and 3 are evaluated at an equal level to the proposed project throughout this EIR. Thus, for purposes of this chapter, the analyses are summarized for comparison purposes with the proposed project.

Table 5-2 below provides a summary of the various control methods that would be authorized for use or recommended by wildlife specialists under each of the alternatives. See Table 5-3 at the end of this chapter for a comparison of the environmental impacts resulting from the considered alternatives and the proposed project.

**Table 5-2
 Control Methods to Be Used Under Project Alternatives**

Control Method	IWDM Program	No Project/No Action Alternative	Non-Lethal Program Alternative	Variation to the Non-Lethal Program Alternative	Mendocino County Wildlife Management Services Alternative	Mendocino County Wildlife Management Services Non-Lethal Alternative	Variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative
Frightening Devices	X		X	X	X	X	X
Chemical Repellents	X		X	X	X	X	X
Livestock Guardian Animals	X		X	X	X	X	X
Fencing	X		X	X	X	X	X
Modification of Human Behavior	X		X	X	X	X	X
Habitat Management	X		X	X	X	X	X
Traps	X				X		
Snares	X				X		
Nets	X				X		
Tracking/Trailing Dogs	X				X		
Chemical Immobilization	X				X		
Carbon Dioxide Euthanasia	X				X		
Euthanasia by Solution	X				X		
Euthanasia by Gunshot	X			X	X		X
Physical Euthanasia	X				X		

Consistent with CEQA Guidelines Section 15126.6(b), the comparison provided in this chapter should focus on those resource areas for which the proposed project could have a significant impact. For the No Program Baseline, the IWDM Program could have significant noise and biological resources impacts. All other impacts were determined to be less than significant or no impact in this EIR. Thus, the following alternatives analysis for the No Program Baseline is focused on how the alternatives could avoid or lessen the noise and/or biological resources impacts of the IWDM Program.

For the CEQA Baseline, the EIR determined that the IWDM Program would not have the potential to result in any significant environmental impacts. Therefore, under CEQA Guidelines Section 15126.6(b), a comparison of above-listed alternatives to the IWDM Program under the CEQA Baseline is not required. Nevertheless, given that a few of the project alternatives would have a significant noise impact under the CEQA Baseline, as generally shown in Table 5-1, the County has determined that a comparison of potential impacts related to Noise under the CEQA Baseline should be included in this chapter for informational purposes, for those alternatives where noise impacts could be increased, as compared to the IWDM Program.

No Project/No Action Alternative

The proposed project under consideration is approval of an integrated wildlife damage management program by the County for implementation by WS-CA, pursuant to cooperative service agreements and work plans. Under this alternative, Mendocino County would not enter into an agreement with WS-CA for wildlife damage management services, and consequently WS-CA would not provide County-funded technical assistance of any kind (including direct control lethal and/or non-lethal methods) to the County, its residents, or resource owners. The County also would not provide any wildlife damage management services.

It should be noted that while the County would not provide any funding or support for WS-CA activities under the No Project/No Action Alternative, WS-CA may still operate in the County independently under certain specific circumstances. For instance, the CDFW may independently authorize WS-CA to perform take of cougars identified as threats to public safety in Mendocino County. Furthermore, private land owners within Mendocino County can retain the services of WS-CA to implement wildlife damage management on the specific land owner's property. Such WS-CA activities under authorization by CDFW, or through private agreements between WS-CA and private landowners within the County, are outside of the County's jurisdictional control and would not be supported under the No Project/No Action Alternative.

No Program Baseline

Biological Resources

The EIR determined that implementation of the IWDM Program could result in a significant impact to cougar. Under the No Project/No Action Alternative, the County would not implement a wildlife damage control program, nor would WS-CA be contracted to provide such services. As such, the No Project/No Action Alternative would not result in direct take of cougars, which, for

the purposes of this analysis, are considered a special-status species in Mendocino County pursuant to CEQA Guidelines Section 15380.

Although the No Project/No Action Alternative would not involve direct take of cougars, take in Mendocino County is authorized independently by CDFW in response to depredation and to protect public health and safety. Such depredation permits sought by individual property owners and granted by CDFW would occur outside of the No Project/No Action Alternative. It should be noted that due to an existing contract between CDFW and WS-CA, CDFW may rely on WS-CA to take cougars identified as threats to public safety in Mendocino County even with implementation of the No Project/No Action Alternative. Furthermore, private landowners may request WS-CA personnel to administer the take allowed by CDFW under any depredation permit granted in Mendocino County despite the implementation of the No Project/No Action Alternative. Nevertheless, while take of cougars in Mendocino County would continue to occur, the No Project/No Action Alternative, for the purposes of this analysis, is not assumed to result in direct take of cougars, and, thus the No Project/No Action Alternative would not be considered to result in a significant affect to the cougar population in Mendocino County and effects to cougars would be less under the No Project/No Action Alternative.

Noise

Under the No Project/No Action Alternative, the County would not implement a wildlife damage control program, nor would WS-CA be contracted to provide such services. As such, the No Project/No Action Alternative would not result in County funds being used to support wildlife damage management operations having potential noise effects related to firearm discharge, electronic distress devices, tracking dogs, or frightening devices. Overall, noise effects under the No Project/No Action Alternative would be fewer.

Non-Lethal Program Alternative

In addition to the analysis provided within this EIR related to the IWDM Program, this EIR includes an equal weight analysis of a Non-Lethal Program Alternative.

The Non-Lethal Program Alternative would not use or recommend lethal methods to attempt to resolve wildlife damage. This Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to property owners reporting wildlife damage. The University of California Cooperative Extension is one such agency that could provide educational technical assistance to landowners on behalf of the County, as well as operational assistance in the form of specialized equipment demonstrations (e.g., electrified fladry, propane cannons, lasers, pyrotechnics). This Alternative could also involve cost sharing with property owners for reimbursement of management methods, such as building of new fences or repair of fences; purchasing new livestock protection animals; maintenance of livestock protection animals; and Foxlights. Under the Non-Lethal Program Alternative analyzed in this EIR, direct control assistance related to lethal methods would not be provided to land owners or other resource managers.

CEQA Baseline

As noted above, under the CEQA Baseline, this EIR did not identify significant noise impacts for the IWDM Program.

As discussed in the Noise chapter, the use of livestock protection dogs as a wildlife control method would not be directly implemented by WS-CA staff, but rather only recommended to private land owners for implementation. In the event that the use of livestock protection dogs is recommended and subsequently implemented, the private land owner would be financially responsible for all associated cost. Because this wildlife control method would not be directly implemented or funded by the IWDM Program, no effect would occur related to use of livestock protection dogs under the IWDM Program.

Unlike the IWDM Program, the Non-Lethal Program Alternative is anticipated to include a cost-share/reimbursement mechanism for the use of livestock protection dogs by private land owners. As a result, compared to the IWDM Program, provision of funding for use of livestock protection dogs under the Non-Lethal Program Alternative is considered a new control method. Thus, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs is provided in the EIR.

As shown in Table 5-1 above, the County determined that the Non-Lethal Program Alternative could result in a significant and unavoidable impact related to generation of a substantial temporary increase in ambient noise levels due to noise from livestock protection dogs on lands within the jurisdiction of Mendocino County and in incorporated cities. This is because barking and other noise associated with the use of livestock protection dogs could temporarily exceed the adjusted Mendocino County Zoning Code noise level standards and the standards established in the Fort Bragg General Plan. Improvement measures have been included in the EIR to reduce noise from use of livestock protection dogs under the Non-Lethal Program Alternative to the maximum extent feasible. Given that reimbursement/cost-sharing for use of livestock protection dogs would not occur under the IWDM Program, impacts would be greater under the Non-Lethal Program Alternative compared to the IWDM Program when considered in the context of the CEQA Baseline.

No Program Baseline

Biological Resources

Under the Non-Lethal Program Alternative, take of cougars would not be supported by the Non-Lethal Program Alternative or funds related to the program. However, as discussed previously, lethal take of cougars may persist even with implementation of the Non-Lethal Program Alternative, due to the CDFW's role in granting cougar depredation permits to property owners. However, the level of continued take of cougars under depredation permits granted to private land owners in Mendocino County and for public safety reasons, both of which would occur outside of the Non-Lethal Program Alternative, is considered speculative. While take of cougars would be anticipated to persist within the County under the Non-Lethal Program Alternative, because the goal of the Non-Lethal Program Alternative would be to avoid the use of lethal management

methods within the County, for the purposes of this analysis, the Non-Lethal Program Alternative is not assumed to result in direct take of cougars. Thus, the Non-Lethal Program Alternative would not be considered to result in a significant and unavoidable effect to the cougar population in Mendocino County and effects to cougars would be less under the Non-Lethal Program Alternative.

Noise

As discussed in Chapter 4.4, Noise, of this EIR, and shown in Table 5-1 above, the Non-Lethal Program Alternative could result in potentially significant noise effects related to use of the following control methods within the vicinity of sensitive receptors: electronic distress devices, frightening devices, and livestock protection dogs. Even with implementation of Improvement Measures 4.4-2, 4.4-4, and 4.4-5, all identified effects are conservatively determined to be significant and unavoidable. The IWDM Program would similarly have significant impacts from the aforementioned non-lethal methods, with the exception of livestock protection dogs. However, the IWDM Program would have a significant noise impact related to firearms and tracking dogs. Thus, for purposes of this analysis, it is assumed that reduced noise exposure due to the prohibition of lethal methods such as firearms and tracking dogs under the Non-Lethal Program Alternative would be partly offset by increased noise due to use of livestock protection dogs. Overall, noise effects occurring under the Non-Lethal Program Alternative would be similar to the IWDM Program.

Variation to the Non-Lethal Program Alternative

In addition to the analysis provided within this EIR related to the IWDM Program and the Non-Lethal Program Alternative, this EIR includes an equal weight analysis of a variation to the Non-Lethal Program Alternative. The variation to the Non-Lethal Program Alternative that would be identical to the Non-Lethal Program Alternative, with the exception that this Alternative would allow the strictly limited use of gunshot (from the ground) as a lethal method. For the variation to the Non-Lethal Program Alternative, gunshot would only be used in exceptional cases where a risk to public health and safety is posed by wildlife. This can be generally defined as animal attacks on humans that result in injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs.

CEQA Baseline

As noted above, under the CEQA Baseline, this EIR did not identify significant noise impacts for the IWDM Program. However, as shown in Table 5-1 above, the County determined that the variation to the Non-Lethal Program Alternative could result in a significant and unavoidable impact related to generation of a substantial temporary increase in ambient noise levels due to noise from livestock protection dogs. Given that reimbursement/cost-sharing for use of livestock protection dogs would not occur under the IWDM Program, impacts could be greater under the variation to the Non-Lethal Program Alternative compared to the IWDM Program, when considered in the context of the CEQA Baseline.

No Program Baseline

Biological Resources

As noted under the Non-Lethal Program Alternative above, the CDFW and WS-CA maintain a contract allowing CDFW to rely on WS-CA personnel to perform take of cougars as necessary to protect public health and safety. Because CDFW authorizes WS-CA to provide public safety responses to cougars irrespective of any County-specific cost-sharing agreements or IWDM Programs, WS-CA could continue to provide lethal and non-lethal management of cougars within Mendocino County, as needed to protect public health, under the variation to the Non-Lethal Program Alternative. Regardless of the contract between CDFW and WS-CA, the variation to the Non-Lethal Program Alternative would allow for the use of lethal gunshot to control wildlife that pose a threat to public health and safety. Thus, lethal control of cougars to protect public health and safety within the County could be implemented by WS-CA or the entity tasked with implementing the variation to the Non-Lethal Program Alternative. Although the lethal control of cougars posing an imminent threat to public health and safety would be allowed under the Alternative, such take would be anticipated to infrequently and in a highly restricted manner. For instance, between 1986 and 2014 only two verified cougar attacks occurred in Mendocino County. The Mendocino County attacks occurred at the same time and likely involved the same cougar; however, conservatively considering the attacks to be separate incidents yields a rate of about one attack in Mendocino County every 14 years. Even if the variation to the Non-Lethal Program Alternative results in the take of three times the number of individuals indicated by the attack rate in Mendocino County, to account for situations where an attack appears imminent, this only amounts to about one cougar every 5 years. This level of take would not have the potential to cause the Mendocino County cougar population or larger southern North Coast cougar subpopulation to drop below self-sustaining levels, either individually or in combination with other stressors on this species. Consequently, the take of cougars under the variation to the Non-Lethal Program Alternative would not be anticipated to result in significant effects related to the lethal control of cougars.

In addition to the take of cougars within the County due to public health and safety concerns, individual property owners within Mendocino County would still be able to apply to the CDFW for depredation permits independent of the County's variation to the Non-Lethal Program Alternative. Although WS-CA would not regularly operate within the County under the variation to the Non-Lethal Program Alternative, WS-CA or other qualified individuals or entities could fulfill any depredation permits granted by CDFW for cougars within the County, as may be requested by private land owners. Such depredation permits sought by individual property owners would occur outside of the variation to the Non-Lethal Program Alternative.

Accordingly, while implementation of the variation to the Non-Lethal Program Alternative would limit direct take of cougars to instances where public health or safety is endangered and CDFW does not rely on WS-CA to ameliorate the issue, cougars could continue to be taken by property owners (after receiving a depredation permit from CDFW) to address depredation. Nevertheless, because the take of cougars related to public health and safety occurs infrequently, and the variation to the Non-Lethal Program Alternative would not directly involve the take of cougars within the County due to depredation, the variation to the Non-Lethal Program Alternative would

not be anticipated to result in a significant and unavoidable effect to the Mendocino County cougar population; and effects to cougars would be less under the variation to the Non-Lethal Program Alternative.

Noise

As discussed in Chapter 4.4, Noise, of this EIR, and shown in Table 5-1 above, the variation to the Non-Lethal Program Alternative could result in potential noise effects related to use of the following control methods within the vicinity of sensitive receptors: firearm discharge, electronic distress devices, frightening devices, and livestock protection dogs. Even with implementation of Improvement Measures 4.4-1, 4.4-4, and 4.4-5, all identified effects are conservatively determined to be significant and unavoidable. The IWDM Program would similarly have significant effects from the aforementioned non-lethal methods, with the exception of livestock protection dogs. However, the IWDM Program would have an additional significant noise effect related to tracking dogs. Thus, overall, noise impacts occurring under the variation to the Non-Lethal Program Alternative would be similar to the IWDM Program.

Mendocino County Wildlife Management Services Alternative

Under this Alternative, Mendocino County would not approve an agreement with WS-CA. Instead, the County would provide wildlife damage management services that would have otherwise been directed to WS-CA. Given that these services would be provided under the direction of the County, to implement this Alternative, the County would need to have qualified staff and/or enter into subcontracts with qualified professionals to provide the services formerly delivered by WS-CA field specialists. As with the existing agreement, the funded services would be used for addressing agricultural losses, public health and safety, and property damage, and would include technical assistance and direct control (non-lethal and lethal methods). Levels of take previously experienced in the County under the IWDM Program would be anticipated to continue at similar levels under the Alternative.

No Program Baseline

Biological Resources

Given that the Alternative would involve the same non-lethal and lethal control methods as well as the same level of take as the IWDM Program, the same potential exists for the Alternative to result in a significant effect to the cougar population in Mendocino County. Similar to the IWDM Program, Improvement Measure 4.2-1 would be recommended under the Alternative. However, because the County does not have jurisdiction over CDFW's issuance of take permits, implementation of Improvement Measure 4.2-1 cannot be ensured, and, consequently, the Mendocino County Wildlife Services Alternative would be anticipated to result in a significant and unavoidable effect related to cougar populations in the County and effects would be similar to the IWDM Program.

Noise

Given that the Alternative would involve the same non-lethal and lethal control methods as the IWDM Program, the same potential exists for the Alternative to result in the implementation of the control methods within the vicinity of sensitive receptors, thereby resulting in increased ambient noise levels in excess of established standards. Similar to the IWDM Program, Improvement Measures 4.4-1 through 4.4-4 would still be recommended under the Alternative. However, as noted in Chapter 4.4, Noise, of this EIR, the foregoing improvement measures cannot, with certainty, be implemented in all possible wildlife damage situations to reduce noise impacts related to wildlife damage management methods under the IWDM Program to a less-than-significant level. Consequently, impacts would be similar to under the Mendocino County Wildlife Management Services Alternative compared to the IWDM Program.

Mendocino County Wildlife Management Services Non-Lethal Alternative

Under this Alternative, Mendocino County would not approve an agreement with WS-CA. Instead, the County would provide wildlife damage management services that would have otherwise been directed to WS-CA. Similar to the Non-Lethal Program Alternative evaluated in this EIR, under the Mendocino County Wildlife Management Services Non-Lethal Alternative, trained personnel would give technical information and operational assistance, if needed, on non-lethal management methods to property owners reporting wildlife damage. However, such personnel would be employed directly by the County, rather than an outside governmental or non-governmental agency.

Overall, the wildlife control methods associated with the Mendocino County Wildlife Management Services Non-Lethal Alternative would be identical to the Non-Lethal Program Alternative. Information and training on lethal management methods would not be provided under this alternative.

CEQA Baseline

As noted above, under the CEQA Baseline, this EIR did not identify significant impacts for the IWDM Program. However, similar to the Non-Lethal Program Alternative the Mendocino County Wildlife Management Services Non-Lethal Alternative would include reimbursement/cost-share for the use of livestock protection dogs by agencies and private entities within the County. Given that reimbursement/cost-sharing for use of livestock protection dogs would occur under this Alternative, but not under the IWDM Program, and livestock protection dogs could generate noise levels in excess of County standards, impacts would be greater under the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative compared to the IWDM Program when considered in the context of the CEQA Baseline.

No Program Baseline

Biological Resources

Under the Mendocino County Wildlife Management Services Non-Lethal Alternative, take of cougars would not be supported by program funds. However, as discussed previously lethal take of cougars may persist even with implementation of the Mendocino County Wildlife Management Services Non-Lethal Alternative, due to the CDFW's role in granting cougar take permits for depredation conflicts and to ameliorate threats to public safety. Although the continued level of take in the County with implementation of the Mendocino County Wildlife Management Services Non-Lethal Alternative would be speculative, because the goal of the Alternative would be to avoid the use of lethal management methods within the County, for the purposes of this analysis, the Alternative is not assumed to result in direct take of cougars. Thus, the Mendocino County Wildlife Management Services Non-Lethal Alternative would not be considered to result in a significant and unavoidable effect to the cougar population in Mendocino County and effects to cougars would be less under the Mendocino County Wildlife Management Services Non-Lethal Alternative.

Noise

As discussed in Chapter 4.4, Noise, of this EIR, and shown in Table 5-1 above, the Non-Lethal Program Alternative could result in potential noise effects related to use of the following control methods within the vicinity of sensitive receptors: electronic distress devices, frightening devices, and livestock protection dogs. Even with implementation of Improvement Measures 4.4-2, 4.4-4, and 4.4-5, all identified effects are conservatively determined to be significant and unavoidable.

As noted above, the wildlife control methods associated with the Mendocino County Wildlife Management Services Non-Lethal Alternative would be identical to the Non-Lethal Program Alternative. Thus, the significant noise effects identified in the EIR for the Non-Lethal Program Alternative would remain significant and unavoidable under the Mendocino County Wildlife Management Services Non-Lethal Alternative. The IWDM Program would similarly have significant impacts from the aforementioned non-lethal methods, with the exception of livestock protection dogs. However, in addition, the IWDM Program would have a significant noise impact related to firearms and tracking dogs. Overall, noise impacts occurring under the Mendocino County Wildlife Management Services Non-Lethal Alternative would be similar to the IWDM Program.

Variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative

The variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would involve the same non-lethal control methods employed under the Mendocino County Wildlife Management Services Non-Lethal Alternative discussed above. However, in addition, the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would involve strictly limited use of gunshot in exceptional cases where a risk to public health and safety is posed by wildlife. This can be generally defined as animal attacks on humans that result in

injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs.

CEQA Baseline

As noted above, under the CEQA Baseline, this EIR did not identify significant impacts for the IWDM Program. However, similar to the variation to the Non-Lethal Program Alternative, this alternative would include reimbursement/cost-share for use of livestock protection dogs by agencies and private entities within the County. Given that reimbursement/cost-sharing for use of livestock protection dogs would occur under this alternative, but not under the IWDM Program, and livestock protection dogs could generate noise levels in excess of County standards, impacts would be greater under the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative compared to the IWDM Program, when considered in the context of the CEQA Baseline.

No Program Baseline

Biological Resources

As noted previously, the CDFW and WS-CA maintain a contract allowing CDFW to rely on WS-CA personnel to perform take of cougars, as necessary, to protect public health and safety. Because CDFW authorizes WS-CA to provide public safety responses to cougars irrespective of any County-specific cost-sharing agreements or IWDM Programs, WS-CA could continue to provide lethal and non-lethal management of cougars within Mendocino County, as needed to protect public health, under the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative. Regardless of the contract between CDFW and WS-CA, the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would allow for the use of lethal gunshot to control wildlife that pose a threat to public health and safety. Thus, lethal control of cougars to protect public health could be implemented by WS-CA or County employees under the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative.

In addition to the take of cougars within the County due to public health concerns, individual property owners within Mendocino County would still be able to apply to the CDFW for depredation permits independent of any County administered program. Although WS-CA would not regularly operate within the County under the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative, WS-CA or other qualified individuals or entities could fulfill any depredation permits granted by CDFW for cougars, as may be requested by property owners. Such depredation permits sought by individual property owners would occur outside of the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative.

Accordingly, while implementation of the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would limit direct take of cougars to instances where public health or safety is endangered, and CDFW does not rely on WS-CA to ameliorate the issue, cougars could continue to be taken by property owners (after receiving a depredation

permit from CDFW) to address depredation. Nevertheless, because the take of cougars related to public health and safety occurs relatively infrequently, and the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would not directly involve the take of cougars within the County due to depredation, this Alternative would not be anticipated to result in significant and unavoidable effects to the Mendocino County cougar population; and effects to cougars would be less under the variation to the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative.

Noise

As discussed in Chapter 4.4, Noise, of this EIR, and shown in Table 5-1 above, the variation to the Non-Lethal Program Alternative could result in potential noise effects related to use of the following control methods within the vicinity of sensitive receptors: electronic distress devices, frightening devices, and livestock protection dogs. Even with implementation of Improvement Measures 4.4-2, 4.4-4, and 4.4-5, all identified effects are conservatively determined to be significant and unavoidable.

As noted above, the wildlife control methods associated with the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would be identical to the variation to the Non-Lethal Program Alternative. Thus, the significant noise effects identified in the EIR for the variation to the Non-Lethal Program Alternative would remain significant and unavoidable under the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative. The IWDM Program would similarly have significant impacts from the aforementioned non-lethal methods, with the exception of livestock protection dogs. However, the IWDM Program would have an additional significant noise impact related to tracking dogs. Thus, for purposes of this analysis, it is assumed that noise impacts occurring under the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would be similar to the IWDM Program.

5.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

As discussed above, implementation of the IWDM Program under the CEQA Baseline would not result in any significant and unavoidable impacts or impacts requiring mitigation to reduce to less-than-significant levels. Considering that the IWDM Program would not result in any significant impacts under the CEQA Baseline, an alternative that would substantially reduce impacts, per CEQA Guidelines Section 15126.6, need not be selected. Nevertheless, a comparison of potential impacts under each alternative to the IWDM Program under the CEQA Baseline is presented in Table 5-3 at the end of this chapter, for informational purposes.

With regard to the No Program Baseline, significant and unavoidable effects were identified for Biological Resources and Noise under the IWDM Program. Section 15126(e)(2) of the CEQA Guidelines requires that an environmentally superior alternative be designated and states, “If the environmentally superior alternative is the ‘no project’ alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.” As shown in Table 5-3, the No Project/No Action Alternative would result in fewer effects than the IWDM Program and all other alternatives. However, given that a “no project” alternative shall not be selected as the

environmentally superior alternative the No Project/No Action Alternative may not be chosen as the environmentally superior alternative, and the environmentally superior alternative among the other alternatives must be chosen.

It should be noted that the Mendocino County Wildlife Management Services alternatives are substantively similar to the corresponding non-Mendocino County administered alternatives. For instance, the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative would involve implementation of identical suites of non-lethal wildlife damage management methods, as well as similarly anticipated cost-sharing mechanisms. The only difference between the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative is one of administration, whereby, under the Mendocino County Wildlife Management Services Non-Lethal Alternative, Mendocino County staff would be responsible for implementing the program. Implementation of the program by Mendocino County staff, as compared to staff of an outside entity, would not result in any changes related to the potential for the alternative to result in physical effects to the environment. This issue, rather, is one of having adequate staff personnel resources and funds to administer the program.

Table 5-3 demonstrates that the Non-Lethal Program Alternative, variation to the Non-Lethal Program Alternative, Mendocino County Wildlife Management Services Non-Lethal Alternative, and variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative would result in reductions in anticipated environmental effects as compared to the IWDM Program.

Although environmental effects would be reduced under all of the foregoing alternatives, the variation to the Non-Lethal Program Alternative and the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative could involve direct lethal take of cougars to protect public health and safety, while the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative would not involve direct take of cougars under any circumstances. Considering that the IWDM Program is conservatively anticipated to result in a significant and unavoidable effect due to the lethal take of cougars under the No Program Baseline, the fact that the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative would not result in any direct take of cougars, these Alternatives would have the potential to further reduce significant effects beyond what would be achieved with implementation of the variation to the Non-Lethal Program Alternative and the variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative. It should be noted that due to CDFW's role in approving take of cougars, take of cougars would be anticipated to continue within the County regardless of any County actions.

Considering the similarities between the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative, and the potential for both alternatives to reduce the significant and unavoidable effect identified for the IWDM Program under the No Program Baseline, the Non-Lethal Program Alternative and the Mendocino County Wildlife Management Services Non-Lethal Alternative would both be considered the environmentally superior alternatives.

**Table 5-3
 Comparison of Environmental Impacts for Project Alternatives**

Resource Area	IWDM Program	No Project/No Action Alternative	Non-Lethal Program Alternative	Variation to the Non-Lethal Program Alternative	Mendocino County Wildlife Management Services Alternative	Mendocino County Wildlife Management Services Non-Lethal Alternative	Variation to the Mendocino County Wildlife Management Services Non-Lethal Alternative
CEQA Baseline							
Noise	Less Than Significant	N/A	Greater*	Greater*	N/A	Greater*	Greater*
No Program Baseline							
Biological Resources	Significant and Unavoidable	Fewer	Fewer	Fewer	Similar*	Fewer	Fewer
Noise	Significant and Unavoidable	Fewer	Similar*	Similar*	Similar*	Similar*	Similar*
Notes: N/A = Not Analyzed; No Impact = "None;" Less than Proposed Project = "Fewer;" Similar to Proposed Project = "Similar;" and Greater than Proposed Project = "Greater."							
* Significant and Unavoidable impact(s) determined for the proposed project would still be expected to occur under the Alternative.							

6. STATUTORILY REQUIRED SECTIONS

6

STATUTORILY REQUIRED SECTIONS

6.1 INTRODUCTION

The Statutorily Required Sections chapter of the EIR includes discussions regarding those topics that are required to be included in an EIR, pursuant to the CEQA Guidelines Section 15126.2. The chapter includes the following as they may relate to the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative: a summary of the cumulative setting, potential effects related to energy consumption, significant irreversible environmental changes, and significant environmental effects which cannot be avoided.

6.2 CUMULATIVE IMPACTS

CEQA Guidelines Section 15130 requires that an EIR discuss the cumulative and long-term effects of the proposed project that adversely affect the environment. “Cumulative impacts” are defined as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (CEQA Guidelines Section 15355; see also Pub. Resources Code, Section 21083, subd. [b]). Stated another way, “[...] a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts.” (CEQA Guidelines Section 15130, subd. [a][1])

“[I]ndividual effects may be changes resulting from a single project or a number of separate projects.” (CEQA Guidelines Section 15355, subd. [a]) “The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.” (CEQA Guidelines Section 15355, subd. [b])

The need for cumulative impact assessment reflects the fact that, although a project may cause an “individually limited” or “individually minor” incremental impact that, by itself, is not significant, the incremental effect may be “cumulatively considerable” and, thus, significant when viewed together with environmental changes anticipated from past, present, and probable future projects (CEQA Guidelines Section 15064, subd. [h(1)], Section 15065, subd. [c], and Section 15355, subd. [b]). This formulation indicates that particular impacts may be less-than-significant on a project-specific basis, but significant on a cumulative basis, because their small incremental contribution, viewed against the larger backdrop, is cumulatively considerable.

The lead agency should define the relevant geographic area of inquiry for each impact category (CEQA Guidelines Section 15130, subd. [b][3]), and should then identify the universe of “past, present, and probable future projects producing related or cumulative impacts” relevant to the various categories, either through the preparation of a “list” of such projects or through the use of

“a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact” (id., subd. [b][1]).

The possibility exists that the “cumulative impact” of multiple projects will be significant, but that the incremental contribution to that impact from a particular project may not itself be “cumulatively considerable.” Thus, CEQA Guidelines Section 15064, Subdivision (h)(5) states, “[...] the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project’s incremental effects are cumulatively considerable.” Therefore, it is not necessarily true that, even where cumulative impacts are significant, any level of incremental contribution must be deemed cumulatively considerable.

In accordance with CEQA Guidelines section 15130(b), “the discussion of cumulative impacts must reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone.”

Scope of Cumulative Analysis

In accordance with Section 15130(b)(1)(B) of the CEQA Guidelines, the cumulative analysis throughout the technical chapters of this EIR is based upon buildout of the Mendocino County General Plan. For each issue area, this EIR evaluates the potential for activities occurring under the IWDM Program, and the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative to result in physical environmental effects that may combine with cumulative environmental effects identified in the General Plan EIR.

6.3 ENERGY CONSERVATION

Per Appendix G of the CEQA Guidelines, a project would result in a significant impact related to energy resources if the project would:

- a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The potential for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative to result in impacts/effects related to energy conservation are discussed under the CEQA Baseline and No Program Baseline below.

CEQA Baseline

IWDM Program

Approval of the IWDM Program would enable WS-CA to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by WS-CA in Mendocino County

since 1989. Given that the IWDM Program would represent a continuation of existing conditions, no impact would occur related to the consumption of energy or the creation of conflicts or obstructions to local plans for renewable energy or energy efficiency beyond what has previously occurred within the County.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to property owners reporting wildlife damage. For example, with respect to deterrent methods, field technicians would instruct property owners or managers how to use deterrent tools in ways that maximize their effectiveness while minimizing the potential for wildlife to habituate to the deterrents.

Similar to the IWDM Program, the Non-Lethal Program Alternative would involve implementation of wildlife control methods similar to methods that have been historically carried out by WS-CA in Mendocino County since 1989. However, the Non-Lethal Program Alternative would include the provision of a cost-sharing/reimbursement mechanism, which may be used for such energy consuming devices as electric fencing or electrified fladry (turbo fladry). Such equipment would be suggested for installation by field technicians selectively, and only when the field technician has determined that the equipment could help to prevent wildlife damage conflicts. The energy consumed by such equipment would then be used to provide effective non-lethal wildlife damage management, which would be considered a necessary consumption of energy. Furthermore, the total amount of energy consumed by electric fencing and/or turbo fladry would represent a relatively small proportion of the total energy demand from the entire County. Installation of electric fencing and turbo fladry would not interfere with renewable energy production in the County, and such equipment could be powered with renewable energy (e.g., solar devices). Consequently, although the Non-Lethal Program Alternative would involve cost-sharing/reimbursement for electric fencing and turbo fladry, the energy consumed by such non-lethal methods would be necessary, would not be wasteful, would not represent a large source of increased energy demand, and would not conflict with renewable energy production in the County.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. The use of firearms would not affect energy consumption; thus, the analysis and conclusions presented under the Non-Lethal Program Alternative above would be applicable to the variation to the Non-Lethal Program Alternative as well.

No Program Baseline

IWDM Program

As noted in the Initial Study prepared for the proposed project (see Appendix B), much of the wildlife control work within the IWDM Program would be administered through technical support, which can be offered through off-site correspondences. However, some technical support and all direct control methods would require site visits by WS-CA staff, resulting in consumption of fuel associated with vehicle use. Such site visits would happen throughout the County on an as-needed-basis, with WS-CA staff visiting individual livestock managers or farmers as requested. Site trips are anticipated to occur relatively infrequently, with few, if any, trips occurring each day. Thus, increases in vehicle fuel consumption occurring as a result of the IWDM Program would be relatively modest. In addition, none of the methods available for direct implementation by WS-CA staff under the IWDM Program would involve substantial energy use. Therefore, the IWDM Program would not result in potentially significant environmental effects due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation or conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would include activities related to technical assistance and operational assistance similar to the proposed project, with the exception of lethal control methods. Thus, the Non-Lethal Program Alternative would involve off-site correspondences as well as site visits. Site visits under the Non-Lethal Program Alternative would occur in a similar manner as would occur under the IWDM Program; that is, the non-governmental agency or outside governmental agency contracted by the County to implement the Non-Lethal Program Alternative would make site visits as requested and needed to individual sites throughout the County.

Similar to the IWDM Program, vehicle fuel consumption occurring as a result of the Non-Lethal Program Alternative would be relatively modest. In addition, none of the methods available to staff for direct implementation under the Non-Lethal Program Alternative would involve substantial energy use.

The Non-Lethal Program Alternative would include the provision of a cost-sharing/reimbursement mechanism, which may be used for the installation of electric fencing or electrified fladry (turbo fladry). Such equipment would be suggested for installation by field technicians selectively, and only when the field technician has determined that the equipment could help to prevent wildlife conflict. The energy consumed by such equipment would then be used to provide effective non-lethal wildlife damage management, which would be considered a necessary consumption of energy. Furthermore, the total amount of energy consumed by electric fencing and turbo fladry implemented under the Non-Lethal Program Alternative would represent a relatively small proportion of the total energy demand from the entire County. Installation of electric fencing and turbo fladry would not interfere with renewable energy production in the County, and such equipment could be powered with renewable energy. Consequently, although the Non-Lethal Program Alternative would involve cost-sharing/reimbursement for electric fencing and turbo

fladry, the energy consumed by such non-lethal methods would be necessary, would not be wasteful, would not represent a large source of increased energy demand, and would not conflict with renewable energy production in the County.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. The use of firearms would not affect energy consumption; thus, the analysis and conclusions presented under the Non-Lethal Program Alternative above would be applicable to the variation to the Non-Lethal Program Alternative as well.

6.4 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Per CEQA Guidelines Section 15126.2(c), this EIR is required to include consideration of significant irreversible environmental changes that would be caused by the proposed project, should the project be implemented. An impact would be determined to be a significant and irreversible change in the environment if:

- Buildout of the project area could involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of development could generally commit future generations to similar uses (e.g., a highway provides access to a previously remote area);
- Development of the proposed project could involve uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The phasing and eventual development of the project could result in an unjustified consumption of resources (e.g., the wasteful use of energy).

The potential for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative to result in significant irreversible environmental changes are discussed under the CEQA Baseline and No Program Baseline below.

CEQA Baseline

IWDM Program

Approval of the IWDM Program would enable WS-CA to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by WS-CA in Mendocino County since 1989. Given that the IWDM Program would represent a continuation of the existing environmental baseline conditions, under the CEQA Baseline, the IWDM Program would not result in any net new impacts.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance, if needed, on non-lethal management methods to property owners reporting wildlife damage. For example, with respect to deterrent methods, field technicians would instruct property owners or managers how to use deterrent tools in ways that maximize their effectiveness while minimizing the potential for wildlife to habituate to the deterrents.

Similar to the IWDM Program, the Non-Lethal Program Alternative would involve implementation of wildlife control methods similar to methods that have been historically carried out by WS-CA in Mendocino County since 1989. However, the Non-Lethal Program Alternative would include the provision of a cost-sharing/reimbursement mechanism, which may include compensation for non-lethal methods, such as fencing or enclosures related to animal husbandry techniques. Construction of fencing and enclosures may involve the use of nonrenewable resources; however, fencing and enclosures do not require a large commitment of materials, and the total amount of fencing and enclosures installed within Mendocino County under the Non-Lethal Program Alternative would likely be relatively small. Furthermore, the Non-Lethal Program Alternative would not include any land development, construction, or substantial amounts of ground disturbance that could result in significant irreversible environmental changes. Therefore, the Non-Lethal Program Alternative would not result in significant and irreversible environmental changes.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. The use of firearms would not have the potential to result in significant irreversible environmental changes; thus, the analysis and conclusions presented under the Non-Lethal Program Alternative above would be applicable to the variation to the Non-Lethal Program Alternative as well.

No Program Baseline

IWDM Program

Approval of the IWDM Program would not include any physical development or otherwise involve a substantial commitment of renewable resources. As noted in Chapter 4.3, Hazards and Hazardous Materials, of this EIR, the IWDM Program would not result in adverse environmental effects associated with release of hazardous materials or other accident conditions. Therefore, the IWDM Program would not result in any significant irreversible environmental changes.

Non-Lethal Program Alternative

The Non-Lethal Program Alternative would serve to protect livestock, crops, human health and safety and property within the County from wildlife damage through the use of a variety of non-lethal methods. Such management activities would not include any physical development, with the possible exception of fencing or enclosures related to animal husbandry techniques, or otherwise involve a substantial commitment of renewable resources. As noted in Chapter 4.3, Hazards and Hazardous Materials, of this EIR, the Non-Lethal Program Alternative would not result in adverse environmental effects associated with release of hazardous materials or other accident conditions. Therefore, the Non-Lethal Program Alternative would not result in any significant irreversible environmental changes.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. The use of firearms would not have the potential to result in significant irreversible environmental changes; thus, the analysis and conclusions presented under the Non-Lethal Program Alternative above would be applicable to the variation to the Non-Lethal Program Alternative as well.

6.5 GROWTH-INDUCING IMPACTS OF THE PROPOSED PROJECT

State CEQA Guidelines section 15126.2(d) requires an EIR to evaluate the potential growth-inducing impacts of a proposed project. Specifically, an EIR must discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Growth can be induced in a number of ways, including the elimination of obstacles to growth, or by encouraging and/or facilitating other activities that could induce growth. Examples of projects likely to have growth-inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of large residential subdivisions or large office parks, for which the demand for housing may increase in order to support employees of such, in areas that are currently only sparsely developed or are undeveloped.

CEQA Baseline

IWDM Program

Approval of the IWDM Program would enable WS-CA to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by WS-CA in Mendocino County since 1989. Given that the IWDM Program would represent a continuation of the existing environmental baseline conditions, under the CEQA Baseline, the IWDM Program would not result in any net new impacts.

Non-Lethal Program Alternative

Similar to the IWDM Program, the Non-Lethal Program Alternative would involve implementation of wildlife control methods similar to methods that have been historically carried out by WS-CA in Mendocino County since 1989. Although the Non-Lethal Program Alternative would involve a cost-sharing/reimbursement mechanism for certain non-lethal methods, such methods (e.g., fencing, fladry, livestock protection dogs, Foxlights) would not have growth-inducing impacts. Consequently, implementation of the Non-Lethal Program would not result in growth-inducing impacts.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. The use of firearms would not have the potential to result in growth-inducing impacts; thus, the analysis and conclusions presented under the Non-Lethal Program Alternative above would be applicable to the variation to the Non-Lethal Program Alternative as well.

No Program Baseline

IWDM Program

As noted above, the IWDM Program would consist of wildlife damage management activities designed to protect livestock, crops, human health and safety and property from wildlife damage. The IWDM Program would not include any physical development that would directly or indirectly induce growth within Mendocino County.

Non-Lethal Program Alternative

Similar to the IWDM Program, the Non-Lethal Program Alternative would consist of management activities designed to protect livestock, crops, human health and safety and property from wildlife damage. Although the Non-Lethal Program Alternative would involve a cost-sharing/reimbursement mechanism for certain non-lethal methods, such methods would not induce growth in the County. Consequently, implementation of the Non-Lethal Program would not induce growth within the County.

Variation to the Non-Lethal Program Alternative

The variation to the Non-Lethal Program Alternative would be identical to the Non-Lethal Program Alternative discussed above, except that the variation to the Non-Lethal Program Alternative would allow for the use of firearms to control wildlife when public health and safety is in danger. The use of firearms would not have the potential induce growth within the County; thus, the analysis and conclusions presented under the Non-Lethal Program Alternative above would be applicable to the variation to the Non-Lethal Program Alternative as well.

6.6 SIGNIFICANT ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

According to the CEQA Guidelines Section 15126.2(b), an EIR must include a description of impacts identified as significant and unavoidable, should the proposed action be implemented. When the determination is made that either mitigation is not feasible or only partial mitigation is feasible, such that the impact is not reduced to a less-than-significant level, such impacts would be considered significant and unavoidable. Based on the analysis throughout this EIR, under the CEQA Baseline, the IWDM Program would not result in any significant impacts that could not be eliminated or reduced to a less-than-significant level by mitigation measures imposed by the County. The final determination of the significance of impacts and the feasibility of mitigation measures would be made by the County Board of Supervisors as part of the County's certification action.

CEQA Baseline

The following significant and unavoidable impact could occur as a result of the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative, for the CEQA Baseline.

4.4-5 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from livestock protection dogs. Based on the analysis below, the findings are as follows:

- **CEQA Baseline. Even with mitigation, the impact is *significant and unavoidable* for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative.**

No Program Baseline

The following significant and unavoidable effects could occur as a result of the IWDM Program, Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative for the No Program Baseline.

4.2-1 Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish & Wildlife, U.S. Fish & Wildlife Service or National Oceanic and Atmospheric Administration Fisheries. Based on the analysis below, the findings are as follows:

- **No Program Baseline. Even with improvement measures, the effect is conservatively identified as *significant and unavoidable* for cougars in Mendocino County under the IWDM Program.**

- 4.2-7 Cumulative impacts to biological resources within Mendocino County, including special-status species, riparian habitat, sensitive natural communities, and/or state or federally protected wetlands. Based on the analysis below, the findings are as follows:
- **No Program Baseline.** The cumulative effect is considered *cumulatively considerable and significant and unavoidable* for the IWDM Program.
- 4.4-1 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to firearm discharge. Based on the analysis below, the findings are as follows:
- **No Program Baseline.** Even with improvement measures, the effect is *significant and unavoidable* for the IWDM Program and the variation to the Non-Lethal Program Alternative.
- 4.4-2 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to electronic distress device noise exposure. Based on the analysis below, the findings are as follows:
- **No Program Baseline.** Even with improvement measures, the effect is *significant and unavoidable* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.
- 4.4-3 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from tracking dogs. Based on the analysis below, the findings are as follows:
- **No Program Baseline.** Even with improvement measures, the effect is *significant and unavoidable* for the IWDM Program.
- 4.4-4 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from frightening devices. Based on the analysis below, the findings are as follows:
- **No Program Baseline.** Even with improvement measures, the effect is *significant and unavoidable* for the IWDM Program, the Non-Lethal Program Alternative, and the variation to the Non-Lethal Program Alternative.
- 4.4-5 Generation of a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies due to noise from livestock protection dogs. Based on the analysis below, the findings are as follows:
- **No Program Baseline.** Even with improvement measures, the effect is *significant and unavoidable* for the Non-Lethal Program Alternative and the variation to the Non-Lethal Program Alternative.

7. EIR AUTHORS AND PERSONS CONSULTED

7

EIR AUTHORS AND PERSONS CONSULTED

RANEY PLANNING & MANAGEMENT, INC.

C. Timothy Raney, AICP	President
Cindy Gnos, AICP	Senior Vice President
Nick Pappani	Vice President
Rod Stinson	Division Manager/Air Quality Specialist
Angela DaRosa	Assistant Division Manager/Air Quality Specialist
Jacob Byrne	Senior Associate/Air Quality Technician
Zac Smith	Associate

MENDOCINO COUNTY

Ignacio Gonzalez	Recovery Director (formerly Interim Director, Department of Planning and Building Services)
Matthew Kiedrowski	Deputy County Counsel

BOLLARD ACOUSTICAL CONSULTANTS, INC.

Paul Bollard	President
Dario Gotchet	Consultant

LIVE OAK ASSOCIATES, INC.

Rick Hopkins, Ph.D.	Principal and Senior Conservation Biologist
Geoffrey D. Cline, M.S.	Senior Project Manager and Ecologist
Rebekah Jensen, M.S.	Project Manager and Ecologist

8. REFERENCES

8

REFERENCES

- Allen, M. L., L. M. Elbroch, D. S. Casady, and H. U. Wittmer. 2015. *Feeding and spatial ecology of mountain lions in the Mendocino National Forest*. California Fish and Game 101(1):51-65.
- American Veterinary Medical Association. 2013. *AVMA Guidelines for the Euthanasia of Animals: 2013 Edition*.
- Anthony Massucco, Fire Captain/Pre-Fire Engineer, CAL FIRE. Personal Communication [email] with Nick Pappani, Vice President, Raney Planning & Management, Inc. March 8, 2019.
- Bailey, John, Interim Director, HREC. Personal communication [email] with Nick Pappani, Raney Planning and Management, Inc. January 10, 2019.
- Baldwin, R. A. 2015. *Pest Notes: Opossums*. University of California Statewide Integrated Pest Management Program, Davis, CA.
- Baldwin, R. A. 2015. *Pest Notes: Raccoons*. University of California Statewide Integrated Pest Management Program, Davis, CA.
- Barton, B. T. 2003. *Cascading effects of predator removal on the ecology of sea turtle nesting beaches*. Master's thesis. University of Central Florida, Orlando.
- Beausoleil, R. A., G. M. Koehler, B. T. Maletzke, B. N. Kertson, and R. B. Wielgus. 2013. Research to regulation: cougar social behavior as a guide for management. *Wildlife Society Bulletin* 37(3):680-688.
- Beck, T., J. Beecham, P. Beier, T. Hofstra, M. Hornocker, F. Lindzey, K. Logan, B. Pierce, H. Quigley, I. Ross, H. Shaw, R. Sparrowe, and S. Torres. 2005. *Cougar Management Guidelines*. Opal Creek Press LLC, Salem, Oregon.
- Beier, P. 1993. *Puma: a population simulator for cougar conservation*. *Wildlife Society Bulletin* 21:356-357.
- Beier, P. 1996. *Metapopulation modeling, tenacious tracking, and cougar conservation*. D. R. McCullough, editor. *Metapopulations and wildlife management*. Island Press, Washington, D.C., USA.
- Beier, P. and R. F. Noss. 1998. *Do habitat corridors really provide connectivity?* *Conservation Biology* 12:1241-1252.

- Berger K.M. and E. M. Gese. 2007. *Does interference competition with wolves limit the distribution and abundance of coyotes?* Journal of Animal Ecology 76: 1075–1085.
- Birhane M. G., J. M. Cleaton, B. P. Monroe. 2017. *Rabies surveillance in the United States during 2015.* Journal of the American Veterinary Medical Association 250:1117-1130.
- Black, H. L., & Green, J. S. 1985. *Navajo use of mixed-breed dogs for management of predators.* Journal of Range Management 38:11–15.
- Bollard Acoustical Consultants. Environmental Noise & Vibration Assessment. Integrated Wildlife Damage Management Program EIR, Mendocino County, California. January 29, 2019.
- Bradley, Elizabeth H. et al. 2016. *Effects of Wolf Removal on Livestock Depredation Recurrence and Wolf Recovery in Montana, Idaho and Wyoming.* Intermountain Journal of Sciences, [S.I.], v. 22, n. 4. ISSN 1081-3519. Available at: <https://arc.lib.montana.edu/ojs/index.php/IJS/article/view/645>.
- Bunnell, F. L. and D.E.N. Tait. 1985. *Mortality Rates of North American Bears.* Arctic Vol No. 4: pp. 316-323.
- C. Kerry Gee. 1979. “*Cattle and Calf Losses to Predators – Feeder Cattle Enterprises in the United States.*” Journal of Range Management, 32.
- Calflora. 2018. *Calflora: An online database of plant identification and distribution.* Calflora, Berkeley, California. Available at: <http://www.calflora.org>.
- California Department of Conservation, Division of Land Resource Protection, FMMP: *A Guide to the Farmland Mapping and Monitoring Program.*
- California Department of Conservation. *Mendocino County Important Farmland 2016.* November 2017.
- California Department of Conservation. *The California Land Conservation Act of 1965 2016 Status Report.* December 2016.
- California Department of Fish and Wildlife, Biogeographic Data Branch. 2018. *Natural Communities webpage.* Available at: <https://www.wildlife.ca.gov/data/VegCAMP/Natural-Communities/>.
- California Department of Fish and Wildlife, Biogeographic Data Branch. 2018. *Vegetation Classification and Mapping Program.* Available at: <https://www.wildlife.ca.gov/Data/VegCAMP>.
- California Department of Fish and Wildlife, California Interagency Wildlife Task Group. 2014. *CWHR version 9.0 personal computer program.* Sacramento, CA.

- California Department of Fish and Wildlife, Wildlife Branch – Game Management. 2018. *Black Bear information webpages*. Available at:
<https://www.wildlife.ca.gov/Conservation/Mammals/Black-Bear>.
- California Department of Fish and Wildlife, Wildlife Investigations Lab. 2018. *Mountain Lions in California webpages*. Available at:
<https://www.wildlife.ca.gov/Conservation/Mammals/Mountain-Lion>.
- California Department of Fish and Wildlife. 2004. *Furbearing and Nongame Mammal Hunting and Trapping*. State of California Draft Environmental Document.
- California Department of Fish and Wildlife. 2011. *Draft Environmental Document – Bear Hunting*. Wildlife Branch. Sacramento, CA. Available at:
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=82753&inline>.
- California Department of Fish and Wildlife. 2014. *RE: Request for concurrence on Wildlife Services Program effects on State listed threatened and endangered species in California and Proposed Action*. Letter to Dennis Orthmeyer, State Director, USDA APHIS Wildlife Services. October 29, 2014.
- California Department of Fish and Wildlife. 2017. *Human/Wildlife Interactions in California: Mountain Lion Depredation, Public Safety, and Animal Welfare – Amendment to Department Bulletin 2013-02*. Departmental Bulletin, Department of Fish and Wildlife. Issued December 15, 2017.
- California Department of Fish and Wildlife. 2018. *California Natural Diversity Database*. Available at: <https://www.wildlife.ca.gov/data/cnddb>.
- California Department of Fish and Wildlife. 2018. *Wild Pig Management Program*. Wildlife Branch – Game Management. Available at:
<https://www.wildlife.ca.gov/Conservation/Mammals/Wild-Pig>.
- California Department of Fish and Wildlife. *Gray Wolf*. Available at:
<https://www.wildlife.ca.gov/conservation/mammals/gray-wolf>. Accessed February 2019.
- California Department of Forestry and Fire Protection. *Mendocino County, Draft Fire Hazard Severity Zones in LRA*. September 24, 2007.
- California Department of Public Health, Veterinary Public Health Section, Infectious Diseases Branch, Division of Communicable Disease Control. 2016. *Rabies surveillance in California, annual report 2015*.
- California Native Plant Society. 2018. *Inventory of Rare and Endangered Vascular Plants of California*. Available at: <http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi>.
- Colman, N. J., C. E. Gordon, M. S. Crowther, and M. Letnic. 2014. *Lethal control of an apex predator has unintended cascading effects on forest mammal assemblages*. Proceedings of the Royal Society B 281:20133094.

- Conner, L. M., B. D. Leopold, and M. J. Chamberlain. 2001. *Multivariate habitat models for bobcats in southern forested landscapes*. Woolf, A., C. K. Nielsen, and R. D. Bluett, editors. Proceedings of the Symposium on Current Bobcat Research and Implications for Management, The Wildlife Society 2000 Conference. Carbondale, Illinois: Southern Illinois University.
- Connolly, G. E. and W. M. Longhurst. 1975. *The effects of control on coyote populations: A simulation model*. Division Agricultural Science, University of California, Davis, Bulletin 1872.
- Cooley HS, Wielgus RB, Robinson HS, et al. 2009. *Does hunting regulate cougar populations? A test of the compensatory mortality hypothesis*. Ecology 90. <https://www.ncbi.nlm.nih.gov/pubmed/19886499>.
- County of Marin. *Livestock Protection*. Available at: <https://www.marincounty.org/depts/ag/livestock-protection>. Accessed January 2019.
- County of Mendocino. *The County of Mendocino General Plan*. August 2009.
- Crabtree, R. L. and J. W. Sheldon. 1999. *Coyotes and canid coexistence*. In T. W. Clark, et al., (Eds.). *Carnivores in Ecosystems: The Yellowstone Experience*. New Haven: Yale University Press.
- Critter Gitter AMTEK Critter Gitter. Available at: <https://crittergittersensor.com/>. Accessed November 2018.
- Culver M, W. E. Johnson, J. Pecon-Slattery, and S. J. O'Brien. 2000. *Genomic ancestry of the American puma (Puma concolor)*. Journal of Heredity 91:186–197.
- Dale A. Wade. 1982. *"The use of fences for predator damage control."* Proceedings of the Vertebrate Pest Conference 10:24-53.
- Davidson-Nelson, Sarah J. and Gehring, Thomas M. (2010) *"Testing Fladry as a Nonlethal Management Tool for Wolves and Coyotes in Michigan."* Human–Wildlife Interactions: Volume 4: Issue 1, Article 11. Available at: <https://digitalcommons.usu.edu/hwi/vol4/iss1/11>.
- Dawn, D. 2002. *Management of cougars (Puma concolor) in the western United States*. Thesis, San Jose State University, San Jose, California.
- Dennis Orthmeyer, California State Director, USDA APHIS Wildlife Services. Personal communication [phone] with Nick Pappani, Vice President, Raney Planning and Management, Inc. January 14, 2019.
- eBird, Cornell Lab of Ornithology, Ithaca, New York. 2018. *eBird: An online database of bird distribution and abundance [web application]*. Available: <http://www.ebird.org>.

- Eklund A, Vicente López-Bao J, Tourani M, Chapron G, Frank J. 2017. *Limited evidence on the effectiveness of interventions to reduce livestock predation by large carnivores*. Scientific Reports 7: 2097. [https:// DOI:10.1038/s41598-017-02323-w](https://doi.org/10.1038/s41598-017-02323-w).
- Elbroch, L. M. and A. Kusler. 2018. *Are pumas subordinate carnivores, and does it matter?* PeerJ, 6 e4293. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5786880/>.
- Epps, C. W., P. J. Palsbell, J. D. Wehausen, G. K. Roderick, R. R. Ramey II, and D. R. McCullough. 2005. *Highways block gene flow and cause a rapid decline in genetic diversity of desert bighorn sheep*. Ecology Letters 8:1029-1038.
- Ernest, H. B., W. M. Boyce, V. C. Bleich, B. May, S. J. Stiver, and S. G. Torres. 2003. *Genetic structure of mountain lion (Puma concolor) populations in California*. Conservation Genetics 4:353-366.
- EShepherd. *About*. Available at: <http://www.eshepherd.biz/about.html>. Accessed November 2018.
- Espuno N, Lequette B, Poulle ML, et al. 2004. *Heterogeneous response to preventive sheep husbandry during wolf recolonization of the French Alps*. Wildlife Soc B 32: 1195–208. [https://doi.org/10.2193/0091-7648\(2004\)032\[1195:HRTPSH\]2.0.CO;2](https://doi.org/10.2193/0091-7648(2004)032[1195:HRTPSH]2.0.CO;2).
- Flesch, A. D., C. W. Epps, J. W. Cain III, M. Clark, P. R. Krausman, and J. R. Morgart. 2009. *Potential effects of the United States-Mexico border fence on wildlife*. Conservation Biology 24(1):171-181.
- Francisco J. Santiago-Avila¹, Ari M. Cornman, Adrian Treves. *Killing wolves to prevent predation on livestock may protect one farm but harm neighbors*. January 10, 2018.
- Gabriel, M. W., L. W. Woods, G. M. Wengert, N. Stephenson, J. M. Higley, and C. Thompson. 2015. *Patterns of natural and human-caused mortality factors of a rare forest carnivore, the fisher (Pekania pennant) in California*. PLoS ONE 10(11): 0140640.[doi:10.1371/journal.pone.0140640](https://doi.org/10.1371/journal.pone.0140640).
- Gardner, A. L. 1982. *Virginia opossum*. J. A. Chapman and G. A. Feldhamer, eds. Wild mammals of North America. Johns Hopkins Univ. Press, Baltimore, MD.
- Gehring, Thomas M. et al. 2011. “*Good fences make good neighbors: implementation of electric fencing for establishing effective livestock-protection dogs*.” Human-Wildlife Interactions. 5(1): 106-111.
- Gehring, Thomas M.; Vercauteren, Kurt C.; Provost, Megan L.; and Cellar, Anna C. 2010. *Utility of livestock-protection dogs for deterring wildlife from cattle farms*. USDA National Wildlife Research Center - Staff Publications. https://digitalcommons.unl.edu/icwdm_usdanwrc/1344.
- Gipson, P. and J. Kamler. 2001. *Survival and home ranges of opossums in northeastern Kansas*. The Southwestern Naturalist, 46:2.

- Gustafson, K.D., Gagne, R.B., Vickers, T.W., Riley S. P. D., Wilmers C. C., Bleich V.C., Pierce B. M., Kenyon M., Drazenovich T. L., Sikich J. A., Boyce W. M., Ernest H. B. 2019. *Genetic source-sink dynamics among naturally structured and anthropogenically fragmented puma populations*. Conservation Genetics, 20: 215. Available at <https://doi.org/10.1007/s10592-018-1125-0>.
- Hamlin, R., L. Roberts, G. Schmidt, K. Brubaker and R. Bosch. 2010. *Species assessment for the Humboldt marten (Martes americana humboldtensis)*. U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, Arcata, California.
- Hansen, I., & Smith, M. E. 1999. *Livestock-guarding dogs in Norway Part II: Different working regimes*. Journal of Range Management 52: 312–316.
- Harrington, J. L. and M. R. Conover. 2006. *Characteristics of ungulate behavior and mortality associated with wire fences*. Wildlife Society Bulletin 34(5):1295-1305.
- Hody, J. W. and R. Kays. 2018. *Mapping the expansion of coyotes (Canis latrans) across North and Central America*. ZooKeys 759:81-97.
- Hornocker M., Negri S., Quigley H. 2010. *Cougar: Ecology and Conservation* [Chpt. 5; Cougar Population Dynamics]. University of Chicago Press, Chicago.
- Jakes, A. F., P. F. Jones, L. Christine Paige, R. G. Seidler, and M. P. Huijser. 2018. *A fence runs through it: A call for greater attention to the influence of fences on wildlife and ecosystems*. Biological Conservation 227:310-318.
- Jay, M. T., M. Cooley, D. Carychao, G. W. Wiscomb, R. A. Sweitzer, L. Crawford-Miksza, J. A. Farrar, D. K. Lau, J. O’Connell, A. Millington, R. V. Asmundson, E. R. Atwill, R. E. Mandrell. 2007. *Escherichia coli 0157:H7 in feral swine near spinach fields and cattle, central California coast*. Emerging Infectious Diseases 13:1908-1911.
- Jennings, W. L., N. J. Schneider, A. L. Lewis, and J. E. Scatterday. 1960. *Fox rabies in Florida*. Journal of Wildlife Management 24:171-179.
- John A. Shivik. 2004. “Non-Lethal Alternatives for Predation Management”. *Sheep & Goat Research Journal*. 14, p. 66.
- Jurek, R. M. 1992. *Nonnative red foxes in California*. Nongame Bird and Mammal Section Report 92-04. The Resources Agency, Department of Fish and Game.
- Justin A. Dellinger, Eric R. Loft, Ronald C. Bertram, Donald L. Neal, Marc W. Kenyon, and Steven G. Torres. 12 July 2018. *Seasonal Spatial Ecology of Mountain Lions (Puma concolor) in the Central Sierra Nevada* [pg. 143-156]. Western North American Naturalist 78(2). Available at <https://doi.org/10.3398/064.078.0205>.
- Kaller, M. D. and W.E. Kelso. 2006. *Swine activity alters invertebrates and microbial communities in a coastal plain watershed*. American Midland Naturalist. 156(1):163-177.

- Keesing, F., J. Brunner, S. Duerr, M. Killilea, K. LoGiudice, K. Schmidt, H. Vuong, and R. S. Ostfeld. 2009. *Hosts as ecological traps for the vector of Lyme disease*. Proceedings of the Royal Society B 276(1675).
- Kelleyhouse, D. G. 1975. *Habitat utilization and ecology of the black bear in northern California*. M.S. Thesis, Humboldt State University, Arcata, CA.
- Kertson, B. N. 2010. *Cougar ecology, behavior, and interactions with people in a wildland-urban environment in western Washington*. Dissertation. University of Washington, Seattle, WA, USA.
- Kilgo, J. C., C. E. Shaw, M. Vukovich, M. J. Conroy, C. Ruth. 2017. *Reproductive characteristics of a coyote population before and during exploitation*. The Journal of Wildlife Management 81(8):1386-1393.
- Kurushima J. D., Collins J. A., Ernest H. B.. 2006. *Development of 21 microsatellite loci for puma (Puma concolor) ecology and forensics*. Molecular Ecology Notes 6, 1260-1262.
- Lambert, C.M., R. B. Wielgus, H. R. Robinson, H. S. Cruickshank, R. Clarke, and J. Almack. 2006. *Cougar population dynamics and viability in the Pacific Northwest*. Journal of Wildlife Management 70: 246–254.
- Lance N. J., Breck S. W., Sime C., Callahan P., Shivik J. A. (2010) *Biological, technical, and social aspects of applying electrified fladry for livestock protection from wolves (Canis lupus)*. Wildlife Research 37: 708-714.
- Larson, Stephanie. 2006. *The Marin County Predator Management Program: Will It Save the Sheep Industry*. Approved for Print.
- LaRue, M., C. Nielsen, M. Dowling, K. Miller, B. Wilson, H. Shaw, C. Anderson. 2012. *Cougars Are Recolonizing the Midwest: Analysis of Cougar Confirmations during 1990–2008*. Journal of Wildlife Management 76(7):1364-1369.
- Linhart S, Blom S, Dasch G, Engeman R, Olsen G. 1988. *Field Evaluation of Padded Jaw Coyote Traps: Effectiveness and Foot Injury*. Proceedings of the Thirteenth Vertebrate Pest Conference. Available at: <http://digitalcommons.unl.edu/vpcthirteen/46/>.
- Live Oak Associates, Inc. *Biological Evaluation for CEQA Compliance, Mendocino County WS-CA IWDM Program Project*. March 2019.
- Logan, K. A., L L. Sweanor, T. K. Ruth, and M. G. Hornocker. 1996. *Cougars of the San Andres Mountains, New Mexico*. Final Report, Federal Aid in Wildlife Restoration Project W-128-R. New Mexico Department of Game and Fish, Santa Fe, NM.
- Lynes, B. C. and S. D. Campbell. 2000. *Germination and viability of mesquite (Prosopis pallida) seed following ingestion and excretion by feral pigs (Sus scrofa)*. Tropical Grasslands 34: 125-128.

- Marshall, K. M., N. T. Hobbs, and D. J. Cooper. 2013. *Stream hydrology limits recovery of riparian ecosystems after wolf reintroduction*. Proceedings of the Royal Society B 280: 20122977.
- Martyn E. Obbard, Eric J. Howe, Linda L. Wall, Brad Allison, Ron Black, Peter Davis, Linda Dix-Gibson, Michael Gatt, Michael N. Hall. 1 October 2014. *Relationships among food availability, harvest, and human-bear conflict at landscape scales in Ontario, Canada*. *Ursus*, 25(2): 98-110. <https://doi.org/10.2192/URSUS-D-13-00018.1>.
- Maser, C., B. R. Mate, J. F. Franklin, and C. T. Dyrness. 1981. *Natural history of Oregon Coast mammals*. Gen. Tech. Rep. PNW-133. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station.
- Matt Kendall, Undersheriff, Mendocino County Sheriff's Office. Personal communication [phone] with Nick Pappani, Vice President, Raney Planning and Management, Inc. January 15, 2019.
- Mattson, D., K. Logan, and L. Sweanor. 2011. *Factors governing risk of cougar attacks on humans*. *Human-Wildlife Interactions* 5(1):135-138.
- Mendocino County Department of Agriculture. *2016 Crop Report*. July 10, 2018.
- Mendocino County. *2014 Mendocino County Multi-Hazard Mitigation Plan*. 2014.
- Mendocino County. *Coastal Element*. Revised March 11, 1991.
- Mendocino County. *General Plan Update Draft Environmental Impact Report, SCH: 2008062074*. September 2008.
- Mendocino County. *General Plan*. August 2009.
- Mendocino County. *Ukiah Valley Area Plan*. Adopted August 2, 2011.
- Mendocino Local Agency Formation Commission. *Multi-District Fire Protection Services*. April 2016.
- Mezquida, E. T., S. J. Slater, and C. Benkman. 2006. *Sage-grouse and indirection interactions: potential implications of coyote control on sage-grouse populations*. *Condor* 108(4):747-759.
- Mountain Lion Foundation. 2018. *Mountain Lion Status in California*. Available at: <https://mountainlion.org/us/ca/-ca-status.asp>.
- National Marine Fisheries Service. 2018. *NMFS Resources in California, West Coast Region, National Oceanic and Atmospheric Administration – Fisheries*. Available at: https://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html.

- Neal, Donald L. Steger, George N.; Bertam, Ronald C.; 1987. Mountain lions: preliminary findings on home-range use and density, central Sierra Nevada. USFS PSW Research Station. RN-PSW-392. Available at: https://www.fs.fed.us/psw/publications/documents/psw_rn392/psw_rn392.pdf.
- Occupational Safety and Health Administration. *OSHA Quick Card, Protect Yourself, Pest Control Pyrotechnics*. 2007.
- Ohrens O, Bonacic C, Treves A. 2019. *Non-lethal defense of livestock against predators: flashing lights deter puma attacks in Chile*. *Frontiers in Ecology and the Environment*, 17(1): 32–38. Available at: <https://doi.org/10.1002/fee.1952>.
- Orloff, S. 1980. *Raccoon status in Contra Costa and Alameda counties*. Job progress report, Project No. W-54-R-12, California Department of Fish and Game, Nongame Wildlife Investigations, Sacramento.
- Paige, C. 2012. *A Landowner's Guide to Wildlife Friendly Fences: How to Build Fence with Wildlife in Mind, Second Edition*. Private Land Technical Assistance Program, Montana Fish, Wildlife, and Parks, Helena, Montana.
- Peebles KA, Wielgus RB, Maletzke BT, Swanson ME. 2013. *Effects of Remedial Sport Hunting on Cougar Complaints and Livestock Depredations*. *PLoS ONE* 8(11):e79713. doi:10.1371/journal.pone.0079713.
- Pierce, B. and V. Bleich. 2003. *Mountain lion*. G. A. Feldhamer, B. C. Thompson, and J. A. Chapman, eds. *Wild Mammals of North America: Biology, Management, and Conservation*, Second Edition. Baltimore: Johns Hopkins University.
- Potgieter, G. C. 2011. *The effectiveness of livestock guarding dogs for livestock production and conservation in Namibia*. MSc thesis. Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- Prugh, L. R., C. J. Stoner, C. W. Epps, W. T. Bean, W. J. Ripple, A. S. Laliberte, J. S. Brashares. 2009. *The Rise of the Mesopredator*. *BioScience* 59: 779-79.
- Quinn, R. D. 1990. *Habitat preferences and distribution of mammals in California chaparral*. Res. Pap. PSW-202. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station.
- Riley, S. P. D., J. Hadidian, and D. A. Manski. 1998. *Population density, survival, and rabies in raccoons in an urban national park*. *Canadian Journal of Zoology* 76:1153-1164.
- Ripple W. J., Beschta R. L. 2004. *Wolves and the ecology of fear: Can predation risk structure ecosystems?* *BioScience* 54:755-766.
- Ripple, W. J. and R. L. Beschta. 2006. *Linking a cougar decline, trophic cascade, and catastrophic regime shift in Zion National Park*. *Biological Conservation* 133:397-408.

- Roberts, N. M. and S. M. Crimmins. 2010. *Bobcat population status and management in North America: Evidence of large-scale population increase*. Journal of Wildlife Management 1(2):169-174.
- Robinson H. S., R. B. Wielgus, H. S. Cooley, and S. W. Cooley SW. 2008. *Sink populations in carnivore management: cougar demography and immigration in a hunted population*. Ecological Applications 18:1028–1037.
- Roemer, G. W., C. J. Donlan, and F. Courchamp. 2002. *Golden eagles, feral pigs, and insular carnivores: how exotic species turn native predators into prey*. Proc. Nat. Acad. Sci., 99: 791-796.
- Rosell, F., O. Bozser, P. Collen, and H. Parker. 2005. *Ecological impact of beavers Castor fiber and Castor canadensis and their ability to modify ecosystems*. Mammal Review 35(3-4):248-276.
- Russell Ford, Mendocino County Planning and Building Services. Personal communication [email] with Jacob Byrne, Air Quality Technician, Raney Planning & Management. February 22, 2019.
- Russell Ford, Mendocino County Planning and Building Services. Personal Communication [email] with Nick Pappani, Vice President at Raney Planning & Management, Inc. March 18, 2019.
- Samuel B. Linhart et al. “Electronic Frightening Devices for Reducing Coyote Predation on Domestic Sheep: Efficacy Under Range Conditions and Operational Use.” (1992). *Proceedings of the Fifteenth Vertebrate Pest Conference 1992*. 47: 389.
- Santiago-Avila FJ, Cornman AM, Treves A. 2018. *Killing wolves to prevent predation on livestock may protect one farm but harm neighbors*. PLoS ONE 13(1):e0189729. Available at: <https://doi.org/10.1371/journal.pone.0189729>.
- Seidler, R. G., R. A. Long, J. Berger, S. Bergen, and J. P. Beckmann. 2015. *Identifying impediments to long-distance mammal migration*. Conservation Biology 29(1):99-109
- Shannon Chandler, Environmental Coordinator, USDA APHIS Wildlife Services. Personal communication [email] with Nick Pappani, Vice President, Raney Planning and Management, Inc., August 27, 2018.
- Shawn T. Riley et al. “The Essence of Wildlife Management.” *Wildlife Society Bulletin*, Vol. 30, No. 2 pp. 585-593. Summer, 2002.
- Sheick, B. K. and W. McCown. 2014. *Geographic distribution of American black bears in North America*. Ursus 25(1):24-33.
- Shivik JA, Maritn DJ. 2000. “*Aversive and Disruptive Stimulus Applications for Managing Predation*.” Wildlife Damage Management Conference. 9: 111-119.

- Shuford, W. D., and Gardali, T. 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California: Studies of Western Birds I*. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Siemann, E., J.A. Carrillo, C. A. Gabler, R. Zipp, and W. E. Rogers. 2009. *Experimental test of the impacts of feral hogs on forest dynamics and processes in the southeastern U.S. Forest*. Ecology and Management 258:546-553.
- Suraci, J. P., M. Clinchy, and L. Y. Zanette. 2017. *Do large carnivores and mesocarnivores have redundant impacts on intertidal prey?* PLoS One 12(1): e0170255.
- Suzanne A. Stone et al. “Adaptive use of nonlethal strategies for minimizing wolf-sheep conflict in Idaho.” *Journal of Mammalogy* (98): 33-44. 2017.
- Sweaner L. L., K. A. Logan, and M. G. Hornocker. 2000. *Cougar dispersal patterns, metapopulation dynamics, and conservation*. Conservation Biology 14:798–808.
- Sweitzer, R. A., Van Vuren, D., Gardner, I. A., Boyce, W. M., and Waithman, J. D. 2000. *Estimating sizes of wild pig populations in the North and Central Coast regions of California*. Journal of Wildlife Management, 64(2):531-542.
- Taylor, J. D., A. Morzillo, and A. M. Anderson. 2014. *Estimating the total economic impact of black bear peeling in western Oregon using GIS and REMI*. USDA National Wildlife Research Center – Staff Publications. 1791. Available at: https://digitalcommons.unl.edu/icwdm_usdawrc/1791.
- Texas A&M. 2012. *Feral Hog Population Growth, Density and Harvest in Texas*. Texas A&M University AgriLife Extension Service. Available at: <https://invasivespecies.wa.gov/documents/squealonthepigs/FeralHogPopGrowthDensity&HarvestinTX.pdf>.
- The Mendocino Voice. *Rabies alert: wild fox tests positive in Ukiah*. January 2, 2018. Available at: <https://www.mendovoice.com/2018/01/rabies-alert/>.
- The Wildlife Society. 2014. *Feral swine in North America*. Issue statement.
- The Wildlife Society. *Standing Position: Wildlife Damage Management*. 2010.
- Thornton, D. H. and D. L. Murray. 2014. *Influence of hybridization on niche shifts in expanding coyote populations*. Diversity and Distributions 20: 1355–1364.
- Toigo, C., S. Servanty, J.M. Gailard, S. Brandt, and E. Baubet. 2008. *Disentangling Natural from Hunting Mortality in an Intensively Hunted Wild Boar Population*. Journal of Wildlife Management. 72(7): 1532-1539.

- Torres, S. G., T. M. Mansfield, J. E. Foley, T. Lupo, and A. Brinkhaus. 1996. *Mountain lion and human activity in California: Testing speculations*. *Wildlife Society Bulletin* 24:451–460.
- Trapp, G. R. and D. L. Hallberg. 1975. *Ecology of the gray fox (Urocyon cinereoargenteus): a review*. In: Fox, M. W., ed. *The wild canids: Their systematics, behavioral ecology and evolution*. Behavioral Science Series. New York: Van Nostrand Reinhold Company: 164-178.
- Treves A, Krofel M, McManus J. 2016. *Predator control should not be a shot in the dark*. *Frontiers in Ecology and the Environment*. 14(7):1-9. Available at: <https://doi.org/10.002/fee.1312>.
- U.S. Army Corps of Engineers. *Hunting at Lake Mendocino*. Available at: <https://www.spn.usace.army.mil/Missions/Recreation/Lake-Mendocino/Hunting/>. Accessed March 25, 2019.
- U.S. Census Bureau. *American FactFinder Available at* <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>. Accessed July 2018.
- U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015.
- U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.101, Selecting Wildlife Damage Management Methods*. July 20, 2009.
- U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.105, The WS Integrated Wildlife Damage Management Program*. March 1, 2004.
- U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.110, Wildlife Services Research and Methods Development*. July 21, 2008.
- U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.201, WS Decision Model*. July 15, 2014.
- U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.430, Controlled Chemical Immobilization and Euthanizing Agents*. July 06, 2009.
- U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.505, Lethal Control of Animals*. May 18, 2011.
- U.S. Department of Agriculture Animal and Plant Health Inspection Service, Wildlife Services. *Factsheet, Livestock Protection Dogs*. October 2010.
- U.S. Department of Agriculture Animal and Plant Health Inspection Service. 2018. *Program Data Reports for Years 1997-2017 for California*. Available at: https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/SA_Reports.

- U.S. Department of Agriculture Cooperative Extension. 2014. *Food habits of feral hogs*. October 9, 2012. Available at: <https://articles.extension.org/pages/63655/food-habits-of-feral-hogs>.
- U.S. Fish and Wildlife Service. 1976-2002. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available online at: <http://www.fws.gov/wetlands/>.
- U.S. Fish and Wildlife Service. 1998. *Point Arena Mountain Beaver (Aplodontia rufa nigra (Rafinesque)) Recovery Plan*. Region 1, Portland, OR.
- U.S. Fish and Wildlife Service. 2002. *Draft Guidelines for Project-Related Habitat Assessments and Surveys for Point Arena Mountain Beaver (Aplodontia rufa nigra)*. Unpublished document on file at the Arcata Fish and Wildlife Office, Arcata, California.
- U.S. Fish and Wildlife Service. 2007. *RE: Amended Biological Assessment for APHIS-WS Activities to Protect Livestock, Property, Human Health and Safety, and Natural Resources in the State of California*. Letter to Craig Coolahan, State Director, California Office, APHIS-WS. May 8, 2007.
- U.S. Fish and Wildlife Service. 2014. *Subject: Informal Consultation on USDA APHIS California Wildlife Services Program Part II*. Letter to Dennis Orthmeyer, State Director, California Office, APHIS-WS. April 15, 2014.
- U.S. Fish and Wildlife Service. 2016. *Final Species Report, Fisher (Pekania pennanti), West Coast Population*. Klamath Falls Fish and Wildlife Office.
- U.S. Fish and Wildlife Service. 2017. *Florida panther population estimate updated*. Press release, February 22, 2017. Available at: <https://www.fws.gov/southeast/news/2017/02/florida-panther-population-estimate-updated>.
- U.S. Fish and Wildlife Service. 2018. Information for Planning and Consultation website. Available at: <https://ecos.fws.gov/ipac/>.
- U.S. Fish and Wildlife Service. 2018. *Long-extinct eastern cougar to be removed from endangered species list correcting lingering anomaly*. News bulletin, January 22, 2018. Available at: https://www.fws.gov/northeast/ecougar/pdf/Cougar_News_Bulletin_Final_1_18.pdf.
- U.S. Forest Service, Pacific Southwest Region. 2018. CALVEG, ESRI file geodatabase, S_USA.EVMid_R05_NorCoastMid.gdp.zip and S_USA.EVMid_R05_NorCoastWest.gdb.zip. Available at <https://data.fs.usda.gov/geodata/edw/datasets.php>.
- U.S. Forest Service. *Mendocino National Forest, General Campgrounds & Trailheads, Recreation Map*. Available at:

- <https://www.fs.usda.gov/recarea/mendocino/recreation/hiking/recarea/?recid=25250&actid=51>. Accessed March 2019.
- University of California Range Lands. *Livestock-Predator Hub*. Available at: <http://rangelands.ucdavis.edu/predator-hub/current-research/#fencing>. Accessed December 2018.
- University of California, Agriculture and Natural Resources. “Livestock Protection Tools for California Ranchers.” *ANR Publication 8598*. January 2018.
- van Bommel. 2016. *Livestock guardian dogs as surrogate top predators? How Maremma sheepdogs affect a wildlife community*. *Ecology and Evolution* 6(16):6702-6711.
- van Eeden LM, Eklund A, Miller JRB, López-Bao JV, Chapron G, Cejtin MR, et al. 2018. *Carnivore conservation needs evidence-based livestock protection*. *PLoS Biol* 16(9): e2005577. Available at: <https://doi.org/10.1371/journal.pbio.2005577>.
- van Lanen, N. J., A. W. Green, T. R. Gorman, L. A. Quattrini, and D. C. Pavlacky Jr. 2017. *Evaluating efficacy of fence markers in reducing greater sage-grouse collisions with fencing*. *Biological Conservation* 213:70-83.
- W. Karabian. *Animal Damage Activities in California*. Submitted to the Cal. Legislature and the Cal. Dept. of Agriculture. October 20, 1970.
- Wade-Smith, J. and B. Verts. 1982. *Mephitis mephitis*. *Mammalian Species*, 173.
- Westbrook, C. J., D. J. Cooper, and B. W. Baker. 2006. *Beaver dams and overbank floods influence groundwater-surface/water interactions of a Rocky Mountain riparian area*. *Water Resources Research* 42:1-12.
- White, C. G., P. Zager, and M. W. Gratson. 2010. *Influence of Predator Harvest, Biological Factors, and Landscape on Elk Calf Survival in Idaho*. *Journal of Wildlife Management* 74(3):355-359.
- Woods II, H. and E. Hellgren. 2003. *Seasonal changes in the physiology of male Virginia opossums (Didelphis virginiana): Sign of the dasyurid semelparity syndrome*. *Physiological and Biochemical Zoology*, 76:3: 406-417.
- Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White. 1988-1990. *California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals*. Department of Fish and Game. Available at: <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>.

APPENDIX A



COUNTY OF MENDOCINO
DEPARTMENT OF PLANNING AND BUILDING SERVICES

860 NORTH BUSH STREET • UKIAH • CALIFORNIA • 95482
120 WEST FIR STREET • FT. BRAGG • CALIFORNIA • 95437

IGNACIO GONZALEZ, INTERIM DIRECTOR
PHONE: 707-234-6650
FAX: 707-463-5709
FB PHONE: 707-964-5379
FB FAX: 707-961-2427
pbs@mendocinocounty.org
www.mendocinocounty.org/pbs

DATE: August 31, 2018

TO: California State Clearinghouse
Responsible and Trustee Agencies
Interested Parties and Organizations

SUBJECT: **Notice of Preparation of an Environmental Impact Report for the Proposed Integrated Wildlife Damage Management Program Project**

REVIEW PERIOD: **August 31, 2018 to October 1, 2018**

Mendocino County is the lead agency for the preparation of an Environmental Impact Report (EIR) for the proposed Integrated Wildlife Damage Management (IWDM) Program Project (proposed project) in accordance with the California Environmental Quality Act (CEQA), Section 15082. The purpose of the Notice of Preparation (NOP) is to provide responsible agencies and interested persons with sufficient information in order to enable them to make meaningful comments regarding the scope and content of the EIR. Your timely comments will ensure an appropriate level of environmental review for the proposed project.

Project Location: The project location consists of Mendocino County as shown in Figure 1.

Contact: For more information regarding the project, please contact Ignacio Gonzalez, Interim Director, Department of Planning and Building Services, (707) 234-6650. A copy of the NOP is available for review at the Mendocino County Department of Planning and Building Services (Ukiah Office), and on the Mendocino County website at the following link:

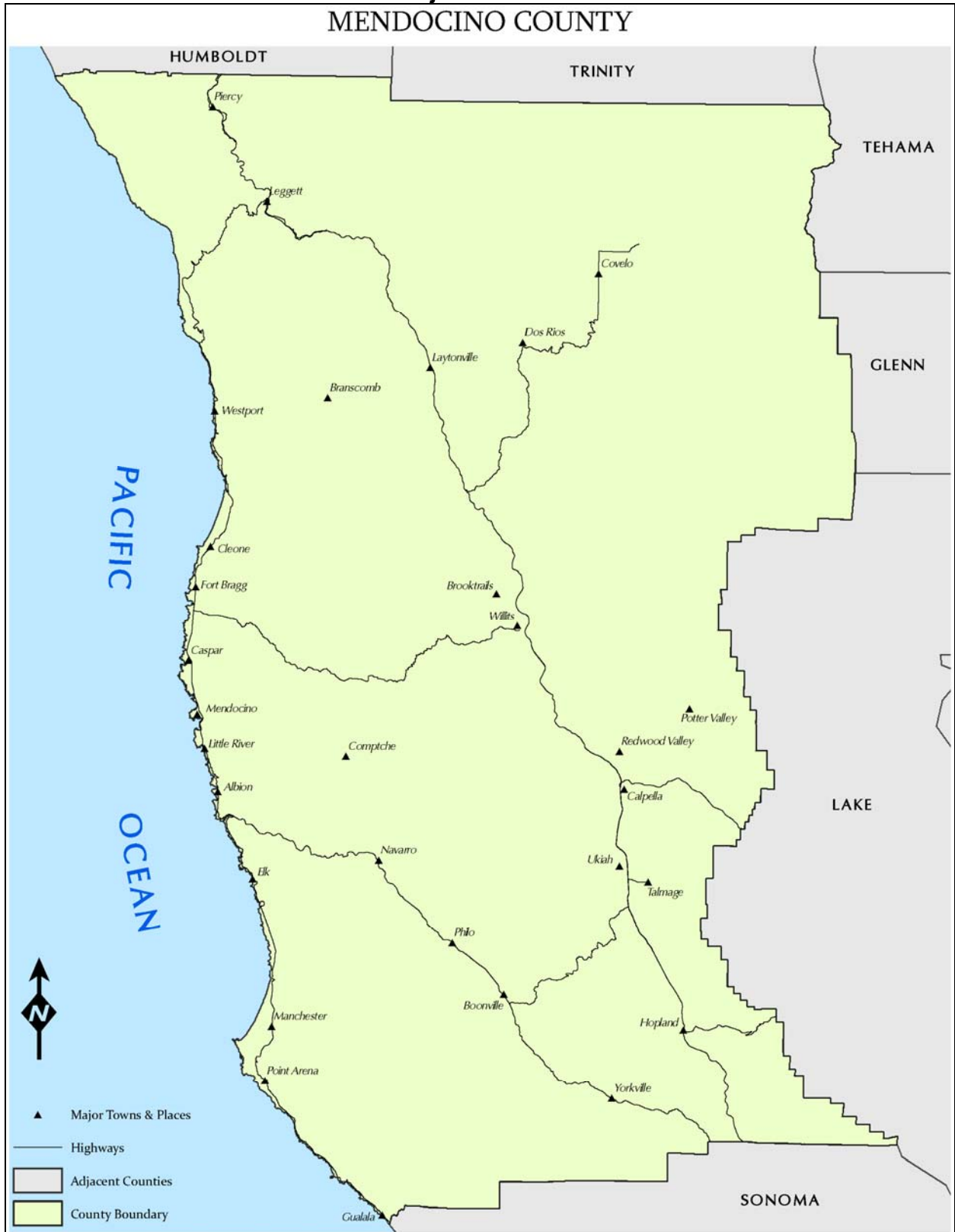
<https://www.mendocinocounty.org/government/planning-building-services/public-notice>

NOP Scoping Meeting: In addition to the opportunity to submit written comments, a public scoping meeting will be held to inform interested parties about the proposed project and to provide agencies and the public an opportunity to provide comments on the scope and content of the EIR. The meeting will be held on **September 18, 2018**, from 5:30 to 7:30 PM, at the Mendocino County Board of Supervisors Chambers at 501 Low Gap Road, Ukiah, California.

NOP Comment Period: Written comments should be submitted at the earliest possible date, but not later than 5:00 pm on **October 1, 2018** to Ignacio Gonzalez, 860 North Bush Street, Ukiah, CA 95482, (707) 234-6650, fax (707) 463-5709, or gonzalezn@mendocinocounty.org.

Initial Study: An Initial Study has been prepared for the proposed project and is attached to this document for public review. The EIR will address the CEQA-required environmental topics identified in the Initial Study as having the potential to result in a significant impact. Please note that the Initial Study includes a more detailed description of the proposed project and the non-lethal program alternative, summarized below.

Figure 1
Project Location



Summary of Proposed Project

The proposed project is approval of the IWDM Program to protect livestock, crops, human health and safety and property in the County from wildlife damage. The Program:

- (1) establishes the general purpose for and standards pursuant to which the Program will be implemented. For purposes of this EIR, the County is adopting and incorporating *WS Directive 2.105, The WS Integrated Wildlife Damage Management Program*. March 1, 2004 as the IWDM Program standards.
- (2) authorizes the Department of Agriculture to:
 - a. develop and/or adopt standards, either in the form of a guidance document or as part of a third-party service agreement, to implement the Program;
 - b. negotiate third-party service agreements to implement the Program for approval by the Board of Supervisors;
 - c. make recommendations to the Board of Supervisors concerning the Program, including but not limited to recommending approval of third-party service agreements;
 - d. provide oversight for and monitor implementation of the Program;
 - e. provide the public information concerning the Program;
 - f. take any other such actions as are necessary to effectively implement the Program in a manner consistent with its general purpose and standards.

As currently proposed, the Program would be implemented initially pursuant to a five-year Cooperative Service Agreement (CSA), including annual work plans (work and financial plans) required by the five-year CSA, with the United States Department of Agriculture Animal and Plant Health Inspection Service – Wildlife Services (APHIS-WS). The CSA and annual work plans would require the approval of the Mendocino County Board of Supervisors. Yearly adjustments to the work plan would primarily be a function of personnel and equipment costs. Technical assistance data maintained by APHIS-WS through the MIS for one year would also be used to help develop the work plan and budget for the subsequent year throughout the remaining term of the CSA. Activities performed under the IWDM Program would be implemented by APHIS-WS field specialists in accordance with the regulations, standards, and guidelines of the IWDM Program, including the WS Policy Manual, Directives, and standard operating procedures. The County would not be involved in any of the wildlife damage management activities, though would provide oversight of APHIS-WS's implementation of the IWDM Program.

For a detailed description of the proposed project, please refer to Attachment 1, Initial Study.

Summary of Non-Lethal Program Alternative

This EIR will also evaluate a Non-Lethal Program Alternative at an equal-level to the proposed project. The Non-Lethal Program Alternative would not use or recommend lethal methods to attempt to resolve wildlife damage. It is assumed for the Non-Lethal Alternative that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance on non-lethal management methods to livestock managers.

This alternative could also involve cost sharing with property owners for reimbursement of management methods, such as building of new fences or repair of fences; purchasing new

livestock protection animals; maintenance of livestock animals; and scare devices.

A variation of the Non-Lethal Program Alternative is also being considered, which continues to prioritize the use of non-lethal methods for wildlife damage management, but allows very limited exceptions for the use of lethal methods. The exception for use of lethal methods would be limited to instances when public health and safety is in danger.

For a more detailed description of the Non-Lethal Program Alternative, please refer to Attachment 1, Initial Study.

Probable Environmental Effects and Scope of the EIR

Based upon the Initial Study analysis conducted for the proposed project (see Attachment 1), the County anticipates that the EIR will contain the following technical chapters:

- Agricultural Resources;
- Biological Resources;
- Hazards and Hazardous Materials;
- Noise; and
- Public Services.

Each chapter of the EIR will include identification of the thresholds of significance, identification of impacts, and the development of mitigation measures and monitoring strategies. Each chapter will contain a cumulative impact analysis conforming to CEQA Guidelines Section 15130. The proposed EIR will incorporate by reference the Mendocino County General Plan and the Mendocino County General Plan EIR. In addition to these County documents, project-specific technical studies are being prepared by various technical sub-consultants.

In addition to the above technical chapters, in accordance with Section 15126.6(a) of the CEQA Guidelines, the EIR will include an analysis of a range of alternatives. As discussed above, one alternative, the Non-Lethal Program Alternative, will be evaluated at an equal-level to the proposed project. The remaining alternatives, which will be evaluated at a lesser level of detail, will be selected as the environmental analysis progresses such that the selection of alternatives can be informed by the findings of the analysis.

Attachment 1: Initial Study Checklist

ATTACHMENT 1
INITIAL STUDY CHECKLIST

APPENDIX B

INITIAL STUDY & CHECKLIST

This Initial Study has been prepared to satisfy the California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.) and the State CEQA Guidelines (14 CCR 15000 et seq.) CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before acting on those projects.

The Initial Study is a public document used by the decision-making lead agency to determine whether a project may have a significant effect on the environment. If the lead agency finds substantial evidence that any aspect of the project, either individually or cumulatively, may have a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial, the lead agency is required to prepare an EIR. If the agency finds no substantial evidence that the project or any of its aspects may cause a significant effect on the environment, a Negative Declaration shall be prepared. If in the course of analysis, the agency recognizes that the project may have a significant impact on the environment, but that by incorporating specific mitigation measures the impact will be reduced to a less-than-significant effect, a Mitigated Negative Declaration shall be prepared.

A. BACKGROUND:

Project Title: Integrated Wildlife Damage Management Program	
Entitlement(s): Mendocino County Board of Supervisors approval of five-year Program and Agreement Renewal between USDA APHIS-WS and Mendocino County and annual work and financial plans required by the five-year Cooperative Services Agreement for each of the five years.	
Site Area: Countywide	APN: Various
Location: Mendocino County	

The United States Department of Agriculture (USDA) has been operating various federal regulatory programs to promote livestock disease research, enforce animal import regulations, and regulate the interstate movement of animals for over 130 years (since about 1883, when the USDA Veterinary Division was founded). The first California organized predator control program was in 1915, when appropriations were made to the Department of the Interior, Bureau of Biological Survey, to employ government trappers in Modoc County. This program was soon extended to other counties in 1916. The program was designed to suppress a coyote rabies outbreak, responsible for the deaths of cattle and horses between 1915 and 1917.¹ Between 1916 and 1919, the U.S. Forest Service requested predator control on National Forest land in the state for the protection of range sheep.

In 1919, the U.S. Biological Survey and the County of Mendocino started the first cooperatively financed predator control program; the Bureau of Biological Survey and the County supplied funds to employ hunters and trappers. In 1921, the State Legislature started biennial appropriations for cooperative predator animal control to suppress losses to livestock, poultry and agricultural crops. A paid hunter system was established and the joint Federal-State-County program was supervised by the Federal Government. Reports from the 1920s confirm the on-going cooperative contractual relationship between the County and USDA-Bureau of Biological Survey for predatory animal control. The Animal Damage Control Act, enacted by Congress in 1931, recognized the cooperative relationship between the USDA and the states and designated Wildlife Services' predecessor (the Bureau of Sport Fisheries and Wildlife, within the U.S. Fish and Wildlife Service and the Department of the Interior) as the organization charged with addressing human/wildlife conflicts.

The California Department of Fish and Game (predecessor to the California Department of Fish and Wildlife (CDFW)) began a predatory animal control program for the purposes of game management in 1932. This

¹ W. Karabian. *Animal Damage Activities in California*. Submitted to the Cal. Legislature and the Cal. Dept. of Agriculture. October 20, 1970.

program was carried on through 1956 when the State Legislature directed the CDFW to terminate its predator control program. Approval was given for the CDFW to enter into a cooperative contract with the Bureau of Sport Fisheries and Wildlife when CDFW determined that unprotected mammals were unduly preying on any bird, mammal, or fish.

Mendocino County began its own Predatory Animal Damage Control program in 1943. In the 1970s, the Predatory Animal Damage Control Program was housed in the Department of Animal Control for the County; the Department of Agriculture managed and supervised wildlife damage management activities conducted by the Department of Animal Control. A review of County records demonstrates that collaborative wildlife damage management occurred throughout the 1970s and 1980s. In 1986, Animal Damage Control was transferred into USDA-Animal and Plant Health Inspection Service (APHIS), which oversees predator management programs in 36 of the state's 58 counties. A formal Cooperative Agreement was adopted by Mendocino County and APHIS-Wildlife Services in 1989, providing the framework for the current predator management program. The purpose of the Cooperative Agreement was to "undertake a program for the control of damaging birds and mammals within the County of Mendocino." Under the program, Wildlife Services specialists would be directed to "reduce, terminate, and/or prevent predation and damage to livestock, crops, and other property within the county." Pursuant to the terms of the Cooperative Agreement, it was to continue indefinitely, permitting either party to terminate the Agreement upon 30 days' notice. The Cooperative Agreement was in place from 1989 until 2004, with the exception of fiscal years 1995 and 1996 when the County faced budgetary constraints that would not guarantee its share of program funding would be satisfied. In December 2004, the County entered into a new Cooperative Agreement with a five-year term, and in March 2010, the second five-year agreement was approved. The Cooperative Agreement and Work Plan were both renewed by the Board on June 3, 2014. The Work Plan expired on June 30, 2015. Since that time, Wildlife Services has continued to implement the Integrated Wildlife Damage Management (IWDM) Program in Mendocino County without funding from the County. Since April 2016, Wildlife Services has implemented the IWDM Program wholly independently from and without any oversight, direction, or funding from the County.

The IWDM was supervised and administered by the Wildlife Services-California State office through the Northern District office. At the County level, the Mendocino County Agricultural Commissioner's office facilitates the contractual agreements for these services and assists landowners in contacting the Specialists for the control of problem animals. Mendocino County has played an active role in predatory animal damage control for over half a century, with the most recent predatory animal damage control program in place for over thirty-five years. In addition, similar control measures have been undertaken by landowners at their own discretion (unassociated with the IWDM Program) simultaneously over the same time frame.

B. ENVIRONMENTAL SETTING:

Mendocino County is generally located along California's west coast and contains 2,246,000 acres, or 3,510 square miles, and is the 15th largest county in California in terms of land area (see Figure 1). About one-fifth of the land in Mendocino County is in public ownership, controlled by a variety of federal, state, and local government agencies, including ten Indian reservations or rancherias. The rest of the land in the county (almost 80 percent) is in private ownership; about three-fourths of all privately held land is committed to long-term agricultural or timber uses. Mendocino County land ownership and jurisdictions are summarized in Table 1 and shown in Figure 2.

**Figure 1
Project Location**

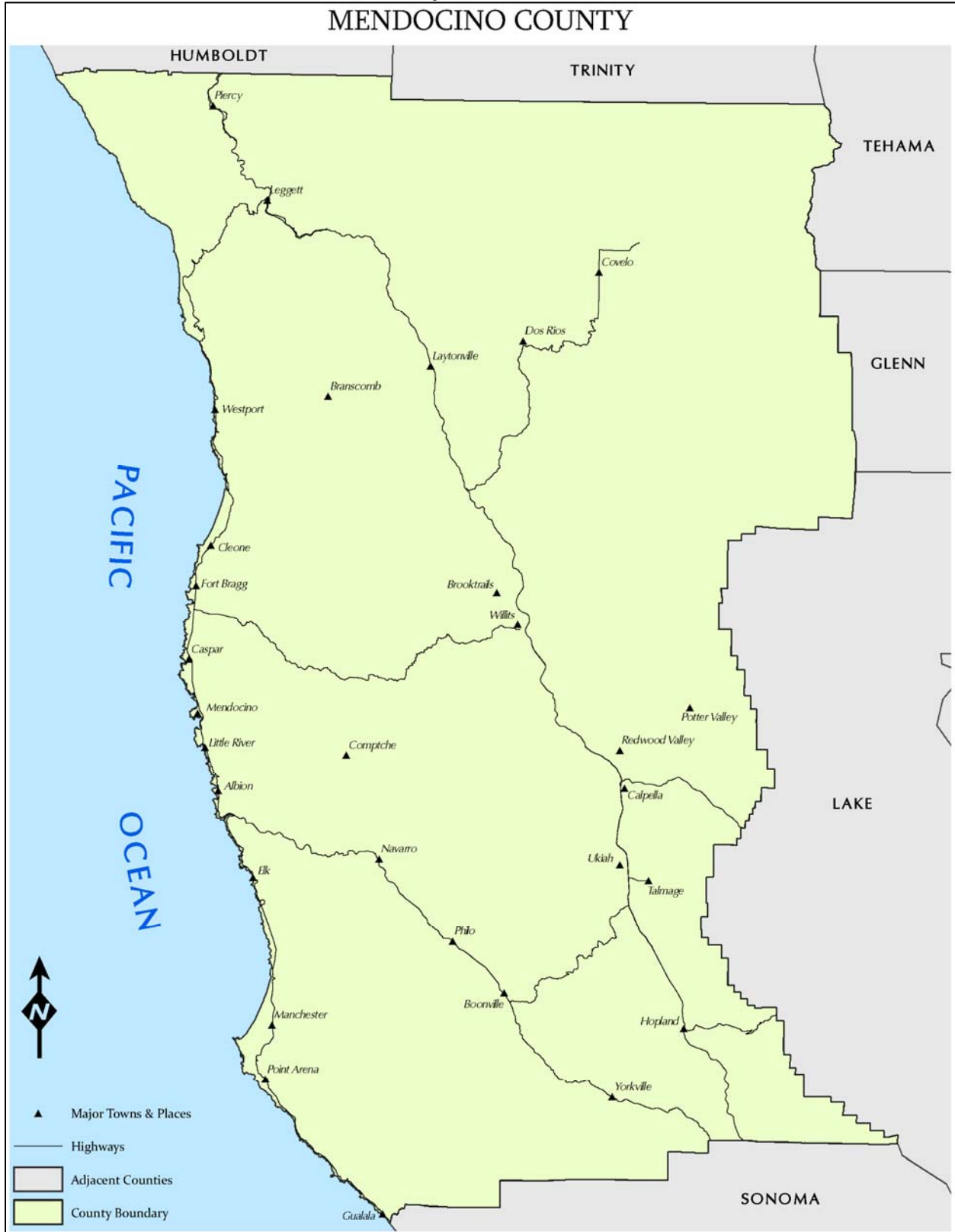
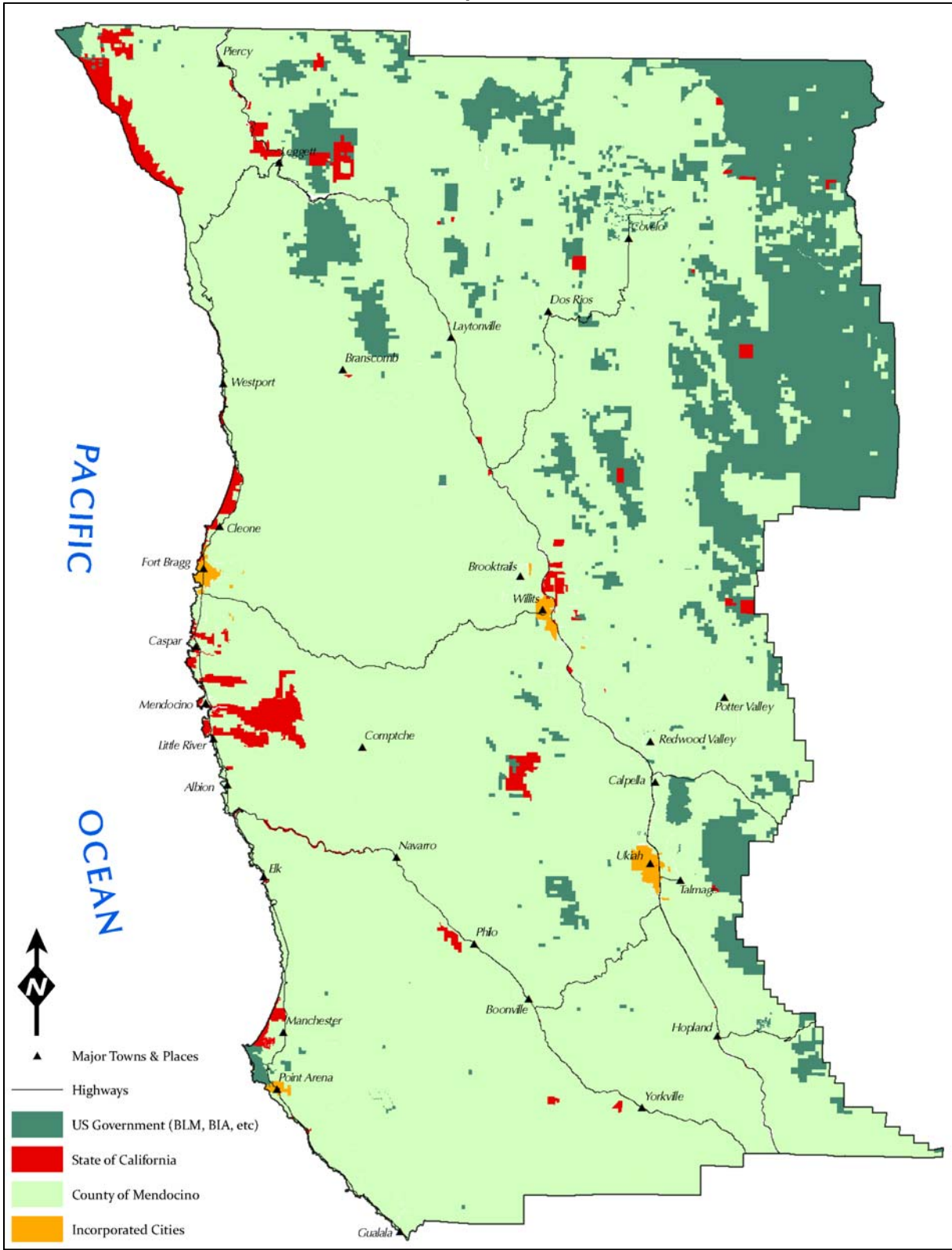


Figure 2
Land Ownership and Jurisdiction



Ownership Agency	Acres	Percentage of Total
Federal ¹	341,616	12.7
State	102,000	3.8
County ²	2,236,506	83.2
Incorporated Cities	7,623	0.3
Total All Land	2,687,745	100.0

Notes:
¹ Includes lands administered by the U.S. Forest Service, the Bureau of Land Management, Native American Tribes, and other federal entities.
² Includes County parks, and land in County administered areas that are owned privately.

Source: Mendocino County 2018

Mendocino County’s diverse geographic regions have affected land use and settlement patterns. The coastal terrace and inland river valleys contain the major population centers, rural residential settlements, and agricultural uses. Timber, grazing, and rural residential development characterize the Coast Range. Other inland areas are largely mountainous and forested with limited population centers.

Today, Mendocino County remains mostly rural, with about 69 percent of the population living outside of incorporated cities.² The remaining population lives in the four incorporated cities in the County; of these, Ukiah is the largest, with a population larger than the other three cities combined. The other three cities are Fort Bragg, Willits, and Point Arena. The populations for the foregoing incorporated cities are presented in Table 2 below.

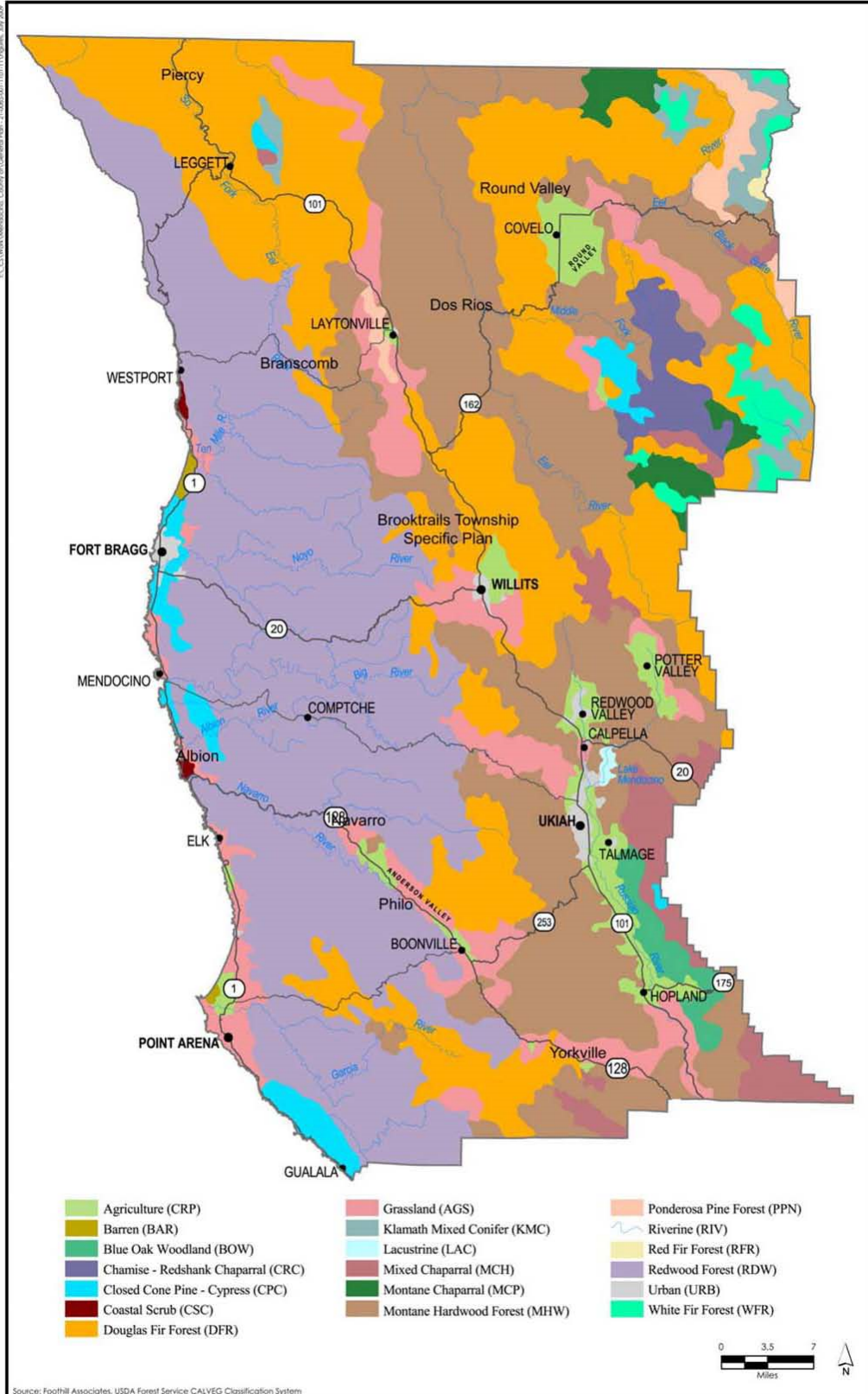
City	Population
Ukiah	16,036
Fort Bragg	7,312
Willits	4,875
Point Arena	453

Source: United States Census Bureau. American FactFinder Available at <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>. Accessed July 2018.

Mendocino County has a very wide range of biological communities, some of which are highly productive or contain rare plant communities. These include redwood, Douglas-fir, montane hardwood, chaparral, grasslands, closed cone pine-cypress, oak woodland, agricultural, white fir, ponderosa pine, Klamath mixed fir, coastal scrub, urban, red fir, barren, and aquatic habitats. Figure 3 contains a map of the biological communities in Mendocino County. These habitats are home to numerous common wildlife species as well as species that are protected under federal and state laws and regulations.

² County of Mendocino. *The County of Mendocino General Plan*. August 2009, p. 3-2.

Figure 3
Geographical Distribution of Major Habitat Types within Mendocino County



Source: Mendocino County General Plan, 2009

C. PROPOSED PROJECT:

The purpose of the proposed project as well as the components of the IWDM Program are discussed in the following sections.

Purpose

As is true throughout the United States, wildlife habitat in the County has been altered as human populations expand and land is used for human needs. These human needs often compete with wildlife, which increases the potential for conflicting human-wildlife interactions. The Wildlife Services program summarizes the relationship of wildlife values and wildlife damage as follows:³

Wildlife has either positive or negative values, depending on varying human perspectives and circumstances ... Wildlife generally is regarded as providing economic, recreational and aesthetic benefits ... and the mere knowledge that wildlife exists is a positive benefit to many people. However, the activities of some wildlife may result in economic losses to agriculture and damage to property ... Sensitivity to varying perspectives and values is required to manage the balance between human and wildlife needs. In addressing conflicts, wildlife managers must consider not only the needs of those directly affected by wildlife damage but a range of environmental, socio-cultural and economic considerations as well.

Conflicts between humans and wildlife are common in the County. The purpose of the IWDM Program is to resolve conflicts with selected species that have caused damage to resource owners in the County. Damaging mammals in California include a range of species that prey on livestock and wildlife, cause property and other resources damage and threaten human health and safety. In the North District, CDFW has management authority and responsibility for resident wildlife including furbearers, game species and nongame mammals that cause damage, including: badger, bobcat, coyote, gray fox, red fox, black-tailed jackrabbit, muskrat, Virginia opossum, desert cotton-tail rabbit, raccoon, striped skunk, western spotted skunk, and California ground squirrel. Bobcats may only be taken under permit issued by CDFW either for human health and safety or agricultural and property protection. CDFW can request assistance from Wildlife Services for any species under CDFW's primary responsibility.

Feral swine, deer, beaver, elk, bobcat, turkeys, mountain lion, black bear and gray squirrel are managed by CDFW pursuant to Fish and Game Code sections requiring CDFW to issue a permit to authorize the removal of individual animals that damage specified resources. Current state policies enable lethal removal of wild pigs by sport hunters and property owners threatened with property damage.

Coyotes, badgers, skunks, weasels and raccoons may be taken year-round with no restriction and furbearers can be taken at any time if they are found destroying livestock or poultry. This is allowed because current population levels of these species can generally sustain a high level of removal without irreparable consequences.

The IWDM Program provides assistance to protect livestock, crops, human health and safety and property from wildlife damage.

The target species for the IWDM Program include coyote, raccoon, striped skunk, spotted skunk, badger, Virginia opossum, bobcat, feral dog, gray fox, red fox, black bear, mountain lion, feral swine, black-tailed deer, California ground squirrel/other squirrels, and avian species, including rock dove (pigeon) and European starling. The IWDM Program may be utilized for other species in Mendocino County, as in the past; however, the numbers of take are historically very low.⁴ The following sections discuss the various

³ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015.

⁴ For example, from the 20-year period 1997-2017: three turkey vultures; six porcupines; two elk; two snakes; four common ravens, etc.

aspects of the IWDM Program, including wildlife damage management to protect agriculture, human health and safety, property, and natural resources.

Wildlife Damage Management to Protect Agriculture

Cattle and calves are most vulnerable to predation (killing, harassment or injury resulting in monetary losses to the owner) during calving, and less vulnerable at other times of the year. However, sheep and especially lambs can sustain high predation rates throughout the year.

Damage inflicted by wildlife upon agricultural operations is not limited to damage to traditional livestock production. The following are examples of other types of damage to agricultural resources: badger and ground squirrel damage to hay fields, crops and pastures; coyote, raccoon and ground squirrel damage to vegetable and fruit crops and to irrigation systems; ground squirrel damage to pastures, rangeland and fruit, nut and row crops; and fox, coyote or bobcat predation on small enterprise operations with rabbits, chickens, sheep goats or other animals.

Wildlife Damage Management to Protect Human Health and Safety

Human health and safety concerns include, but are not limited to: animal attacks on humans that result in injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs; odor and noise nuisances from skunks and raccoons under houses; and airstrike hazards from coyotes or other predators crossing runways at airports or airbases. Coyotes, raccoons, skunks, opossums, gray fox, bobcats, and free ranging dogs also kill and harass pets, eat pet food and/or pose disease threats to pets and humans.

Wildlife Services also plays an active role in surveillance and monitoring of wildlife diseases such as rabies, plague, Lyme disease, and West Nile Virus. Zoonotic diseases (diseases transmissible from wildlife to humans) are one of the leading infectious causes of illness and death to humans. Rabies is frequently carried in skunks, bats, fox and other animals. Plague can be carried in coyotes and other predators, as well as ground squirrels and other rodents. Wildlife Services' assistance in reducing wildlife disease risks through surveillance, monitoring and response helps safeguard humans from the threat of zoonotic diseases and bioterrorist threats by responding to requests for assistance through the IWDM Program.⁵

Wildlife Damage Management for the Protection of Property

The IWDM Program would provide for responses to these complaints, as well as to requests from land and homeowners to alleviate property damage from coyotes, raccoons, skunks and badgers including, but not limited to: damage to golf courses, parks, schools and residential and commercial properties, as well as odor problems and disease threats from burrowing raccoons, skunks, opossums, ground squirrels and badgers; and damage to irrigation systems from coyotes biting holes in pipes.

Feral swine behavior during feeding and the search for feed is termed rooting. This activity turns sod and topsoil over which often leaves the area bare of vegetation and susceptible to erosion and colonization of invasive weeds. Feral swine dig or root in the ground with their nose in search of desired roots, grubs, earthworms, and other food sources. When this natural activity takes place in developed areas, it results in damage to landscaping, golf courses, roads, drainage ditches and can lead to erosion issues.

Wildlife Damage Management for the Protection of Natural Resources

Natural resource protection in Mendocino County can include protecting sensitive species or other natural resources from mammal damage. This has been associated with managing damage from muskrats when they burrow into stream banks and undermine the integrity of the banks, causing erosion, sedimentation,

⁵ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015.

collapse of the bank and damage to riparian areas. APHIS-WS may also assist cooperators with requests to protect other natural resources from mammal damage.

Project Implementation and Operation

The proposed project is approval of the IWDM Program to protect livestock, crops, human health and safety and property in the County from wildlife damage. The Program:

- (1) establishes the general purpose for and standards pursuant to which the Program will be implemented. For purposes of this EIR, the County is adopting and incorporating *WS Directive 2.105, The WS Integrated Wildlife Damage Management Program*. March 1, 2004 as the IWDM Program standards, as further described below.
- (2) authorizes the Department of Agriculture to:
 - a. develop and/or adopt standards, either in the form of a guidance document or as part of a third-party service agreement, to implement the Program;
 - b. negotiate third-party service agreements to implement the Program for approval by the Board of Supervisors
 - c. make recommendations to the Board of Supervisors concerning the Program, including but not limited to recommending approval of third-party service agreements;
 - d. provide oversight for and monitor implementation of the Program;
 - e. provide the public information concerning the Program;
 - f. take any other such actions as are necessary to effectively implement the Program in a manner consistent with its general purpose and standards.

As currently proposed, the Program would be implemented initially pursuant to a five-year Cooperative Service Agreement (CSA), including annual work plans (work and financial plans) required by the five-year CSA, with APHIS-WS. The CSA and annual work plans would require the approval of the Mendocino County Board of Supervisors. Yearly adjustments to the work plan would primarily be a function of personnel and equipment costs. Technical assistance data maintained by APHIS-WS through the MIS for one year would also be used to help develop the work plan and budget for the subsequent year throughout the remaining term of the CSA. Activities performed under the IWDM Program would be implemented by APHIS-WS field specialists in accordance with the regulations, standards, and guidelines of the IWDM Program, including the WS Policy Manual, Directives, and standard operating procedures. The County would not be involved in any of the wildlife damage management activities, though would provide oversight of APHIS-WS's implementation of the IWDM Program.

While the CSA would fund an initial five-year term during which APHIS-WS would implement the IWDM program in the County, the IWDM Program being analyzed in the EIR is not limited to five-years. Rather, the proposed project would adopt and establish the IWDM Program for ongoing implementation in the County. Any future discretionary actions by the County necessary to implement the Program would need to be evaluated for consistency with the IWDM Program and compliance with CEQA.

Program and Agreement

The IWDM Program would include the following wildlife damage management elements, as implemented pursuant to the third-party agreement(s) with APHIS-WS.

Overview of Wildlife Damage Management

Wildlife damage management is the science of reducing damage or other problems associated with wildlife and is recognized as an integral part of wildlife management.⁶ APHIS-WS is authorized by law⁷ to manage a program to reduce human/wildlife conflicts, and this environmental analysis will evaluate the ways by which the IWDM Program will authorize APHIS-WS to carry out its authority in Mendocino County. Wildlife damage management is often misunderstood and many individuals consider management options as only lethal. However, wildlife damage management is a specialized field within the wildlife management profession and decisions are not predicated solely on biological rationale.

Integrated Approach

The IWDM Program employs an integrated approach to wildlife damage management; hence the program title of "Integrated Wildlife Damage Management Program." According to Wildlife Services Directive 2.105:⁸

The WS program applies the IWDM (commonly known as Integrated Pest Management) approach to reduce wildlife damage. As used and recommended by the WS program, IWDM encompasses the integration and application of all approved methods of prevention and management to reduce wildlife damage. The IWDM approach may incorporate cultural practices, habitat modification, animal behavior management, local population reduction, or a combination of these approaches. The selection of wildlife damage management methods and their application must consider the species causing the damage and the magnitude, geographic extent, duration, frequency, and likelihood of recurring damage. In addition, consideration is given to non-target species, environmental conditions and impacts, social and legal factors, and relative costs of management options.

Before wildlife damage management programs are undertaken, careful assessment should be made of the problem, including the impact to individuals, the community, and other wildlife species. Selected techniques should be incorporated that will be efficacious, biologically selective, and socially appropriate. The policy of The Wildlife Society in regard to wildlife damage management and the alleviation of wildlife problems is to:

1. Recognize that wildlife damage management is an important part of modern wildlife management.
2. Recognize that nuisance wild animals are common in many human-occupied situations and may need special management attention as well as an astute understanding of cultural carrying capacity, to alleviate problems they create.
3. Support those wildlife damage prevention and/or management programs and techniques that are biologically, socially, environmentally, and economically valid, effective, and practical.
4. Encourage research to improve methods of: (a) assessing damage caused by wildlife; (b) assessing effectiveness and environmental impacts of damage management programs; (c) preventing and managing wildlife damage, including health hazards and nuisance problems; (d) assessing alternatives available to landowners/managers for wildlife damage prevention and/or management; and (e) understanding people's level of tolerance for a variety of human/wildlife conflicts and the social/biological factors that influence their decision-making (Wildlife Stakeholder Acceptance Capacity).
5. Recommend wildlife damage management programs that are cost-effective and whose benefits outweigh risks.

⁶ The Wildlife Society. *Standing Position: Wildlife Damage Management*. 2010.

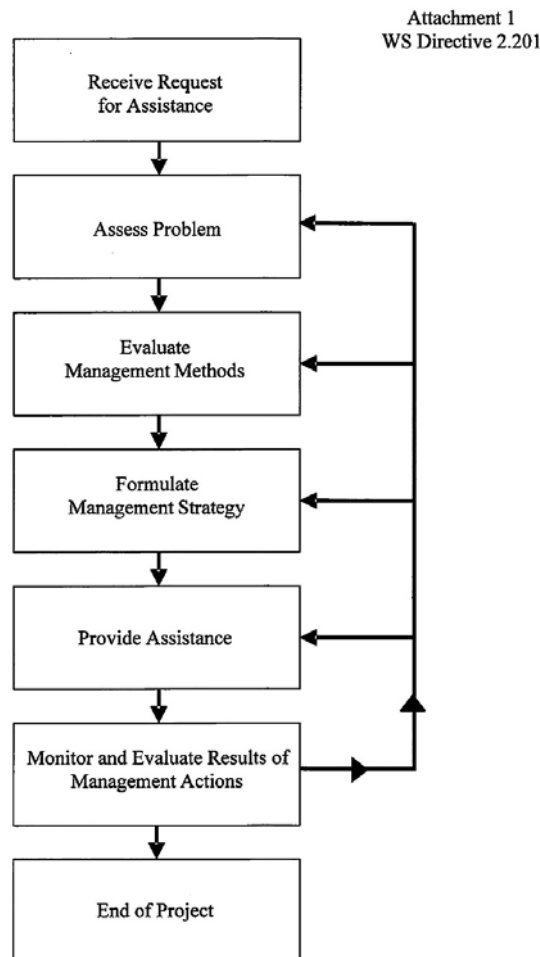
⁷ The Secretary of Agriculture is authorized to carry out wildlife damage management programs necessary to protect the Nation's agricultural and other resources. The Secretary has delegated this authority under the statutes listed below to APHIS. Within APHIS, the authority resides with the WS program. The primary statutory authorities for the APHIS-WS program are the Act of March 2, 1931 (7 U.S.C. 426-426c; 46 Stat. 1468) and Rural Development, Agriculture, and Related Agencies Appropriations Act (Public Law 100-202, Dec.22, 1987. Stat. 1329-1331 (7 USC 426c)), as amended in the Fiscal Year 2001 Agriculture Appropriations Bill.

⁸ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.105, The WS Integrated Wildlife Damage Management Program*. March 1, 2004.

6. Support use of efficient, safe, and economical methods of preventing and/or controlling depredating animals that cause human/wildlife conflicts, and which pose jeopardy to other wildlife populations, including threatened or endangered species.
7. Encourage and support educational programs in wildlife damage prevention and management to ensure that those in need of wildlife damage management information have access to currently approved techniques and methodologies.

Decision Model

In recognition of the careful assessment that should be made of each wildlife damage problem, the APHIS-WS employs a Decision Model for its IWDM Program. The Decision Model provides a systematic approach to decision-making for wildlife management activities. The model is illustrated below.⁹



Selecting Wildlife Damage Management Methods

When responding to requests for assistance under the terms of the IWDM Program CSA, WS may provide technical assistance, direct control assistance, and/or research assistance. Technical and

⁹ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.201, WS Decision Model*. July 15, 2014.

direct control assistance, as defined below, may involve the use of either lethal or nonlethal methods, or a combination of the two. Preference is given to non-lethal methods when practical and effective.¹⁰

Before wildlife damage management is conducted, an Agreement for Control must be signed by APHIS-WS and the land owner or manager, or an APHIS-WS work plan is presented to the land owner or its representative for review. The County would not be involved in this action because it would be an agreement between a private party and APHIS-WS.

When services are requested by a resource owner, APHIS-WS personnel would conduct an initial investigation that defines the nature, history, and extent of the problem, species responsible for the damage, and methods that would be available to resolve the problem. In selecting damage management techniques for specific wildlife damage situations, the APHIS-WS field specialist would consider the species responsible and the frequency, extent, and magnitude of the damage. In addition, consideration would be given to the status of target and potential non-target species, local environmental conditions, relative costs of applying management techniques, environmental impacts, and social and legal concerns.

Although the County would provide funding for the services, County staff would not be involved in the decision-making regarding which methods should or should not be used.

Technical Assistance

Technical assistance is defined as advice, recommendations, information, equipment, literature, instructions, and materials provided to others for use in managing wildlife damage problems and understanding wildlife damage management principles and techniques.¹¹

Technical assistance is the primary method used in responding to requests for assistance. Individuals calling for assistance are given advice and information on ways to reduce predation on livestock, damage to property or avoid attracting nuisance wildlife onto their property. The implementation of technical assistance recommendations is the responsibility of the requester based on information, demonstrations, and advice on available and appropriate wildlife damage management methods provided by APHIS-WS personnel. Technical assistance includes demonstrations on the proper use of management devices (i.e., propane exploders, exclusionary devices, cage traps, etc.) and information on animal husbandry, habitat management, and animal behavior modification that could reduce damage. These types of non-lethal management methods are described in the following section.

Technical assistance is provided following consultation or an on-site visit with the requester, and generally several management strategies are described to the requester for short and long-term solutions to damage problems; these strategies are based on the level of risk, need, and practical application.

Under the proposed contract, APHIS-WS would continue to provide the following services in Mendocino County:

- Offer technical advice/assistance to resource owners on prevention and/or control techniques.
- Inform and educate the public on how to prevent and reduce wildlife damage on their own, including APHIS-WS staff-prepared pamphlets and documentation.
- Provide expertise from wildlife specialists trained in wildlife control methods, state and federal regulations, and certified in the safe handling and use of firearms and other control equipment.

¹⁰ United States Department of Agriculture, Animal and Plant Health Inspection Service. *WS Directive 2.101, Selecting Wildlife Damage Management Methods*. 07/20/09, Section 4, Policy.

¹¹ USDA, APHIS. *WS Directive 2.101, Selecting Wildlife Damage Management Methods*. 07/20/09.

- Investigate wildlife damage situations to determine the responsible species and evaluate the site for applicability of prevention and control methods.
- Develop and implement wildlife damage management actions for the protection of agricultural resources, public health and safety, and property.
- Develop and implement wildlife damage management methods and actions targeting invasive species (e.g., wild pigs) that may damage or threaten property, livestock, crops, and/or public safety.
- Respond to incidents where wildlife species are threatening public health and safety (in coordination with CDFW and local law enforcement) including the use of out-of-county resources and expertise.
- Collect samples for wildlife diseases that may affect agriculture and public safety.
- Provide access to APHIS-WS support staff, including at the National Wildlife Research Center, which conducts research on and develops wildlife damage management methods.

Direct Control Assistance

Direct control assistance, also known as operational management, is defined as field activities conducted or supervised by WS personnel. APHIS-WS Directive 2.101 states the following regarding the use of direct control assistance:¹²

1. Direct control assistance may be implemented when it has been determined that a problem cannot reasonably be resolved by technical assistance or that the professional skills of WS employees are required for effective problem resolution. Direct control assistance is often initiated when the wildlife damage involves several ownerships, sensitive species, application of WS restricted-use pesticides, or complex management problems requiring the direct supervision of a professional wildlife manager or biologist.
2. Direct control operations will be conducted upon request only with the written authorization of the landowner, cooperators, other authorized officials, or in accordance with another appropriate instrument such as a memorandum of understanding.

Types of direct control assistance that have been and could continue to be utilized by APHIS-WS in Mendocino County are described in the following section. It is important to note that the following management methods will not be used in the proposed IWDM program: aerial gunning, gas cartridges, chemical immobilizing and chemical euthanizing, or pesticides.

Lethal Methods

The lethal control of animals by APHIS-WS is authorized under APHIS-WS Directive 2.505.¹³ A variety of methods for removing a target animal species are available in California.

With respect to the physical capture methods discussed below, it is noted that, except in limited cases where CDFW makes an individual exemption, CDFW does not allow the relocation of wildlife causing damage (see California Code of Regulations, Title 14, Section 465.5(g)(1)). Relocation of wildlife known to cause resource damage in one area does not correct the damaging behavior and can spread the problem to a new area. Relocation can also spread disease to other wildlife and domestic species.

¹² USDA, APHIS. *WS Directive 2.101, Selecting Wildlife Damage Management Methods*. 07/20/09.

¹³ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *WS Directive 2.505, Lethal Control of Animals*. 05/18/11.

CDFW dictates that the type of disposition of all wildlife captured for resource protection be euthanasia, unless it grants an individual exemption. Captured wildlife may be euthanized using a handgun or rifle.

Cage and Corral Traps

These traps come in a variety of styles to target different species. The most common traps are cage traps. Cage traps are usually rectangular, made from wood or heavy gauge wire mesh. These traps are used to capture animals alive and can often be used where lethal tools would be too hazardous. Cage traps are well suited for use in residential areas. Other types of cage traps are corral traps and drive-traps. Often, target animals such as feral swine are allowed to feed in a cage until they get used to coming and going. A trip wire that closes the entrance, a one-way door, or other device is set to capture the animal when it comes to feed; these will often capture multiple animals at one location. Cage traps usually work best when baited with foods attractive to the target animal.¹⁴

Corral or cage style traps large enough to hold multiple animals would be utilized in areas frequented by feral swine. The size of traps may be up to 20 feet wide by 20 feet long. They would likely be set near water sources, riparian areas or groves of oak trees where feral swine are likely to congregate and forage. Traps would be set to avoid resource damage within areas of sensitive biological, cultural or watershed resources. Installation of traps may involve minor ground disturbance with the installation of fence posts and anchors, as well as the activity of the feral swine while they are inside the traps. Traps would be baited with grain or other food attractive to feral swine. After feral swine are trapped they would be euthanized quickly with lethal gun shots in a humane manner and the carcasses disposed of off-site in compliance with applicable regulations or left on-site if removal is not feasible. Trapping locations in remote areas may be logistically supported by helicopter as needed or trapping may also be supported by limited use of packstock; stock would be restricted to designated trails.

Snares

Snares made of wire or cables are among the oldest wildlife management tools and are generally not affected by inclement weather. They can be used effectively to catch most species. Snares may be employed as either lethal or live-capture devices depending on how or where they are set. Snares set to capture an animal by the neck are usually lethal but stops can be attached to the cable to make the snare a live capture device. Snares positioned to capture the animal around the body can be a useful live-capture device, but they are more often used in conjunction with euthanasia. Snares can also be used to capture animals by the legs, but leg snares are not often set for feral swine. Snares can be effectively used wherever a target animal moves through a restricted lane of travel (e.g., trails through vegetation). When a target animal moves forward into the loop formed by the cable, the noose tightens and the animal is held. The catch-pole snare is used to capture or safely handle problem animals. This device consists of a hollow pipe with an internal cable or rope that forms an adjustable noose at one end. The free end of the cable or rope extends through a locking mechanism on the end opposite of the noose. By pulling on the free end of the cable or rope, the size of the noose is reduced sufficiently to hold an animal. Catch poles are used primarily to remove live animals from traps without danger to or from the captured animal. Also, most snares incorporate a breakaway feature to release non-target wildlife and livestock.

The foot or leg snare is a spring-powered non-lethal device, activated when an animal places its foot on the trigger. In some situations using snares to capture wildlife is impractical due to the behavior or animal morphology of the animal, or the location of many wildlife conflicts.

¹⁴ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015, see Appendix C.

Snares must be set in locations where the likelihood of capturing non-target animals is minimized. The Wildlife Services program uses a leg snare with a built-in pan tension device that can be set to exclude capturing animals lighter than the target animal.

The Collarum is a non-lethal, spring-powered, modified neck snare device that is primarily used to capture coyotes. It is activated when an animal bites and pulls a cap with a lure attractive to coyotes, whereby the snare is projected from the ground up and over the head of the coyote. As with other types of snares, the use of the Collarum device to capture coyotes is greatly dependent upon finding a location where coyotes frequently travel where the device can be set. Collarums must also be set in locations where the likelihood of capturing non-target animals is minimized.

A number of specialized "quick-kill" traps are used in wildlife damage management work. They include Conibear, snap, gopher, and mole traps. Conibear traps are used mostly in shallow water or underwater to capture beaver. The Conibear consists of a pair of rectangular wire frames that close like scissors when triggered, killing the captured animal with a quick body blow. Conibear traps have the added features of being lightweight and easily set. Snap traps are common household rat or mouse traps usually placed in buildings. These traps are often used to collect and identify rodent species that cause damage so that species-specific management tools can be applied. If an infestation is minor, these traps may be used as the primary means of management. Glue boards (composed of shallow, flat containers of an extremely sticky substance) are also used as an alternative to snap traps. Spring-powered harpoon traps are used to reduce damage caused by surface-tunneling moles. Soil is pressed down in an active tunnel and the trap is placed at that point. When the mole reopens the tunnel, it triggers the trap and is killed. Two variations of scissor-like traps are also used in burrows for both mole and pocket gopher damage reduction.

Shooting

Shooting is conducted with hand guns, rifles, and shotguns and is very selective for the target species. Shooting is frequently performed in conjunction with calling particular predators such as coyotes, bobcats, and fox. Trap-wise coyotes are often vulnerable to calling. Shooting is limited to locations where it is legal and safe to discharge firearms. Shooting may be ineffective for controlling damage by some species and may actually be detrimental to control efforts. Shooting is used selectively for target species but may be relatively expensive because of the staff hours sometimes required. Nevertheless, shooting is an essential control method. For example, many airports have perimeter fences for security purposes that also confine resident deer populations. These deer frequently stray onto active runways and pose a significant threat to aircraft. Removal of these deer may be effectively achieved by shooting.¹⁵

Shooting is sometimes used as the primary method in feral swine management operations. Often, though, shooting is only used opportunistically where an APHIS-WS Specialist sees the target swine in the damage area. Shooting can also be used in conjunction with spotlighting and for lethal reinforcement to ensure the continued success in swine scaring and harassment efforts. In situations where the feeding instinct is strong, feral swine can quickly adapt to scaring and harassment efforts unless the IWDM Program is periodically supplemented by shooting. Shooting is limited however to locations where it is legal and safe to discharge firearms.

¹⁵ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015, see Appendix C.

Tracking Dogs or Trailing Dogs

Trained dogs are used primarily to locate, pursue, or decoy animals. Training and maintaining suitable dogs requires considerable skill, effort, and expense. There must be sufficient need for dogs to make the effort worthwhile.¹⁶ Dogs commonly used are different breeds of hounds such as blue tick, red-bone, and Walker. They become familiar with the scent of the animal they are to track and follow, and will howl when they smell them. Tracking dogs are trained not to follow the scent of non-target species. Wildlife Services Specialists find the track of the target species and put their dogs on it. Typically, if the track is not too old, the dogs can follow the trail and bay the animal. When trained dogs are used, handlers will be at the site of encounters between target animals and dogs as soon as possible to minimize stress to the target and reduce potential injury to the dog. Dogs will not be allowed to kill the target animal. When the objective is removal, the target will be euthanized as quickly as possible; for feral swine the most common method of euthanizing is via mortal gunshot. Animals intended to be captured alive (e.g., research, Judas operations) will be protected from trained dogs once handlers are on-site. When the dogs bay the animal, it usually seeks refuge in a thicket on the ground at bay. The dogs stay with the animal until the APHIS-WS Specialist arrives and dispatches, tranquilizes, or releases it, depending on the situation.

The most effective approach to resolving wildlife damage problems is to integrate the use of several of the above-referenced methods, either simultaneously or sequentially. The IWDM Program would integrate and apply practical methods of prevention and reduce damage by wildlife while minimizing harmful effects of damage reduction measures on humans, other species, and the environment. IWDM may incorporate resource management, physical exclusion and deterrents, and population management, or any combination of these depending on the characteristics of specific damage problems.

In selecting damage management techniques for specific damage situations and the methods under each alternative, consideration is given to the responsible species and the magnitude, geographic extent, duration and frequency, and likelihood of wildlife damage. Consideration is also given to the status of target and potential non-target species, local environmental conditions and affects, social and legal aspects, and relative costs of damage reduction options. The cost of damage reduction may sometimes be a secondary concern because of the overriding environmental, legal, and animal welfare considerations. These factors are evaluated in formulating damage management strategies that incorporate the application of one or more techniques.

Non-Lethal Methods

A brief summary of the range of possible non-lethal methods is included in the following section.

Livestock Guardian Animals

Livestock producers have used guarding animals to protect flocks and herds for thousands of years. At the present time, dogs, donkeys, and llamas are most commonly used.

Livestock Protection Dogs

Livestock protection dogs (LPD) can be an important component of an overall predation management program. LPDs are working dogs that stay with or near sheep most of the time, with the purpose of aggressively repelling predators. While most commonly used to protect sheep, LPDs are also helpful in protecting other livestock. APHIS-WS supports the use of LPDs for predation

¹⁶ U.S. Department of Agriculture Animal and Plant Health Inspection Service. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*. May 29, 2015, see pg. 19.

management and develops and distributes informational resources for livestock producers and others.¹⁷

LPDs are generally large animals (80-120 pounds). Some of the more readily known and utilized breeds in the United States include Great Pyrenees, Anatolian Shepherds (Akbash), Komondors, and Maremmas. LPDs disrupt predatory behavior rather than displace predators, such that predators likely remain present and continue to prey on other wildlife species.¹⁸ While further study is necessary, this suggests that guardian dog use does not result in increased predator pressure on neighboring operations that do not use dogs.¹⁹

Livestock guardian dogs can create problems. They can be aggressive toward people, harass non-target wildlife or livestock, injure herding dogs, or destroy property.

Donkeys

Some ranchers prefer donkeys to livestock guardian dogs due to their relatively low acquisition and maintenance costs, their compatibility with other predator control methods (e.g., traps, snares), their greater longevity, and the fact that they are less likely to stray outside fencelines.²⁰ Donkeys can effectively deter dogs, coyotes, and foxes. When confronting a predator, an effective donkey will bray, bare its teeth, run towards or chase the predator, and possibly kick or bite.

With respect to potential problems, male donkeys can be overly aggressive towards livestock, and females in heat may be aggressive towards lambs or kids.

Llamas

Llamas are South American camelids. Typical guarding behaviors include alertness; alarm calling; walking or running toward a predator; chasing, kicking, or pawing at a predator; spitting; herding livestock away from a predator; or placing themselves between livestock and a predator. Llamas appear to effectively deter dogs, coyotes, and foxes, but not wolves, bears, or mountain lions.²¹

Fencing

Fencing is a predation mitigation method that involves constructing a physical barrier that will keep human resources and predators apart. Fences are most useful and cost-effective on small, open pastures, without dense brush cover or timber, so that predators already located in the area can be easily removed.

Conventional fences are relatively ineffective in preventing access by mountain lions and bears, but if well-constructed and maintained are reasonably effective in excluding dogs and coyotes.²² Conventional netwire fences modified by adding electrically charged wires and all-electric fences may be more effective in excluding predators but must be carefully maintained. Some are easily grounded and rendered ineffective by wet vegetation, extraneous wires, damage by animals and other causes.

¹⁷ United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services. *Factsheet, Livestock Protection Dogs*. October 2010.

¹⁸ University of California, Agriculture and Natural Resources. "Livestock Protection Tools for California Ranchers." *ANR Publication 8598*. (January 2018), p. 5.

¹⁹ University of California, Agriculture and Natural Resources, "Livestock Protection Tools for California Ranchers," p. 5.

²⁰ University of California, Agriculture and Natural Resources, "Livestock Protection Tools for California Ranchers," p. 6.

²¹ University of California, Agriculture and Natural Resources, "Livestock Protection Tools for California Ranchers," p. 7.

²² Dale A. Wade. "The use of fences for predator damage control." *Proceedings of the Vertebrate Pest Conference*. (1982). 10:24-53, p. 31.

Fencing is also understood to be an important component to the most effective use of livestock protection dogs. As part of a larger study of livestock protection dogs over a 5-year period, Gehring et al. found that effective fencing and training was a crucial link for successfully incorporating livestock protection dogs into working farms and preventing roaming of the dogs.²³

Animal husbandry

This method includes modifications in the level of care and attention given to livestock. The level of care or attention given to livestock may range from daily to seasonal. Generally, as the frequency and intensity of livestock handling increases so does the degree of protection. The following methods may be used:

Night and seasonal enclosures

The risk of depredation can be reduced when livestock are nightly gathered to make them unavailable during the hours when depredating animals are most active. Some producers herd animals back to corrals in the evening when they are most vulnerable to most predators. Nightly gathering may not be possible where livestock are in many fenced pastures and where grazing conditions require livestock to scatter.

One form of enclosure is known as “shed lambing”; i.e., keeping ewes inside a shed when they are giving birth to lambs. In addition, the risk of depredation is usually greatest with immature livestock. This risk can be minimized by holding expectant females in pens or sheds to protect females during birthing and by holding newborn livestock in pens for the first two weeks.

Timing of breeding

Predators are often more likely to kill livestock at specific times of year; e.g., coyote-killing of lambs often coincides with the need to provide food for their pups.²⁴ If livestock are bred earlier in the season, they are larger earlier and may be less vulnerable to predation.

Altering herd composition

The composition of herds may influence the degree of depredation. Sheep are generally much more vulnerable to predation than cattle.²⁵ Mixing cattle with sheep may lead to a better use of the landscape, with the added benefit that cattle may be more aggressive toward small predators, thus providing some degree of livestock protection.

Herding/Vigilance

North American predators tend to be wary of human presence; and a good herder who is able to stay with and monitor livestock can be an effective method of protection.²⁶

²³ Thomas M. Gehring et al. “Good fences make good neighbors: implementation of electric fencing for establishing effective livestock-protection dogs.” *Human-Wildlife Interactions*. (2011). 5(1): 106-111, p. 107.

²⁴ John A. Shivik. “Non-Lethal Alternatives for Predation Management”. (2004). *Sheep & Goat Research Journal*. 14, p. 66.

²⁵ C. Kerry Gee. “Cattle and Calf Losses to Predators – Feeder Cattle Enterprises in the United States.” (1979) *Journal of Range Management*. 32, p. 154.

²⁶ Shivik, “Non-Lethal Alternatives for Predation Management,” p. 65.

Animal Behavior Modification

Several different methods fall into the category of behavior modification. The following section provides a summary of a range of methods that have been used by APHIS-WS in Mendocino County.

Frightening devices

These devices may use sound, lights, pursuit or other methods to disperse animals from the area to be protected. These methods are best suited for short-term protection of relatively small areas. Propane exploders are one type of method designed to produce loud explosions at controllable intervals. They are strategically located in areas of high wildlife use to frighten wildlife from the problem site. Because animals are known to habituate to sounds, exploders must be moved frequently and used in conjunction with other scare devices.²⁷

Pyrotechnics is another form of frightening device that range from shell crackers or scare cartridges fired from shotguns to noise bombs fired from flare pistols. They can be used to frighten birds or mammals but are most often used to prevent crop depredation by birds or to discourage birds from undesirable roost locations. Noise bombs are firecrackers that travel about 75 feet before exploding. Whistle bombs are similar to noise bombs, but whistle in flight and do not explode.

With respect to light/siren combinations, early research into battery operated strobe/siren devices in fenced-pasture sheep operations across the western United States found these devices deterred coyotes for up to 91 days and reduced lamb losses an estimated 44-95 percent.²⁸ However, habituation can be a problem if these devices are randomly - rather than behaviorally – activated.

Electronic Distress Sounds

Distress and alarm calls of various animals have been used singly and in conjunction with other scaring devices to successfully scare or harass animals. Many of these sounds are available in digital format.

Chemical Repellents

These are compounds that prevent consumption of food items or use of an area. They operate by producing an undesirable taste, odor, feel, or behavior pattern. Effective and practical chemical repellents should be nonhazardous to wildlife; nontoxic to plants, seeds, and humans; resistant to weathering; easily applied; reasonably priced; and capable of providing good repelling qualities. Chemical repellents are strictly regulated, and suitable repellents are not available for many wildlife species or wildlife damage situations.

²⁷ USDA APHIS. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*, p. 114.

²⁸ Samuel B. Linhart et al. "Electronic Frightening Devices for Reducing Coyote Predation on Domestic Sheep: Efficacy Under Range Conditions and Operational Use." (1992). *Proceedings of the Fifteenth Vertebrate Pest Conference 1992*. 47, p. 389. Linhart et al. note that strong evidence exists in the technical literature that coyotes have a long-lasting fidelity to established home ranges. Testimony from herders, as well as ongoing coyote predation on the test areas of Linhardt et al., strongly suggest that use of frightening devices will not result in higher levels of predation on adjacent bands of sheep. Linhardt et al. believe that coyotes merely avoided the immediate vicinity of devices but continued to frequent the general area. However, particularly if use of such devices becomes common, the question of how coyote activity and predation patterns are affected might be a subject for future research.

Modification of human behavior

The agency responsible for implementing the program in the field may recommend alteration of human behavior to resolve potential conflicts between humans and wildlife. For example, the elimination of feeding of wildlife that occurs in parks, forest, or residential areas may be recommended. Many wildlife species adapt well to human settlements and activities, but their proximity to humans may result in damage to structures or threats to public health and safety. Eliminating wildlife feeding and handling can reduce potential problems, but many people who are not directly affected by problems caused by wildlife enjoy wild animals and engage in activities that encourage their presence. It is difficult to consistently enforce no-feeding regulations and to effectively educate all people concerning the potential liabilities of feeding wildlife.

Habitat management

Just as habitat management is an integral part of other wildlife management programs, it also plays an important role in wildlife damage management. The type, quality, and quantity of habitat are directly related to the wildlife that are present. Therefore, habitat can be managed to not support or attract certain wildlife species. Limitations of habitat management as a method of reducing wildlife damage are determined by the characteristics of the species involved, the nature of the damage, economic feasibility, and other factors.²⁹ Also, legal constraints may exist which preclude altering particular habitats.

When depredation cannot be avoided by careful crop selection or modified planting schedules, lure crops can sometimes be used to mitigate the loss potential. Lure crops are planted or left for consumption by wildlife as an alternative food source. This approach provides relief for critical crops by sacrificing less important or specifically planted fields. For lure crops to be successful, frightening techniques may be necessary in fields where crops are to be protected; wildlife should not be disturbed in sacrificial fields.

Establishing lure crops is expensive, requires considerable time and planning to implement, and may attract other unwanted species to the area, causing additional wildlife damage problems.

Cage traps and immobilization

A variety of cage traps are used in different wildlife damage control efforts. The most commonly known cage traps used in the current program are box traps. Cage traps are usually rectangular, made from wood or heavy gauge mesh wire. These traps are used to capture animals alive and can often be used where many lethal or more dangerous tools would be too hazardous. Cage traps are well-suited for use in residential areas.

Cage traps usually work best when baited with foods attractive to the target animal. They are used to capture animals ranging in size from mice to deer, but are usually impractical in capturing most large animals. They are virtually ineffective for coyotes, but are highly effective and most often used in the urban environment for raccoon, skunk and opossum.³⁰

All applied techniques should be compatible with each other. For example, it is important to note that traps can kill livestock protection dogs if they are caught and not released in a reasonable period of time.

²⁹ USDA APHIS. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*, p. 112.

³⁰ USDA APHIS. *Pre-Decision Environmental Assessment: Mammal Damage Management in the North California District APHIS-WS Program*, p. 116.

Adaptive Management

A premise of adaptive management is that because practitioners/managers do not have full knowledge of wildlife management issues, a management program and its practitioners must apply enough rigor to management activities to ensure that they learn and improve through experience. Stakeholders need to understand that a management program must be sufficiently flexible over time to adapt to what is learned as the program unfolds and managers gain experience.

Essential components of adaptive management include but are not necessarily limited to situational analysis, definition of goals and objectives, identification and selection of alternatives, management interventions, monitoring, and adjustment to approaches and management.³¹ Monitoring is a critical step to better understanding current management systems and to forecast effects of management. Monitoring is not an end in itself; rather, results of monitoring inform necessary adjustments to management approaches if desired goals are not met.

Adaptive management is inherent to APHIS-WS' IWDM approach, as evidenced in select policy directives. For example, WS Directive 2.110 states in reference to Wildlife Services research and methods development, "While conducting assigned field activities, WS operational employees may evaluate modifications to existing WDM techniques, tools, and systems for the purpose of improving these techniques and tools."³²

Actions and Approvals

The following actions and approvals by Mendocino County would be required to implement the proposed project:

- 1) Mendocino County Board of Supervisors certification of the EIR.
- 2) Mendocino County Board of Supervisors adoption of the IWDM Program.
- 3) Mendocino County Board of Supervisors approval of five-year Program and Agreement between USDA APHIS-WS and Mendocino County and annual work and financial plans required by the five-year CSA for each of the five years, which would provide for the following:
 - Assignment of up to four APHIS-WS wildlife specialists for a maximum of 4,176 work hours distributed as needed among direct control activities, technical assistance, APHIS-WS required training and administrative tasks, and leave.
 - APHIS-WS procurement and maintenance of vehicles, tools, supplies, and other specialized equipment as deemed necessary to accomplish direct control activities.
 - APHIS-WS supervision of safe and professional use of approved wildlife damage management tools/equipment, including the use of firearms, advanced optics, assorted snaring devices, trailing hounds, all-terrain vehicles, leg-hold traps for the protection of endangered species and public safety, cage-type and other specialized traps, deterrent methods/devices (including pyrotechnics), Environmental Protection Agency approved chemicals (including immobilizing and euthanasia drugs), night vision equipment, and electronic calling devices.
 - Data reporting for inclusion in the APHIS-WS Management Information System, which would

³¹ Shawn T. Riley et al. "The Essence of Wildlife Management." *Wildlife Society Bulletin*, Vol. 30, No. 2 (Summer, 2002), pp. 585-593.

³² United States Department of Agriculture, Animal and Plant Health Inspection Service. *WS Directive 2.110, Wildlife Services Research and Methods Development*. July 21, 2008.

consist of the number and types of request for assistance, control methods, types of species, whether species causing damage or loss were removed or released, estimated value of loss, and other information used to document and monitor program activities.

No state agency approvals are required.

D: NON-LETHAL PROGRAM ALTERNATIVE

The Non-Lethal Program Alternative would not use or recommend lethal methods to attempt to resolve wildlife damage. All of the non-lethal operational and technical assistance available under the proposed project would be allowed under this alternative. This Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance on non-lethal management methods to livestock managers. For example, with respect to deterrent methods, field technicians would instruct livestock managers how to use deterrent tools in ways that maximize their effectiveness while minimizing the potential for predators to habituate to the deterrents. Information and training on lethal management methods would not be provided under this alternative.

This alternative could also involve cost sharing with property owners for reimbursement of management methods, such as building of new fences or repair of fences; purchasing new livestock protection animals; maintenance of livestock animals; and scare devices.

Similar to the proposed project, adaptive management would be a key component of the Non-Lethal Alternative. Adaptive management has been an important and effective component of other non-lethal programs, such as the Wood River Wolf Project in Idaho.³³

Actions and Approvals

Similar actions and approvals would be required for the Non-Lethal Alternative, as would be required for the proposed project. For example, Mendocino County would be required to certify the EIR and approve a Program and Agreement with whichever outside organization it selects to implement the Non-Lethal Program.

Variation of Non-Lethal Program Alternative

A variation of the above-describe Non-Lethal Program Alternative will be considered. This variation continues to prioritize the use of non-lethal methods for wildlife damage management, but allows very limited exceptions to the use of lethal methods. The exception for use of lethal methods would be limited to instances when public health and safety is in danger. This can be generally defined as animal attacks on humans that result in injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs.

E. SCOPE OF ENVIRONMENTAL IMPACT ANALYSIS

The environmental checklist recognizes differences between both the proposed project and the non-lethal alternative and the resultant effects of those differences with respect to potential environmental impacts. A few important distinctions are provided in what follows.

³³ Suzanne A. Stone et al. "Adaptive use of nonlethal strategies for minimizing wolf-sheep conflict in Idaho." *Journal of Mammalogy* (98): 33-44. 2017.

Technical Assistance Not Involving Direct Control of Wildlife Damage Management

Proposed Project

The IWDM Program would initially be implemented pursuant to a cost-share agreement with APHIS-WS. The proposed cost-share agreement between the County and APHIS-WS is for a range of services, which would be provided to resource owners upon their request. Many of the activities that would be performed by APHIS-WS personnel under the renewed agreement would be administrative, for example, responding to telephone inquiries, preparing informational literature, giving presentations, and performing initial investigations at the request of resource owners. Personnel would also offer recommendations to resource owners on wildlife damage management that would not involve removal of animals causing damage (that is, non-lethal methods for damage management). In cases where technical assistance would provide sufficient wildlife damage management, further assistance would not be required. These administrative-type activities would not result in physical changes in the environment that require analysis in this Initial Study.

Non-Lethal Program Alternative

The non-lethal program alternative would operate in a similar manner, with representatives of an outside governmental or non-governmental agency providing technical assistance at the request of resource owners.

Use of Direct Control Methods

Proposed Project

The use of direct control methods by APHIS-WS could involve non-lethal and/or lethal methods. The potential environmental effects of each method would vary. For example, whereas the non-lethal use of pyrotechnics could result in impacts related to noise and target species populations, the lethal use of snares could have impacts on target species populations, but not otherwise result in additional physical impacts to the environment such as noise. Through the cost-share agreement between APHIS-WS and the County, the County would provide funding to APHIS-WS for the implementation of direct control methods. Thus, the analysis contained within this Initial Study will be focused on the potential physical effects to the environment that could result from APHIS-WS' use of direct control methods.

Non-Lethal Program Alternative

While the Non-Lethal Program Alternative would not use or recommend lethal methods to attempt to resolve wildlife damage, all of the non-lethal control methods available under the proposed project would be allowed under this alternative. The agency responsible for implementing the program in the field would still provide direct control assistance of non-lethal methods when it has been determined that a problem cannot reasonably be resolved by technical assistance or that the professional skills are required for effective problem resolution and/or safe implementation of methods, such as pyrotechnics. Direct control assistance is often initiated when the wildlife damage involves several ownerships, sensitive species, or complex management problems requiring the direct supervision of a professional wildlife manager or biologist.

Under the variation to the non-lethal program alternative, there may be very limited cases where lethal methods are carried out to protect public health and safety. Thus, their potential physical environmental consequences need to be considered.

Use of Non-lethal Methods by Private Parties

Proposed Project

As part of technical assistance to resource owners, APHIS-WS staff may recommend non-lethal methods for wildlife damage management. Some of these methods could be safely implemented by the resource owner and would be the responsibility of the resource owner. This could include altering animal husbandry practices, fencing, night pens, or use of guard animals, among others. Neither APHIS-WS nor County staff would be involved in implementing these actions, nor would the agreement as proposed allow for County funds to be provided directly to resource owners to acquire materials or resources to implement non-lethal methods on private property.³⁴ As such, under the proposed project, the use of non-lethal methods by private parties would be at the sole discretion of the resource owner. The use of non-lethal methods by private parties, and potential environmental effects, would occur with or without the proposed project, and there are no aspects of the proposed project that would change what non-lethal controls a resource owner might use, either by limiting them or adding new ones.

Non-Lethal Program Alternative

In contrast, under the non-lethal program alternative, the program may provide cost-sharing to private parties for their use of certain non-lethal management methods. For instance, private parties choosing to install fencing or purchase and sustain guard animals following the recommendations of the contracted non-governmental or outside governmental agency may be eligible for cost-sharing. Through cost-sharing with private parties, the County would indirectly provide funds for the implementation of some non-lethal control methods, which may result in impacts to the environment. Therefore, for the non-lethal program alternative, this Initial Study analyzes potential impacts that could occur due to implementation of those non-lethal control methods by private parties for which program reimbursement may be sought.

F. EVALUATION OF ENVIRONMENTAL IMPACTS:

The Initial Study checklist recommended by the State of California Environmental Quality Act (CEQA) Guidelines is used to determine potential impacts of the proposed project on the physical environment. The checklist provides a list of questions concerning a comprehensive array of environmental issue areas potentially affected by the project (see CEQA Guidelines, Appendix G). Explanations to answers are provided in a discussion for each section of questions as follows:

- a) A brief explanation is required for all answers including "No Impact" answers.
- b) "Less Than Significant Impact" applies where the project's impacts are insubstantial and do not require any mitigation to reduce impacts.
- c) "Less Than Significant with Mitigation Measures" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The County, as lead agency, must describe the mitigation measures, and briefly explain how they reduce the effect to a less-than-significant level (mitigation measures from earlier analyses may be cross-referenced).
- d) "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- e) All answers must take account of the entire action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts [CEQA Guidelines, Section 15063(a)(1)].

³⁴ While APHIS-WS may temporarily loan and deploy equipment (non-lethal and lethal) as part of IWDM actions, the agency currently has no mechanism to purchase this equipment for private ownership nor grant or reimburse funds for the purchase of such equipment. (Personal email communication between Shannon Chandler, Environmental Coordinator, USDA APHIS Wildlife Services and Nick Pappani, Vice President, Raney Planning and Management, Inc., August 27, 2018).

- f) Earlier analyses may be used where, pursuant to the tiering, Program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or Negative Declaration [CEQA Guidelines, Section 15063(c)(3)(D)]. A brief discussion should be attached addressing the following:
- ➔ **Earlier analyses used** – Identify earlier analyses and state where they are available for review.
 - ➔ **Impacts adequately addressed** – Identify which effects from the above checklist were within the scope of, and adequately analyzed in, an earlier document pursuant to applicable legal standards. Also, state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - ➔ **Mitigation measures** – For effects that are checked as “Less Than Significant with Mitigation Measures,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

I. AESTHETICS – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Have a substantial adverse effect on a scenic vista?			X	
2. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway?			X	
3. Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
4. Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			X	

Discussion Items I-1, 2, 3:

Proposed Project

Approval of the proposed IWD Program would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The proposed project would be anticipated to involve the use of non-permanent control methods such as frightening devices. In addition, while preference is given to non-lethal methods when practical and effective, non-permanent lethal control methods such as trapping and shooting may be implemented. Such non-permanent methods would not include elements that would substantially contrast with the surrounding visual character of any area and many of the elements, such as cages or traps, would be removed following use. Rather, such methods would represent a temporary and minor interruption of the existing visual condition of individual properties within the County.

Mendocino County does not currently include any officially designated State Scenic Highways; however, it should be noted that State Route (SR) 1 through the County, a portion of U.S. 101 and all of SR 20 are eligible routes that have not yet been officially designated. Considering that the proposed project would not result in substantial permanent changes to the visual character of any areas within the County and officially designated State Scenic Highways do not exist within the County, the proposed project would not have the potential to result in the substantial degradation of the visual character of any areas within the County, including areas and scenic resources in proximity to designated scenic highways, impacts related to implementation of the proposed project would be **less than significant**. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would involve the provision of technical assistance and operational assistance by an outside governmental or non-governmental agency, as well as potential cost-sharing with private parties to implement particular non-lethal control methods. While the majority of non-lethal control methods would involve non-permanent activities or activities that do not involve physical changes to the environment, technical assistance to private parties may include recommendations regarding the provision of fencing, for which program reimbursement may be obtained. Fencing would be considered a permanent or semi-permanent method of control. When used for the purpose of predation control, fencing requires specific design aimed at deterring predator trespass. Exclusionary fencing may require high gauge metal wire and solid construction, but is not anticipated to include materials, such as wood slats or masonry, that would significantly block near or distant views of agricultural land, pastureland, and rangeland that may represent scenic resources. Therefore, implementation of the non-lethal program alternative and potential construction of exclusionary fencing throughout the County would not have the potential to substantially degrade the visual character or quality of the County.

Considering that fencing would not result in substantial degradation in visual character of areas within the County, including areas and scenic resources in proximity to designated scenic highways, impacts related to implementation of the proposed project would be **less than significant**. No mitigation measures are required.

A variation of the non-lethal program alternative is being considered that would involve strictly limited use of lethal methods, only in exceptional cases where a risk to public health and safety is posed by wildlife. Considering the limited extent of lethal control to be used under the variation of the non-lethal program alternative, the vast majority of program activity would be similar to the activity discussed above for the non-lethal program alternative. In the infrequent circumstances that lethal methods would be used, such methods would be identical to those considered under the proposed project above, which were determined not to result in substantial degradation of the visual character or quality of the County. Therefore, the variation of the non-lethal program alternative would not result in any potential impacts not previously discussed above.

Discussion Item I-4:

Proposed Project

The checklist question focuses on whether the proposed project could result in a substantial source of light or glare that could adversely affect day or nighttime views in the area. This could be an issue where a project introduces substantial new sources of light near a community that currently enjoys dark skies and associated nighttime views of the stars. In the case of the proposed project, the use of light-emitting devices by APHIS-WS personnel would be carried out primarily in rural areas, where only a few receptors may be exposed to the new light source. In addition, as previously discussed, this analysis is limited to those direct control methods that require implementation by APHIS-WS personnel. This would not be expected to include direct light-emitting devices such as strobes. Rather, this could include pyrotechnics. The light emitted from this frightening device would be akin to fireworks, and thus, temporary, associated only with the period during which the device is being detonated. With respect to lethal methods, light associated with use of lethal methods could be expected to be limited to possible light from the muzzle of a firearm when being discharged. This light would be momentary and extremely localized. Thus, intermittent use of these devices would not be considered substantial sources of light that could adversely affect nighttime views of receptors, resulting in a **less-than-significant** impact. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would include implementation of similar frightening strategies as discussed above for the proposed project. However, the non-lethal program alternative may involve program reimbursement for private party expenses related to light-emitting devices, such as strobe devices. Consequently, in addition to the direct application of propane exploders and pyrotechnics, as discussed above, the non-lethal program alternative may result in the financing of other control methods, such as implementation of strobe light battery devices. Strobe light battery devices have been shown to deter coyotes and reduce lamb losses by 44-95 percent.³⁵ Use of strobe light battery devices would intentionally produce intermittently flashing light at night to deter detrimental wildlife. Strobe lights would not be operated continuously, as continuous operation could result in habituation and reduction in efficacy of the frightening device. The use of frightening devices, including strobe light battery devices and pyrotechnics, would likely occur in rural portions of the County. Implementation of such methods in rural portions of the County would reduce the potential for such methods to result in disturbance of nearby residences. Considering the wide dispersal of residences in rural areas of the County, the ability to direct frightening devices away from other residences, and the intermittent nature of lighting from such devices, frightening devices would not be considered substantial sources of daytime or nighttime lighting that could adversely affect views in the area.

Although not explicitly addressed in Appendix G of the CEQA Guidelines, the potential for intermittent sources of light to affect non-target wildlife species is being given consideration herein. In the process of frightening target wildlife species, intermittent lighting from frightening devices may disturb non-target species in the area. Strobe light battery devices would not be a source of continuous light but would provide intermittent light in the immediate area of the device. Consequently, such devices would only have the potential to affect wildlife behavior in the immediate vicinity of the device and would not be anticipated to have substantial spill-over effects on other non-target wildlife in the vicinity of the project site. However, the localized nature of such devices would allow for the dispersal of non-target wildlife away from the frightening devices to other suitable habitats, and would not be anticipated to result in any sustained changes to wildlife behavior that could affect the species' life history. Therefore, the non-lethal project alternative is not anticipated to result in substantial impacts to non-target species.

It should be noted that a variation of the non-lethal program alternative is being considered that would involve strictly limited use of lethal methods, only in exceptional cases where a risk to public health and safety is posed by wildlife. Considering the limited extent of lethal control to be used under the variation of the non-lethal program alternative,

³⁵ Samuel B. Linhart et al. "Electronic Frightening Devices for Reducing Coyote Predation on Domestic Sheep: Efficacy Under Range Conditions and Operational Use." (1992). *Proceedings of the Fifteenth Vertebrate Pest Conference 1992*. 47, p. 389.

the vast majority of program activity would be similar to the activity discussed above for the non-lethal program alternative. In the infrequent circumstances that lethal methods would be used, such methods would be identical to those considered under the proposed project above, which were determined not to have an adverse effect on day or nighttime views of an area.

For the above reasons, implementation of the non-lethal program alternative would result in a ***less-than-significant*** impact. No mitigation measures are required.

II. AGRICULTURAL & FOREST RESOURCES – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide or Local Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	X			
2. Conflict with General Plan or other policies regarding land use buffers for agricultural operations?	X			
3. Conflict with existing zoning for agricultural use, a Williamson Act contract or a Right-to-Farm Policy?	X			
4. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	X			
5. Involve other changes in the existing environment which, due to their location or nature, could result in the loss or conversion of Farmland (including livestock grazing) or forest land to non-agricultural or non-forest use?	X			

Discussion – All Items:

Proposed Project

Approval of the IWDM Program would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. Due to the programmatic nature of the IWDM program, the proposed project would not result in the direct conversion of important agricultural or timberland for other purposes. However, the implementation of the proposed project could result in conflicts with existing agricultural operations and other uses. Such conflicts are anticipated to be particularly pronounced in areas where agricultural activity occurs in proximity to other nearby residences, and the application of particular direct control methods, for instance propane exploders, would have the potential to create conflicts between the existing agricultural uses and the nearby non-agricultural land uses. Conflicts between existing agricultural activities and nearby non-agricultural land uses resulting from implementation of the proposed project could reduce the viability of agricultural activities within the County, leading to eventual conversion of agricultural lands to other uses. The potential for wildlife damage management is anticipated to be significantly reduced in forest land areas, due to the relative lack of crops and livestock. Predator conflicts and wildlife damage would instead be concentrated in and around agricultural lands.

Considering the above concerns related to viability of agricultural operations, implementation of the proposed project could result in a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Agricultural Resources chapter of the Integrated Wildlife Damage Management Program EIR.

Non-Lethal Program Alternative

The non-lethal program alternative would involve activities similar to the proposed project with the key difference that personnel would not perform site visits to implement lethal detrimental wildlife control strategies. Under the variation to the non-lethal program alternative, there may be very limited cases where lethal methods are carried out to protect public health and safety, but such cases would not include implementation of lethal methods where protection of agriculture is the only concern. As discussed above for the proposed project, various techniques that would be implemented under the non-lethal program alternative could result in conflicts related to agricultural uses. Should

such conflicts reduce the viability of farmland within the County, the non-lethal program alternative would result in a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Agricultural Resources chapter of the Integrated Wildlife Damage Management Program EIR.

III. AIR QUALITY – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Conflict with or obstruct implementation of the applicable air quality plan?			X	
2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?			X	
3. Result in a cumulatively considerable net increase of any criteria for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	
4. Expose sensitive receptors to substantial pollutant concentrations?			X	
5. Create objectionable odors affecting a substantial number of people?			X	

Discussion Items III-1, 2, 3, 4:

Mendocino County is located within the North Coast Air Basin, which includes Del Norte, Trinity, and Humboldt Counties, as well as a portion of Sonoma County. The Mendocino County Air Quality Management District (MCAQMD) has jurisdictional authority to enforce state and federal air quality laws and regulations within Mendocino County. Air quality within Mendocino County is generally good, and, as a result, Mendocino County is classified as attainment for all federal and state criteria pollutants except for particulate matter less than 10 microns in diameter (PM₁₀). The main sources of PM₁₀ within the County are woodburning devices, fossil fuel powered automobiles, dust from unpaved roads, and construction activity.

To address potential impacts related to air quality emissions, the MCAQMD has adopted thresholds of significance for use in project-level analyses. The significance thresholds, expressed in pounds per day (lbs/day) or tons per year (tpy), serve as air quality standards in the evaluation of air quality impacts associated with proposed projects within the County. Thus, if the proposed project's or the non-lethal project's emissions exceed the MCAQMD's thresholds, the project could have a significant effect on regional air quality and attainment of federal and State ambient air quality standards.

Proposed Project

Implementation of the proposed project would involve the provision of technical assistance and direct control assistance throughout Mendocino County. Technical assistance is the primary method used in responding to requests for assistance and principally consists of the dissemination of advice and information by APHIS-WS. Such information is provided through phone calls and other correspondences. In some cases, demonstrations on the proper use of management devices may be administered, and site visits may be conducted upon request. Direct control assistance generally involves implementation of physical control techniques, which are discussed in-depth in the project description section of this chapter. Implementation of such techniques requires APHIS-WS personnel to visit the affected site one or more times.

Technical Assistance consisting of advice given over the phone would not involve direct sources of air pollutant emissions. On-site visits and implementation of direct control assistance involve representatives of APHIS-WS visiting locations within the County to either demonstrate control techniques or implement direct control assistance. Traveling to and from sites is assumed to involve the use of fossil fueled vehicles. Fossil fueled vehicles are a source of pollutant emissions including criteria pollutants, such as PM₁₀, and toxic air contaminants (TACs). Although site visits using fossil fueled vehicles would constitute a source of emissions, emissions related to site visits would be similar under the proposed project as compared to emissions under previous iterations of the agreement. Therefore, the proposed

project would not be expected to constitute an increase in emissions beyond levels that have previously occurred within the County.

Notwithstanding the above, the potential emissions related to vehicle trips resulting from implementation of the proposed project have been analyzed. Based on data for the years 2013 through 2017, the IWDM program in Mendocino County has resulted in an annual average of 53,795 vehicle miles travelled (VMT).³⁶ Vehicles used under the IWDM project have been four-wheel drive pick-up trucks, which would continue to be used during implementation of the proposed project. Based on the foregoing information, the California Air Resource Board's (CARB's) Emission Factors (EMFAC) model was used to quantify potential emissions related to vehicle use under the proposed project. It should be noted that the type of fuel used for vehicles in the IWDM program was not known at the time of environmental analysis. Therefore, potential emissions from both diesel-fueled vehicles and gasoline-fueled vehicles used for the proposed project was quantified. Table 3 below presents the results of the EMFAC model and compares potential project-related emissions to the MCAQMD's emissions thresholds. Considering that the fuel used for vehicles in the proposed project is not known with certainty, the emissions presented in Table 3 represent the worst-case emission scenario for either a gasoline- or diesel-fueled vehicle, whichever fuel type would result in higher emissions.

Pollutant	Proposed Project	MCAQMD Threshold	Exceed Threshold?
ROG	5.71 (lbs/day)	180 (lbs/day)	No
NO _x	34.65 (lbs/day)	42 (lbs/day)	No
PM ₁₀	2.11 (lbs/day)	82 (lbs/day)	No
PM _{2.5}	2.02 (lbs/day)	54 (lbs/day)	No
Local CO	0.11 (tpy)	125 (tpy)	No
<i>Source: Mendocino County Air Quality Management District. Adopted Air Quality CEQA Thresholds of Significance – June 2, 2010. California Air Resources Board. Emissions Factors Model (EMFAC) 2014. Version 1.07. December 14, 2015. (see Appendix A)</i>			

As shown in Table 3, vehicle emissions related to implementation of the proposed project would not exceed the MCAQMD's thresholds of significance regardless of the fuel type used.

Given the limited total amount of emissions anticipated to occur with implementation of the proposed project, and the results of emissions quantification presented in Table 3 above, the proposed project would not have the potential to violate air quality standards. Therefore, the proposed project would not result in the emission of criteria air pollutants that would violate air quality standards, conflict with adopted implementation plans, or result in a cumulatively considerable increase in emissions, nor would the proposed project result in the exposure of sensitive receptors to substantial pollutant levels. As such, the proposed project would result in a **less-than-significant** impact. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would involve activities similar to the proposed project with the key difference that APHIS-WS staff would not perform site visits to implement lethal wildlife control strategies. While site visits would not be made to implement lethal wildlife control strategies, representatives from the outside governmental or non-governmental agency contracted with Mendocino County to implement the non-lethal program alternative would be anticipated to conduct some site visits to provide further operational assistance. In addition, under the variation to the non-lethal program alternative discussed in the project description above, there may be very limited cases where lethal methods are carried out to protect public health and safety. Implementation of limited lethal methods to protect public health and safety would require site visits, however limited in number. Similar to the proposed project, site visits are assumed to be made by fossil fueled vehicles, which would result in emissions of various air pollutants. The continued need for site visits to implement non-lethal techniques would be anticipated to result in similar emissions as would occur under the proposed project, and presented in Table 3 above. As a result, impacts related to implementation of the non-lethal program alternative would be similar to impacts that would occur under the proposed project and would be considered **less-than-significant**. No mitigation measures are required.

³⁶ Shannon Chandler, Environmental Coordinator, USDA APHIS Wildlife Services, August 16, 2018.

Discussion Item III-5:

Proposed Project

The proposed project could result in animal carcasses that, if not disposed of properly, could decompose and generate odors. WS Directive 2.515, however, sets forth requirements for the disposal of wildlife carcasses, requiring that APHIS-WS personnel make a reasonable effort to retrieve and dispose of wildlife carcasses that result from APHIS-WS wildlife damage management activities. The directive further requires that all carcasses be disposed of in a manner consistent with federal, state, county, and local regulations. Furthermore, the majority of project-related services are provided for the protection of livestock and field crops on agricultural lands where other animal- and farming-related odors are already present and where, given the dispersed nature of existing land uses, odors would not affect a substantial number of people.

Therefore, the potential for odor impacts would be ***less than significant***. No mitigation measures are required.

Non-Lethal Program Alternative

Unlike the proposed project, the non-lethal program alternative would not be anticipated to result in animal carcasses. In addition, while chemical repellents could be utilized, it is not anticipated that the program would provide reimbursement to property owners for purchase of such products. Thus, the potential use of chemical repellents does not need to be analyzed.

Under the variation to the non-lethal program alternative, there may be very limited cases where lethal methods are carried out to protect public health and safety. Although the outside governmental or non-governmental agency implementing the variation to the non-lethal program alternative would not be subject to WS Directive 2.515, the outside governmental or non-governmental agency would be subject to MCAQMD Rule 1-400, which prohibits the discharge of odiferous materials in a manner that creates a nuisance. Therefore, the outside governmental or non-governmental agency selected to apply the variation to the non-lethal program alternative would be required to properly dispose of carcasses to avoid creation of a nuisance related to the decomposition of animal carcasses.

Considering the above, the non-lethal program alternative would not be anticipated to result in the exposure of substantial numbers of receptors to odors, and a ***less-than-significant*** impact would result. No mitigation measures are required.

IV. BIOLOGICAL RESOURCES – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish & Game, U.S. Fish & Wildlife Service or National Oceanic and Atmospheric Administration Fisheries?	X			
2. Substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number of restrict the range of an endangered, rare, or threatened species?	X			
3. Have a substantial adverse effect on the environment by converting oak woodlands?	X			
4. Have a substantial adverse effect on any riparian habitat or other sensitive natural community, including oak woodlands, identified in local or regional plans, policies or regulations, or by the California Department of Fish & Game, U.S. Fish & Wildlife Service, U.S. Army Corps of Engineers or National Oceanic and Atmospheric Administration Fisheries?	X			
5. Have a substantial adverse effect on federal or state protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) or as defined by state statute, through direct removal, filling, hydrological interruption, or other means?	X			
6. Interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nesting or breeding sites?	X			
7. Conflict with any local policies or ordinances that protect biological resources, including oak woodland resources?	X			
8. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			X	

Discussion Items IV-1, 2, 3, 4, 5, 6, and 7:

Proposed Project

Approval of the proposed IWDM Program would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The IWDM Program would include wildlife control methods such as modifications of habitat, exclusionary fencing, frightening devices, and other such methods to prevent damage from wildlife. In cases where all practical non-lethal methods do not succeed in preventing wildlife damage or wildlife poses an imminent threat to public safety and/or health removal or killing of wildlife by trapping or shooting may be conducted. Such wildlife control methods could have an adverse effect on biological resources through adverse effects to special-status species, reduction in habitats, or changes in sensitive natural communities. Consequently, the proposed project would result in a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Biological Resources chapter of the Integrated Wildlife Damage Management Program EIR.

Non-Lethal Program Alternative

The non-lethal program alternative would include all activities as would occur under the proposed project with the exception of lethal control methods. Thus, while the non-lethal program alternative would not involve the removal of wildlife through the use of lethal methods, the non-lethal program alternative would seek to alter wildlife behavior through the application of non-lethal methods. Non-lethal methods could include habitat modification, the use of exclusionary fencing, frightening devices, and other methods that could result in adverse effects to non-target species and habitats. In addition, a variation to the non-lethal program alternative under consideration would allow for very limited uses of lethal control methods only in cases where public health and safety is at risk. Should such a variation to the non-lethal program be implemented, lethal methods as discussed under the proposed project above could be implemented, resulting in similar impacts as discussed for the proposed project.

Consequently, the non-lethal program alternative and the variation to the non-lethal program alternative could have an adverse effect on biological resources through adverse effects to special status species, reduction in habitats, or changes in sensitive natural communities. Consequently, the non-lethal program alternative and variation to the non-lethal program would result in a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Biological Resources chapter of the Integrated Wildlife Damage Management Program EIR.

Discussion Item IV-8

Proposed Project

The only adopted Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) within Mendocino County is the Mendocino Redwood Company (MRC) NCCP/HCP. The planning area for the MRC NCCP/HCP applies to approximately 232,000 acres of land owned by the MRC in Mendocino and Sonoma Counties. The MRC NCCP/HCP allows for the cohesive management of the MRC's forest resources to support natural resource conservation and regulatory efficiency.

The proposed project would enable APHIS-WS to provide wildlife management services throughout Mendocino County. Such services include the provision of technical assistance and direct control methods to protect livestock, crops, human health and safety and property from wildlife damage. Under the proposed project, APHIS-WS would not provide technical assistance or direct control within MRC managed lands as the MRC performs such management activities in compliance with the MRC NCCP/HCP. In addition, MRC lands are used solely for timber harvesting, livestock or farming operations are not conducted within MRC lands; considering the absence of agricultural activities within MRC land, predator conflicts would be anticipated to be limited. In the event that wildlife damage management is needed, APHIS-WS would coordinate with MRC to ensure that selected methods would not conflict with the goals and requirements of the *MRC HCP/NCCP*. As such, a **less-than-significant** impact would result. No mitigation measures are required.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would not be expected to involve the provision of wildlife management services within any areas under the jurisdiction of an adopted HCP or NCCP, including the MRC NCCP/HCP. In the event that wildlife damage management is needed, APHIS-WS would coordinate with MRC to ensure that selected methods would not conflict with the goals and requirements of the *MRC HCP/NCCP*. Consequently, the non-lethal program alternative would not have the potential to result in conflicts with any adopted HCP or NCCP and a **less-than-significant** impact would result. No mitigation measures are required.

V. CULTURAL RESOURCES – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5?			X	
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines, Section 15064.5?			X	
3. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
4. Disturb any human remains, including those interred outside of formal cemeteries?			X	

Discussion – All Items:

Proposed Project

The proposed project would involve the protection of human health and safety, property, natural resources, and agricultural activities from wildlife damage through technical assistance and direct control. Generally, methods for direct control of wildlife damage such as trapping and frightening devices do not require significant ground-disturbing activities that would have the potential to cause substantial adverse changes to historical, archaeological, unique geologic, or paleontological resources. Any ground disturbance necessary for the installation of traps or snares would be minimal and limited to surface soils. Thus, a **less-than-significant** impact would occur. No mitigation measures are required.

Non-Lethal Program Alternative

Unlike the proposed project, the non-lethal program alternative may include program reimbursement to private parties for materials related to non-lethal methods. For instance, should wildlife management require installation of fencing, private parties constructing fencing may be reimbursed for some costs. The placement of fencing would require minor ground disturbance for placement and securing of fence posts. Although minor ground disturbance would occur during the placement of fencing, such ground disturbance would be limited to small areas of excavation associated with the placement of fence posts. Such areas of disturbance would be limited spatially and in depth, and the likelihood of encountering any significant resource during post hole digging is low.

Therefore, the use of fencing under the non-lethal program would not be considered a significant source of new ground disturbing activity. The non-lethal program alternative would not have the potential to result in adverse effects to historical, archaeological, unique geologic, or paleontological resources, nor would the non-lethal alternative be anticipated to disturb human remains, and a **less-than-significant** impact would occur. No mitigation measures are required.

VI. GEOLOGY & SOILS – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: <ul style="list-style-type: none"> i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. ii) Strong seismic ground shaking? iii) Seismic-related ground failure, including liquefaction? iv) Landslides? 			X	
2. Result in substantial soil erosion or the loss of topsoil?			X	
3. Be located on a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?			X	
4. Be located on expansive soils, as defined in Chapter 18 of the California Building Code, creating substantial risks to life or property?			X	
5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?			X	

Discussion Items 1, 3, 4, and 5:

Proposed Project

The proposed project would involve the protection of human health and safety, property, natural resources, and agricultural activities from wildlife damage through technical assistance and direct control, but would not include any development activity that would have the potential to expose people or structures to seismic or geologic hazards or require the use of septic systems. Consequently, the proposed project would result in a **less-than-significant** impact. No mitigation measures are required.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would not result in any development activity that would have the potential to expose people or structures to seismic or geologic hazards or require the use of septic systems. Consequently, the non-lethal program alternative would result in a **less-than-significant** impact. No mitigation measures are required.

Discussion Item 2:

Proposed Project

Implementation of the proposed project could involve the use of fencing, which, as discussed previously, would require minor ground disturbance for the placement and securing of fence posts. However, under the proposed project fencing would be installed and financed by private parties, and APHIS-WS would not directly construct fencing. Select control methods, such as traps or snares, would be directly implemented by APHIS-WS and could require minor ground disturbance for installation. Ground disturbance associated with traps and snares would not amount to

substantial areas of disturbance and would not result in noticeable top soil loss or erosion. Considering that the proposed project would not include any new development activity or other activities resulting in substantial disturbance of top soil, the proposed project would not have the potential to result in significant top soil loss or erosion and a ***less-than-significant*** impact would result.

Non-Lethal Program Alternative

Unlike the proposed project, the non-lethal program alternative may include program reimbursement to private parties for materials related to non-lethal methods. For instance, should wildlife management require installation of fencing, private parties constructing fencing may be reimbursed for some costs. The placement of fencing would require minor ground disturbance for placement and securing of fence posts. Although minor ground disturbance would occur during the placement of fencing, such ground disturbance would be limited to small areas of excavation associated with the placement of fence posts. Such areas of disturbance would be limited spatially and in depth and would not be considered to create the potential for substantial top soil loss or erosion.

Given the above, the non-lethal program alternative would not result in new development, and fencing that may be constructed under the non-lethal program alternative would not have the potential to result in substantial ground disturbance, top soil loss or erosion. Therefore, a ***less-than-significant*** impact would result.

VII. GREENHOUSE GAS EMISSIONS – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant and/or cumulative impact on the environment?			X	
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Discussion – All Items:

Emissions of greenhouse gases (GHGs) contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors. Therefore, the cumulative global emissions of GHGs contributing to global climate change can be attributed to every nation, region, and city, and virtually every individual on earth. Individual GHG emissions from a household, town, or, in some cases a County, are at a micro-scale level relative to global emissions and effects to global climate change; however, development or other activity within a County could result in a cumulatively considerable incremental contribution to a significant cumulative macro-scale impact. As such, impacts related to emissions of GHG are inherently considered cumulative impacts.

A number of regulations currently exist related to GHG emissions, predominantly Assembly Bill (AB 32), Executive Order S-3-05, and Senate Bill (32). AB 32 sets forth a statewide GHG emissions reduction target of 1990 levels by 2020. Executive Order S-3-05 sets forth a transitional reduction target of 2000 levels by 2010, the same target as AB 32 of 1990 levels by 2020, and further builds upon the AB 32 target by requiring a reduction to 80 percent below 1990 levels by 2050. SB 32 also builds upon AB 32 and sets forth a transitional reduction target of 40 percent below 1990 levels by 2030. In order to implement the statewide GHG emissions reduction targets, local jurisdictions are encouraged to prepare and adopt area-specific GHG reduction plans and/or thresholds of significance for GHG emissions.

The Mendocino County General Plan identifies the need for action to confront the challenge of climate change and includes Policy RM-50, as well as Action Items RM-50.1 through RM-50.3, which directs the County to take steps to address countywide GHG emissions. However, Mendocino County has not yet adopted a GHG reduction plan or climate action plan.

Although Mendocino County has not yet adopted a GHG reduction plan or climate action plan, the MCAQMD has adopted thresholds of significance in order to determine whether proposed projects would have the potential to result in impacts to the environment related to GHG emissions. The District’s threshold includes a mass emissions level of 1,100 metric tons of CO₂ equivalents per year (MT CO₂e/yr) for a project or 4.6 Metric tons of CO₂e per service population per year (where service population represents the number of residents anticipated to reside at a new residential development or the number of employees that would be employed at a new commercial development). Considering that the proposed project does not include new development, the appropriate threshold for use in analysis of the proposed project is the mass emissions threshold of 1,100 MT CO₂e/yr.

Proposed Project

The proposed project would not involve the development of any structures or permanent sources of electricity consumption that would be considered sources of GHG emissions. Similar to what was discussed in Section III Air Quality, of this Initial Study, the technical assistance included in the proposed project would primarily involve correspondence between APHIS-WS and livestock managers or farmers, with occasional site visits as necessary. Correspondences occurring during technical assistance would not be considered a substantial source of GHG emissions.

As needed, technical assistance and direct control under the proposed project would involve representatives from APHIS-WS making site visits to implement wildlife control methods. Some wildlife control methods would result in

GHG emissions. For instance, propane is considered a GHG, and the use of propane exploders to frighten wildlife could result in the emission of GHGs, both in the form of fugitive propane, and through the combustion of propane, which releases carbon dioxide, a common GHG. It should be noted that agricultural land uses frequently involve the use and combustion of propane for heating and cooking, and use of propane exploders would likely result in similar emissions as other more common uses of propane for agricultural purposes. However, uses of propane for wildlife control represents relatively small individual sources of GHG emissions, and emissions of GHGs related to the use of propane exploders throughout the County would not be considered a substantial source of GHGs.

In addition to the limited emissions of GHG resulting from certain control techniques outlined above, traveling to and from sites would constitute a source of emissions from fossil fueled vehicles. Such emissions would be similar to the emissions that have occurred under previous iterations of IWDM Program and would represent a small proportion of Countywide emissions. Thus, the emissions that would occur related to site visits would not be considered new emissions, as past iterations of the IWDM Program resulted in similar emissions from site visits. Nonetheless, emissions were quantified using EMFAC as discussed under Section III Air Quality, above. Table 4 below presents the mobile GHG emissions that could occur with implementation of the proposed project and compares such emissions to the MCAQMD’s thresholds of significance.

Table 4 Operational GHG Emissions			
Pollutant	Proposed Project	MCAQMD Threshold	Exceed Threshold?
GHG	0.00040 MT CO ₂ /yr	1,100 MT CO ₂ /yr	No
<i>Source: Mendocino County Air Quality Management District. Adopted Air Quality CEQA Thresholds of Significance – June 2, 2010. California Air Resources Board. Emissions Factors Model (EMFAC) 2014. Version 1.07. December 14, 2015. (see Appendix A)</i>			

As shown in Table 4, the proposed project would result in GHG emissions far below the MCAQMD’s thresholds of significance. Furthermore, it should be noted that California has begun implementation of the Low Carbon Fuel Standard (LCFS) Program. The LCFS Program seeks to reduce the amount of carbon emissions per unit of fuel consumed in California. Implementation strategies for the LCFS Program include lowering the carbon intensity of common fuels such as gasoline and diesel, through the use of ethanol mixing and other strategies that reduce the amount of carbon emissions from each unit of fuel consumed. Unless specifically exempted, all fuel consumed within California is subject to the LCFS Program.³⁷ Thus, emissions from site visits using fossil fueled vehicles under the proposed project would be minimized through implementation of the statewide LCFS Program.

In the absence of adopted countywide plans to reduce GHG emissions, the proposed project’s GHG emissions were compared to MCAQMD’s thresholds and, as shown in Table 4, emissions related to the proposed project would be far below the thresholds being applied. Therefore, the proposed project would not result in significant emissions of GHGs and a **less-than-significant** impact related to the generation of GHGs and compliance with applicable state laws regarding the reduction of GHG emissions would result. No mitigation measures are required.

Non-Lethal Program Alternative

Similar to the proposed project above, the non-lethal program alternative would involve both technical assistance and operational assistance. Technical assistance would primarily involve correspondences between the outside governmental or non-governmental agency contracted by Mendocino County and livestock managers or farmers but may additionally include site visits as needed. Correspondences would not result in the emission of GHGs. However, similar to the proposed project, the non-lethal program alternative would involve site visits, which would generate GHG emissions related to the use of fossil fueled vehicles. Such visits would be similar to site visits undertaken during past iterations of the IWDM program, and, for the reasons described for the proposed project above, would not be considered a significant source of GHG emissions.

Control methods such as electric fences, strobe light batteries, and electronic distress sounds would all consume electricity. Unless the electricity consumed is generated solely through renewable sources, the foregoing wildlife control methods represent indirect sources of GHG emissions through the consumption of fossil fuel generated electricity. Although the foregoing non-lethal control techniques would result in GHG emissions through the consumption of energy, the amount of electricity consumed would be limited and the GHG emissions resulting from

³⁷ California Air Resources Board. *Low Carbon Fuel Standard*. Available at: <https://www.arb.ca.gov/fuels/lcfs/lcfs.htm>. Accessed July 2018.

generation of such electricity would not be considered substantial. Similar to the proposed project, propane exploders may be implemented in certain cases; however, as discussed above, the use of propane for wildlife management would not be considered a substantial source of GHG emissions.

Considering the above, the non-lethal program alternative would result in a ***less-than-significant*** impact related to the generation of GHGs and compliance with applicable state laws regarding the reduction of GHG emissions. No mitigation measures are required.

VIII. HAZARDS & HAZARDOUS MATERIALS – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Create a significant hazard to the public or the environment through the routine handling, transport, use, or disposal of hazardous or acutely hazardous materials?	X			
2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	X			
3. Emit hazardous emissions, substances, or waste within one-quarter mile of an existing or proposed school?	X			
4. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X	
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X	
6. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing in the project area?			X	
7. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
8. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	X			

Discussion Items VIII-1, 2, 3:

Proposed Project

Approval of the proposed project would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The IWDM program would include the use of chemical repellents as part of wildlife management within the County. Direct control would involve the use and transport of such repellents throughout the County. However, the repellents, such as Raccoon Eviction Fluid, are not considered hazardous to the environment or public health. The use, transport, and disposal of such repellents would not have the potential to create a hazard to the public or the environment (e.g., impacts to water quality) throughout the County, including in areas within one-quarter mile of a school, and could result in reasonably foreseeable releases due to accident or upset conditions. Potential hazards would be limited to non-chemical euthanasia methods such as firearms, which could create hazards if not used properly. Accordingly, the proposed project would result in a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Hazards and Hazardous Materials chapter of the Integrated Wildlife Damage Management Program EIR.

Non-Lethal Program Alternative

The non-lethal program alternative would not involve the use of toxicants, nor would the non-lethal program be expected to include reimbursement to private parties for use of chemical repellents. Thus, the potential use of chemical repellents does not need to be analyzed. The potential variation to the non-lethal program alternative,

however, could involve lethal methods in certain scenarios where public health or safety is at risk. In such scenarios, non-chemical means of euthanasia may be used to control wildlife threatening public health or safety. Impacts from the use of non-chemical methods would be similar to the impacts discussed above for the proposed project. Accordingly, the variation to the non-lethal program alternative could result in a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Hazards and Hazardous Materials chapter of the Integrated Wildlife Damage Management Program EIR.

Discussion Item VIII-4:

Proposed Project

Approval of the proposed project would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The control methods included in the proposed project would not involve ground disturbance such as grading or other earth moving activity that would have the potential to disturb existing known contaminated soils or areas. Furthermore, existing contaminated areas are primarily located within developed portions of the County, while the majority of activities related to the proposed project are anticipated to occur in more rural portions of the County, where agricultural activity occurs. Considering that the majority of proposed project activity would be anticipated in rural areas, the proposed project would be unlikely to result in any activities within sites identified pursuant to Government Code Section 65962.5.

Given the above, the proposed project would not be located on a site identified on lists compiled pursuant to Government Code Section 65962.5 and a **less-than-significant** impact would occur.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would not result in any substantial ground disturbing activities and would not have the potential to disturb contaminated soils or sites. Although the non-lethal program alternative may include the placement of fencing, and potential cost-sharing for such fencing, the implementation of fencing would only occur where agricultural activity is being conducted. Agricultural activity is not compatible with hazardous material contamination, and, therefore, agricultural activity and any fencing related to the non-lethal program alternative would not occur on contaminated sites.

Considering the foregoing discussion, the non-lethal program alternative would not be anticipated to result in the placement of fencing on sites identified on lists compiled pursuant to Government Code Section 65962.5. Consequently, the non-lethal program alternative would result in a **less-than-significant** impact.

Discussion Items VIII-5, 6:

Proposed Project

Several public and private airports exist within Mendocino County including, but not limited to the Little River Airport, the Boonville Airport, the Ukiah Municipal Airport, and the Willits Municipal Airport. Approval of the proposed project would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The proposed project would not involve the use of aerial hunting techniques, and would not involve the development of any structures or other infrastructure that could have the potential to create conflicts with existing airports. Therefore, the proposed project would result in a **less-than-significant** impact related to airport safety hazards.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would involve wildlife control activities throughout the County but would not involve lethal control methods. The non-lethal program alternative would not involve any development activity that could conflict with existing airport uses, and wildlife control activities would not have the potential to create safety hazards to airport uses. Consequently, the non-lethal program alternative would result in a **less-than-significant** impact related to airport safety hazards.

Discussion Item VIII-7:

Proposed Project

The Mendocino County Board of Supervisors adopted the *Mendocino County Operational Area Emergency Operations Plan* on September 13, 2016. The Emergency Operations Plan provides a framework for emergency response throughout the County. The proposed project does not involve any physical development or other land disturbing activity that could result in changes to the circulation system within Mendocino County or changes to the emergency response capability of any agencies within the County. Therefore, the proposed project would result in a **less-than-significant** impact. No mitigation measures are required.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would not involve changes to the circulation system within Mendocino County that could result in changes to the emergency response capability of any agencies within the County or conflict with the County's adopted Emergency Response Plan. Therefore, the non-lethal program alternative would result in a **less-than-significant** impact. No mitigation measures are required.

Discussion Item VIII-8:

Proposed Project

The majority of Mendocino County is subject to high fire hazard risk, with some areas of very high fire risk and other areas experiencing moderate fire risk.³⁸

Approval of the proposed project would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The IWDM program could include the use of pyrotechnic scare methods, such as propane exploders that could pose a risk of causing wildfires within the County. Therefore, implementation of the proposed project could result in an increased risk of wildfires within the County, which would be considered a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Hazards and Hazardous Materials chapter of the Integrated Wildlife Damage Management Program EIR.

Non-Lethal Program Alternative

The non-lethal program alternative would involve the use of all non-lethal wildlife control methods that would be implemented under the proposed project, and for the variation of this alternative, extremely limited use of lethal methods only when public health and safety is threatened. As such, wildlife control methods that would have the potential to increase fire risk within the County, such as propane exploders and electric fencing, would be used under the non-lethal program alternative. Therefore, implementation of the proposed project could result in an increased risk of wildfires within the County, which would be considered a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Hazards and Hazardous Materials chapter of the Integrated Wildlife Damage Management Program EIR.

³⁸ California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones in State Responsibility Areas*. November 7, 2007.

IX. HYDROLOGY & WATER QUALITY – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Violate any federal, state or county potable water quality standards?			X	
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lessening of local groundwater supplies (i.e. the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?				X
4. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				X
5. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?				X
6. Otherwise substantially degrade water quality?			X	
7. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X
8. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
9. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?				X
10. Inundation by seiche, tsunami, or mudflow?				X

Discussion Items IX-1, 6:

Proposed Project

The proposed project would involve the protection of human health and safety, property, natural resources, and agricultural activities from wildlife damage through technical assistance and direct control, but would not include any development activity and would not have the potential to create development-related sources of water quality pollutants or polluted runoff.

As discussed previously, the proposed project could result in animal carcasses that, if not disposed of properly, could decompose and lead to the degradation of water quality. WS Directive 2.515, however, sets forth requirements for the disposal of wildlife carcasses, requiring that WS personnel make a reasonable effort to retrieve and dispose of wildlife carcasses that result from APHIS-WS wildlife damage management activities. The directive further requires that all carcasses be disposed of in a manner consistent with federal, state, county, and local regulations. The proper disposal of carcasses would ensure that carcasses are not deposited in water ways, where the decomposition of such animals would result in the degradation of water quality.

It should be noted that the proposed project would not involve the use of lethal chemicals for wildlife control purposes. Thus, there would be no potential for lethal chemicals to enter downstream waterways and adversely affect water quality.

Considering that the proposed project would not result in substantial erosion or improper disposal of animal carcasses, implementation of the proposed project would not result in the violation of water quality standards or the substantial degradation of water quality and a **less-than-significant** impact would result. No mitigation measures are required.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would not result in any development activity and would not have the potential to create development-related sources of water quality pollutants or polluted runoff. Because the non-lethal program alternative would not involve lethal control methods, potential water quality issues related to animal carcasses would not occur. Furthermore, the non-lethal program alternative would not involve the use of pesticides or other toxicants that could degrade water quality.

Similar to the program in place in Marin County, the non-lethal program alternative may include cost sharing to partially compensate private parties implementing the recommended control methods. Control methods are anticipated to include the use of fencing. The placement of fencing would involve minor land disturbance associated with the digging of post holes; such limited ground disturbance activity would not be considered to have the potential to result in the creation of substantial amounts of polluted runoff due to erosion or top soil loss. Thus, while the non-lethal program alternative would include cost sharing that may compensate private parties for the installation of fencing, fencing would not result in impacts related to the degradation of water quality through erosion or siltation of waterways.

As noted in the project description section of this IS, a variation to the non-lethal program alternative may be implemented, which would allow for the use of lethal methods only where public health or safety is at risk. In such scenarios, non-chemical euthanasia methods may be used to control wildlife threatening public health or safety. Impacts from the use of non-chemical lethal methods would not have the potential to adversely affect water quality.

Considering that the non-lethal program alternative would not be anticipated to result in substantial erosion, and that animal carcasses would be properly disposed of under the variation of the non-lethal program alternative, the non-lethal program alternative and variation thereof would not result in the violation of water quality standards or the substantial degradation of water quality and a **less-than-significant** impact would result. No mitigation measures are required.

Discussion Items IX-2, 3, 4, 5, 7, 8, 9, 10:

Proposed Project

The proposed project does not include any development activity. Thus, the proposed project would not have the potential to result in changes to drainage patterns, increased stormwater runoff, the placement of structures within floodplains, or the depletion of groundwater. Consequently, the proposed project would result in **no impact**. No mitigation measures are required.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would not result in any development activity that would have the potential to result in substantial changes to drainage patterns, increased stormwater runoff, the placement of structures within floodplains, or the depletion of groundwater. Installation of exclusion fencing would result in limited ground disturbance but would not substantially alter drainage patterns of an area. Consequently, the non-lethal program alternative would result in **no impact**. No mitigation measures are required.

X. LAND USE & PLANNING – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Physically divide an established community?			X	
2. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X	
3. Conflict with any applicable habitat conservation plan or natural community conservation plan?			X	

Discussion Item X-1:

Proposed Project

Approval of the proposed project would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. Permanent structures would not be developed which could physically divide an established community. This is considered a **less-than-significant** impact. No mitigation measures are required.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would not involve any development activity. Consequently, the non-lethal program alternative would not include the placement of permanent structures that could physically divide an established community. The non-lethal program alternative may include cost sharing to partially compensate private parties implementing the recommended control methods. Control methods are anticipated to include the use of fencing. Fencing placed for the management of wildlife under the non-lethal program alternative would likely be placed in targeted areas where livestock operations or other agricultural activities currently occur. Fencing would not be designed to inhibit the movement of people or goods and would likely be confined to individual parcels or sections of parcels needing protections from wildlife. Although fencing would be installed by private parties under the non-lethal program alternative, such installation would occur following consultation with the outside governmental or non-governmental agency implementing the non-lethal program. Consultation between the private party and the outside governmental or non-governmental agency implementing the non-lethal program would ensure that fencing installation was targeted at the control of wildlife, and would not result in the physical division of established communities.

Considering that the non-lethal program alternative would not include physical development, and fencing installed under cost-sharing agreements would be targeted through assistance from the outside governmental or non-governmental agency implementing the non-lethal program, the non-lethal alternative would not result in the division of an established communities and a **less-than-significant** impact would occur. No mitigation measures are required.

Discussion Item X-2:

Proposed Project

The proposed project would not involve development activity that would have the potential to conflict with applicable land use plans. Rather, the proposed project would involve the provision of assistance to existing or proposed land uses in order to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods. The proposed project would not introduce any new land uses or result in new development activity; consequently, the proposed project would not conflict with any applicable land use plans, policies, or regulations and a **less-than-significant** impact would occur. No mitigation measures are required.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would not result in any development activity. Rather the non-lethal program alternative would facilitate existing and planned uses within the County by providing assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of non-lethal methods. The non-lethal program alternative would not introduce any new land uses or result in new development activity; consequently, the non-lethal program alternative would not conflict with any applicable land use plans, policies, or regulations and a ***less-than-significant*** impact would occur. No mitigation measures are required.

Discussion Item X-3:

Proposed Project

The only natural community conservation plan within the County is the MRC HCP/NCCP, which applies to over 232,000 acres of timber harvest land within Mendocino and Sonoma Counties. The MRC HCP/NCCP only applies to lands owned by the Mendocino Redwood Company. The proposed project would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The production of timber within the County is not subject to substantial loss or damage by wildlife, and, under the MRC HCP/NCCP the MRC provides resource management within MRC owned lands. Land managed by the MRC is not used for agricultural activities, and, therefore, APHIS-WS would not be anticipated to provide wildlife control services to lands managed by MRC under the proposed project. In the event that wildlife damage management is needed, APHIS-WS would coordinate with MRC to ensure that selected methods would not conflict with the goals and requirements of the *MRC HCP/NCCP*. Thus, the proposed project would not conflict with any adopted HCP or NCCP and a ***less-than-significant*** impact would occur. No mitigation measures are required.

Non-Lethal Program Alternative

Similar to the proposed project, the non-lethal program alternative would not be expected to involve the provision of wildlife management services within any areas under the jurisdiction of an adopted HCP or NCCP, including the MRC NCCP/HCP. In the event that wildlife damage management is needed, APHIS-WS would coordinate with MRC to ensure that selected methods would not conflict with the goals and requirements of the *MRC HCP/NCCP*. Consequently, the non-lethal program alternative would not have the potential to result in conflicts with any adopted HCP or NCCP and a ***less-than-significant*** impact would result. No mitigation measures are required.

XI. MINERAL RESOURCES – Would the project result in:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			X	
2. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?			X	

Discussion- All Items:

Proposed Project

Proposed project activities do not include any changes in land use, construction, development, or other components that would result in the loss of availability of a known mineral resource or of a locally important mineral resource recovery site. This is considered a **less-than-significant** impact. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would not include any changes in land use, construction, development, or other components that would result in the loss of availability of a known mineral resource or of a locally important mineral resource recovery site. This is considered a **less-than-significant** impact. No mitigation measures are required.

XII. NOISE – Would the project result in:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies?	X			
2. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	X			
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	X			
3. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	X			
4. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	X			
5. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	X			

Discussion – All Items:

Proposed Project

The proposed project would include a variety of wildlife control methods, many of which would not result in the creation of noise. However, other methods of wildlife control could produce varying amounts of noise. Indeed, the efficacy of some control methods, including electronic sound frightening devices and propane exploders, are either partly or completely dependent on the creation of noise to frighten away target wildlife. Although simple devices such as sound frightening devices would not require direct implementation by APHIS-WS staff, propane exploders and other methods with the potential to create noise, such as shooting and pyrotechnics, would be directly implemented by APHIS-WS staff.

Agricultural operations and livestock management currently creates noise within the County; however, the intentional creation of noise for wildlife control purposes under the proposed project could affect nearby receptors and the proposed project would have a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Noise chapter of the Integrated Wildlife Damage Management Program EIR.

Non-Lethal Program Alternative

The non-lethal program alternative would involve the use of all wildlife control methods that would be implemented under the proposed project, with the exception of the lethal control methods. As such, wildlife control methods that would cause noise, including electronic sound frightening devices and propane exploders, would be used under the non-lethal program alternative. It should be noted that a variation to the non-lethal program alternative is under consideration, which would include the limited use of lethal control methods in instances where wildlife poses a threat to public health or safety. Lethal control methods under the variation may include shooting, which would create noise. Considering the use of such control methods, similar to the proposed project, the non-lethal program alternative would result in a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Noise chapter of the Integrated Wildlife Damage Management Program EIR.

XIII. POPULATION & HOUSING – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Induce substantial population growth in an area, either directly (i.e. by proposing new homes and businesses) or indirectly (i.e. through extension of roads or other infrastructure)?			X	
2. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?			X	
3. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?			X	

Discussion – All Items:

Proposed Project

Approval of the proposed IWDM Program would enable APHIS-WS to continue to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. Such management activities would not induce substantial population growth in the County, nor would they displace substantial number of existing housing or people, necessitating the construction of replacement housing elsewhere. This is considered a **less-than-significant** impact. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would serve to protect livestock, crops, human health and safety and property within the County from wildlife damage through the use of a variety of non-lethal methods. Such management activities would not induce substantial population growth in the County, nor would they displace substantial number of existing housing or people, necessitating the construction of replacement housing elsewhere. This is considered a **less-than-significant** impact. No mitigation measures are required.

XIV. PUBLIC SERVICES – Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental services and/or facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services?

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Fire protection?	X			
2. Sheriff protection?	X			
3. Schools?			X	
4. Parks?			X	
5. Other public facilities?			X	

Discussion Items XV-1, 2:

Fire protection services within Mendocino County are primarily provided by the California Department of Forestry and Fire Protection (CAL FIRE). In addition to CAL FIRE services, several local agencies provide fire protection and mutual aid with CAL FIRE. Generally, such departments are located within incorporated cities or unincorporated towns within the County. The majority of Mendocino County is subject to high fire hazard risk, with some areas of very high fire risk and other areas experiencing moderate fire risk.³⁹

Law enforcement services within Mendocino County are provided by local agencies located within incorporated cities or unincorporated towns within the County, as well as by Mendocino County Sherriff’s Office for the unincorporated portions of the County.

Proposed Project

Approval of the proposed project would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The IWDM program would include the use of frightening devices, such as pyrotechnics and propane exploders, which could pose a risk of causing wildfires within the County. Increased prevalence of wildfires within the County would result in increased demand on fire protection services.

In addition to the potential increase in demand on fire protection services discussed above, pyrotechnic devices and other scare devices, such as electronic distress sounds, may cause disturbances in the area where such techniques are employed. The use of such measures is anticipated to primarily occur in the less dense, rural portions of the County, where agricultural activity is currently located, though some such measures may be implemented in proximity to residences. Use of pyrotechnic or scare devices in proximity to existing residences may result in increased reports of disturbances to the Mendocino County Sherriff’s Office. Similarly, lethal control methods, such as shooting, may result in increased reports of disturbances to the Mendocino County Sheriff’s Office. Response to increased reports of disturbances would increase demand on sheriff protection services within the County.

Should demand on fire and sheriff protection services increase due to more frequent wildfires and disturbance calls, respectively, new or physically altered government facilities may be required, construction of which could result in adverse effects to the environment, and, consequently, the proposed project would result in a **potentially significant** impact.

³⁹ California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones in State Responsibility Areas*. November 7, 2007.

Further analysis of these potential impacts will be discussed in the Public Services chapter of the Integrated Wildlife Damage Management Program EIR.

Non-Lethal Program Alternative

The non-lethal program alternative would involve the use of all wildlife control methods that would be implemented under the proposed project, with the exception of the lethal control methods. As such, wildlife control methods that would have the potential to increase fire risk within the County, such as propane exploders and electric fencing, would be used under the non-lethal program alternative. Therefore, similar to the proposed project, the non-lethal program alternative may increase the prevalence of wildfires within the County, which may result in the need for new or physically altered government facilities.

Similar to the proposed project, discussed above, the non-lethal program alternative may result in the use of pyrotechnic and other scare devices in proximity to existing residences. The use of such devices may result in increased disturbance calls to the Mendocino County Sheriff's Office. Increased disturbance calls would represent an increase in demand on sheriff protection services within the County, and may result in the need for new or physically altered government facilities in order to provide adequate sheriff protection and response services.

It should be noted that a variation to the non-lethal program alternative is being considered, under which lethal methods would be used in strictly limited instances where wildlife poses a risk to public health and safety. Lethal methods may include shooting, which, as discussed for the proposed project above, could cause increased reports of disturbances to the Mendocino County Sheriff's Office. Response to increased reports of disturbances would increase demand on sheriff protection services within the County.

Considering that construction of new or physically altered governmental facilities may be required due to increase wildfire prevalence and disturbance calls within the County, the non-lethal program alternative would result in a **potentially significant** impact.

Further analysis of these potential impacts will be discussed in the Public Services chapter of the Integrated Wildlife Damage Management Program EIR.

Discussion Items XIV-3, 4, 5:

Proposed Project

Approval of the proposed IWDM Program would enable APHIS-WS to continue to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The IWDM Program would be administered by APHIS-WS staff with funding from the County and use of APHIS-WS equipment and facilities. Such management activities would not increase demand on schools, parks, or other public facilities. This is considered a **less-than-significant** impact. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would serve to protect livestock, crops, human health and safety and property within the County from wildlife damage through the use of a variety of non-lethal methods. The non-lethal program alternative would be administered by an outside governmental or non-governmental agency, which would be under contract with the County but would provide personnel and operate out of facilities separate from that of the County's. Such management activities would not induce not increase demand on schools, parks, or other public facilities. This is considered a **less-than-significant** impact. No mitigation measures are required.

XV. RECREATION – Would the project result in:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
2. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

Discussion – All Items:

Proposed Project

Approval of the proposed IWDM Program would enable APHIS-WS to continue to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. Such activities would not have the potential to increase demand on recreational facilities to the extent that additional facilities would be required, the construction of which could cause physical environmental impacts. This is considered a **less-than-significant** impact. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would serve to protect livestock, crops, human health and safety and property within the County from wildlife damage through the use of a variety of non-lethal methods. Such activities would not have the potential to increase demand on recreational facilities to the extent that additional facilities would be required, the construction of which could cause physical environmental impacts. This is considered a **less-than-significant** impact. No mitigation measures are required.

XVI. TRANSPORTATION & TRAFFIC – Would the project result in:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?			X	
2. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?			X	
3. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?			X	
4. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
5. Result in inadequate emergency access?			X	
6. Conflict with adopted policies, plan, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?			X	

Discussion – All Items:

Proposed Project

Approval of the proposed IWDM Program would enable APHIS-WS to continue to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. None of the wildlife control methods would have the potential to alter circulation patterns within the County, thereby altering emergency access, access to public transit, or the efficacy of any mode of transportation. Much of the wildlife control work within the IWDM Program would be administered through technical support, which can be offered through off-site correspondences. However, some technical support and all direct control methods would require site visits by APHIS-WS staff. Such site visits would happen throughout the County on an as-needed-basis, with APHIS-WS staff visiting individual livestock managers or farmers as requested. Site visits would not be anticipated to result in changes to transportation or circulation within the County because, as noted, APHIS-WS staff would visit diverse areas of the County only in response to requests from County residences. Thus, vehicle trips related to the IWDM Program would be dispersed throughout the County and would not be concentrated on any one intersection or roadway area. Furthermore, site trips are anticipated to occur relatively infrequently, with few, if any, trips occurring each day. Considering that the relatively few trips resulting from implementation of the proposed project would be dispersed throughout the County, and the proposed project would not be anticipated to result in any impacts to roadway operations, a **less-than-significant** impact would result. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would include activities related to technical assistance and operational assistance similar to the proposed project, with the exception of lethal control methods. Thus, the non-lethal program alternative would involve off-site correspondences as well as site visits. Site visits under the non-lethal program alternative would occur in a similar manner as would occur under the proposed project; that is, the non-governmental agency or outside

governmental agency contracted by the County to implement the non-lethal program alternative would make site visits as requested and needed to individual sites throughout the County. Such site visits would be dispersed throughout the County and would not be concentrated on any one intersection or roadway area. Furthermore, site trips are anticipated to occur relatively infrequently, with few trips occurring each day. Thus, the relatively few trips would be dispersed throughout the County, and the non-lethal program alternative would not be anticipated to result in any impacts to roadway operations. This is considered a ***less-than-significant*** impact. No mitigation measures are required.

XVII. TRIBAL CULTURAL RESOURCES – Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or			X	
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			X	

Discussion – All Items:

Proposed Project

The proposed project would involve the control of wildlife through technical assistance and direct control. As discussed in Section V, Cultural Resources, of this Initial Study, the only wildlife control methods with the potential to result in any ground disturbance would be the placement of snares or traps. However, snares or traps are small and require limited ground disturbance during placement. Such disturbance would not be considered substantial.

Considering that the majority of control methods would not result in any ground disturbing activity and the placement of snares or traps would result in extremely limited ground disturbance, the proposed project would not have the potential to result in adverse effects to tribal cultural resources, and a **less-than-significant** impact would occur. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would include all activities as would occur under the proposed project with the exception of lethal control methods. The non-lethal program alternative may include cost-sharing between the private party implementing control methods and the non-governmental or outside governmental agency implementing the non-lethal program alternative. For instance, should wildlife management require installation of fencing, private parties constructing fencing may be reimbursed for some costs. The placement of fencing would require minor ground disturbance for placement and securing of fence posts. Although minor ground disturbance would occur during the placement of fencing, such ground disturbance would be limited to small areas of excavation associated with the placement of fence posts. Such areas of disturbance would be limited spatially and in depth, and the likelihood of encountering any significant resource during post hole digging is low.

It should be noted that a variation to the non-lethal program alternative is also under consideration where lethal methods could be used under extremely limited circumstances where wildlife poses a risk to public health or safety. Similar to the proposed project, lethal methods may include the placement of traps or snares. However, for the reasons discussed above, traps and snares would not be considered significant sources of ground disturbance and placement of such devices would have an extremely low potential for encountering tribal cultural resources.

Considering the above, the non-lethal program alternative and the potential variation to the non-lethal program alternative would not have the potential to result in adverse effects to tribal cultural resources, and a **less-than-significant** impact would occur. No mitigation measures are required.

XVIII. UTILITIES & SERVICE SYSTEMS – Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			X	
2. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
3. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?			X	
4. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?			X	
5. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	
6. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			X	
7. Comply with federal, state, and local statutes and regulations related to solid waste?			X	

Discussion – All Items:

Proposed Project

Approval of the proposed IWDM Program would enable APHIS-WS to continue to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. Such activities would not result in development activity nor would such activities have the potential to increase demand on utility infrastructure by increasing demand for water or wastewater treatment. None of the wildlife damage control methods would result in large water demands, the creation of wastewater, or the creation of substantial amounts of solid waste. Therefore, the proposed project would be anticipated to result in a **less-than-significant** impact related to Utilities and Service Systems. No mitigation measures are required.

Non-Lethal Program Alternative

The non-lethal program alternative would serve to protect livestock, crops, human health and safety and property within the County from wildlife damage through the use of a variety of non-lethal methods. Considering that the non-lethal program alternative would involve the use of identical wildlife control methods as the proposed project, excluding lethal control methods, the non-lethal program alternative would not have the potential to increase demand on utility infrastructure by increasing demand for water or wastewater treatment. None of the wildlife damage control methods would result in large water demands, the creation of wastewater, or the creation of substantial amounts of solid waste. Therefore, the non-lethal program alternative would be anticipated to result in a **less-than-significant** impact related to Utilities and Service Systems. No mitigation measures are required.

XIV. MANDATORY FINDINGS OF SIGNIFICANCE:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation Measures	Less Than Significant Impact	No Impact
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	X			
2. Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	X			
3. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	X			

Discussion- All Items:

Proposed Project

Approval of the proposed IWDM Program would enable APHIS-WS to provide assistance to landowners to protect livestock, crops, human health and safety and property from wildlife damage using a variety of methods, which have been historically carried out by APHIS-WS in Mendocino County. The wildlife control methods that have previously been implemented within the County by APHIS-WS, and would be implemented under the proposed project, would not result in development activity or changes in land use and would not have the potential to result in the elimination of important examples of the major periods of California history or prehistory.

However, the control of wildlife through lethal or non-lethal methods may result in changes to habitats, reductions in species populations, or the restriction of range or numbers of rare or endangered plants or animals. Chemicals used during the control of wildlife may result in hazards to human health or degradation of the quality of the environment. Such impacts, as well as other potential impacts related to agricultural and forestry resources, biological resources, hazards and hazardous materials, and public services could result in cumulative impacts or significant incremental contributions to cumulative impacts.

Therefore, while the proposed project would not result in the elimination of important examples of the major periods of California history or prehistory, the proposed project would result in **potentially significant** impacts to other environmental resources.

Further analysis of these potential impacts will be discussed in the Integrated Wildlife Damage Management Program EIR.

Non-Lethal Program Alternative

The non-lethal program alternative would serve to protect livestock, crops, human health and safety and property within the County from wildlife damage through the use of a variety of non-lethal methods. Although the non-lethal program alternative would not involve lethal control methods, the non-lethal program alternative would have the potential to result in changes to habitats, reductions in species populations, or the restriction of range or numbers of rare or endangered plants or animals. Furthermore, the County is considering a variation to the non-lethal program alternative wherein lethal methods would be used in strictly limited scenarios where wildlife poses risks to public health or safety. In such cases, toxicants and pesticides may be used, which, as discussed above for the proposed project, may result in hazards to human health or degradation of the quality of the environment. Such impacts, as

well as other potential impacts related to agricultural and forestry resources, biological resources, hazards and hazardous materials, and public services could result in cumulative impacts or significant incremental contributions to cumulative impacts.

However, the non-lethal program alternative would not involve development activity or changes in land use and would not have the potential to result in the elimination of important examples of the major periods of California history or prehistory.

Considering the above, the non-lethal program alternative would not result in the elimination of important examples of the major periods of California history or prehistory, but the non-lethal program alternative would result **in potentially significant** impacts to other environmental resources.

Further analysis of these potential impacts will be discussed in the Integrated Wildlife Damage Management Program EIR.

G. DETERMINATION – The County finds that:

<input type="checkbox"/>	The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	Although the proposed project COULD have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures described herein have been added to the project. A MITIGATED NEGATIVE DECLARATION will be prepared.
<input type="checkbox"/>	The proposed project is within the scope of impacts addressed in a previously-adopted Negative Declaration, and that only minor technical changes and/or additions are necessary to ensure its adequacy for the project. An ADDENDUM TO THE PREVIOUSLY-ADOPTED NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required (i.e. Project, Program, Subsequent, or Master EIR).
<input type="checkbox"/>	The proposed project MAY have a significant effect(s) on the environment, and at least one effect has not been adequately analyzed in an earlier document pursuant to applicable legal standards. Potentially significant impacts and mitigation measures that have been adequately addressed herein or within an earlier document are described on attached sheets (see Section D.f. above). A SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT will be prepared to address those effect(s) that remain outstanding.
<input type="checkbox"/>	The proposed project is within the scope of impacts addressed in a previously-certified EIR, and that some changes and/or additions are necessary, but none of the conditions requiring a Subsequent or Supplemental EIR exist. An ADDENDUM TO THE PREVIOUSLY-CERTIFIED EIR will be prepared.
<input type="checkbox"/>	The proposed project is within the scope of impacts addressed in a previously-certified Program EIR, and that no new effects will occur nor new mitigation measures are required. Potentially significant impacts and mitigation measures that have been adequately examined in an earlier document are described on attached sheets, including applicable mitigation measures that are imposed upon the proposed project (see Section D.f. above). NO FURTHER ENVIRONMENTAL DOCUMENT will be prepared (see CEQA Guidelines, Sections 15168(c)(2), 15180, 15182, 15183).
<input type="checkbox"/>	Other _____

APPENDIX A: AIR QUALITY and GHG MODELLING OUTPUTS

APPENDIX C

September 28, 2018

Ignacio Gonzalez
Mendocino County Planning and Building Services
860 North Bush Street
Ukiah, CA 95482

Via Email: gonzalezn@mendocinocounty.org

RE: Comments on the Notice of Preparation and Initial Study of the Environmental Impact Report (EIR) for the Proposed Integrated Wildlife Damage Management Program Project.

Dear Mr. Gonzalez,

As a resident of Mendocino County, I would like to provide comments on the Notice of Preparation (NOP) and Initial Study (IS) of the environmental impact report (EIR) for the proposed integrated wildlife damage management (IWDM) program project.

My family has been farming/ranching in Mendocino County since the late 1880's. We are known as as The Stornetta Brothers Ranch owned by Larry Stornetta and Charles Stornetta.

Recently we have had 5 Coyotes in our calf's upsetting the cows and trying to take calf's. Neighbors have had mountain lions killing sheep. Residents have had bears come into their yard and wreck fruit trees and killing their chickens. People are afraid to let their children play in their own yards because of the danger of these predators.

I do a lot of walking for my health and now find it necessary to carry a gun to protect myself from mountain lions, bears and domestic dogs that are protecting marijuana crops.

Please help us by keeping the Predator Control Program.

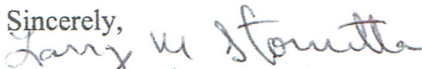
The IS and related CEQA checklists describe two alternatives that are currently being considered for the IWDM program in Mendocino County. The proposed project continues the IWDM program and the cooperative service agreement between APHIS-Wildlife Services (APHIS-WS) and Mendocino County. The non-lethal program alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance on non-lethal management methods for an IWDM program.

The proposed project allows the IWDM program in the county to continue to use both non-lethal and lethal means in order to assist property owners, businesses, private citizens and other agencies in resolving wildlife damage issues. Non-lethal technical assistance is needed and often helps to improve wildlife damage situations, but there are times when lethal alternatives are required. Limiting an IWDM program to only non-lethal options will be a disservice to the residents of the county who could face situations with wildlife damage that are unresolvable without a lethal option administered by a trained professional such as APHIS-WS staff. For these reasons, I am in support of the proposed project.

Some general comments on the NOP and IS that I would like to be considered include:

- All alternatives considered in the EIR need to be evaluated at an equal level to the proposed project.
- Separate environmental factor checklists should be developed for any alternative considered to clarify the process for determining impact levels for each alternative. The combined checklists in the IS document were difficult to interpret.
- An IWDM program is beneficial to agriculture as a whole, including row crops, tree crops, field crops, timber operations and livestock producers. Analysis should not be limited to just livestock producers.
- Analysis of an IWDM program should include all relevant wildlife species that can damage/impact livestock, crops, human health and safety and property in the county. Analysis should not be limited to wildlife species that are considered predators.
- IWDM methods that are analyzed within the proposed project should be relevant to those methods that have historically been used in Mendocino County by APHIS-WS staff.

I appreciate the opportunity to provide comments on the Notice of Preparation (NOP) and Initial Study (IS) of the environmental impact report (EIR) for the proposed integrated wildlife damage management (IWDM) program project. I encourage the consideration of the comments included above and I encourage the continuation of the cooperative service agreement between APHIS-Wildlife Services and Mendocino County to administer an IWDM program.

Sincerely,

Stornetta Brothers

CC:

Mendocino County Board of Supervisors
bos@mendocinocounty.org

Mendocino County Agricultural Commissioner
Harinder Grewal
grewalh@mendocinocounty.org

Nash

>>> Traci Pellar <tpellar@gmail.com> 10/1/2018 8:37 AM >>>

Traci Pellar 707-357-5693

To Whom it May Concern:

Mendocino Wildlife Association is proud to be part of the CEQA mitigation process.

One of the most profound missions of Mendocino Wildlife Association is wildlife/human conflict resolution. We are dedicated to our hotline (707)-984-6363 with all kinds of solutions for all kinds of problems. Please visit our website at www.mendowildlife.com We serve all of Mendocino County.

One of our first mission's is to support the use of non-lethal means in Mendocino County. Being a part of the CEQA solution is a part of our mission statement. I get a lot of calls from the public with fears, concerns, and questions. It is imperative to have a service like this to mitigate the damage of ignorance and unwarranted fears.

That being said I am requesting that the EIR and the county use us a resource as well as Project Coyote, HEC, and Humboldt Wildlife to help address the human wildlife conflicts and resolutions in our area.

TO BE CLEAR, THE USE OF SNARES, POISONS, OR OTHER INHUMANE LETHAL MEANS SHOULD NEVER BE SUBSIDIZED BY OUR COUNTY. THESE PRACTICES SHOULD BE ILLEGAL AND LOOKED DOWN UPON.

The Wildlife Association is a collaborative body who believes in using local resources to educate and support local producers. By working with the Hopland Center, the Granges, Farm Bureau, and County directly, the Association can help facilitate the requirements for a non-lethal means for wildlife conflict management.

The following are ways we can help:

- hotline service- mitigating conflicts between humans and wildlife
- education outreach-workshops and classes
- possibility of a lending library which includes; ammonia pans, fladery, guardian dog networks, fox lights, and more
- possibly create a wildlife certification for BMP's.

Mendocino competes on an upscale market where sourcing your products and integrity are important. The goal with this CEQA is to enable both our wildlife and our producers to thrive. The intention is that we are in alignment with the highest standards. This practice will benefit us both fiscally and ethically.

Our County is full of stakeholders and producers that care about wildlife, habitat, and our community. All they need is a little support to make the change or get the information. We here at the Mendocino Wildlife Association are ready to help make this non-lethal approach to wildlife become part of our Mendocino County policy.

One of my immediate suggestions is to create an advisory committee. This group would consist of someone from MWA, Farm Bureau, Hopland Extension Center, Grange, and County. We would help in the facilitation and execution of the proposal as a team.

Thank you for caring,

Traci Pellar
Founder of MWA
707-357-5693

Mendocino County Farm Bureau

303-C Talmage Road • Ukiah, CA. 95482 • (707) 462-6664 • Fax (707) 462-6681 • Email: admin@mendocfb.org
Affiliated with the California Farm Bureau Federation and the American Farm Bureau Federation

Mendocino County Cattlemen's Association

P.O. Box 128, Comptche, CA 95427

September 28, 2018

Ignacio Gonzalez
Mendocino County Planning and Building Services
860 North Bush Street
Ukiah, CA 95482

Via Email: gonzalez@mendocinocounty.org

RE: Comments on the Notice of Preparation and Initial Study of the Environmental Impact Report (EIR) for the Proposed Integrated Wildlife Damage Management Program Project.

Dear Mr. Gonzalez,

The Mendocino County Farm Bureau (MCFB) is a non-governmental, non-profit, voluntary membership, advocacy group whose purpose is to protect and promote agricultural interests throughout the county and to find solutions to the problems facing agricultural businesses and the rural community. MCFB currently represents approximately 1000 members.

The Mendocino County Cattlemen's Association (MCCA) is a voluntary membership, advocacy group that works on behalf of ranchers and beef producers in the county. MCCA is one of 38 county cattlemen's associations that are affiliated with the California Cattlemen's Association who in turn is an affiliate of the National Cattlemen's Beef Association.

MCFB and MCCA would like to provide comments on the Notice of Preparation (NOP) and Initial Study (IS) environmental impact report (EIR) for the proposed integrated wildlife damage management (IWDM) program project.

Program Summary

Summary of Proposed Project

The agriculture and livestock industry has supported the County of Mendocino and the continued agreement with the United States Department of Agriculture Animal and Plant Health Inspection Service-Wildlife Service (APHIS-WS) for a number of years. In fact, MCFB historical meeting records show support for the cooperative predator control program in Mendocino County as far back as 1919.

The proposed project continues the IWDM program and the cooperative service agreement between APHIS-WS and Mendocino County. Through this agreement the IWDM program can continue to use both non-lethal and lethal means in order to assist property owners, businesses, private citizens and other agencies in resolving wildlife damage issues. Non-lethal technical assistance is needed and often helps to improve wildlife damage situations, but there are times when lethal alternatives are required. Limiting a IWDM program to only non-lethal options will be a disservice to the residents of the county who could face situations with wildlife damage that are unresolvable without a lethal option administered by a trained professional such as APHIS-WS staff.

For these reasons, MCFB and MCCA support the proposed project.

Summary of Non-Lethal Program Alternative

Although MCFB and MCCA does not support the non-lethal program alternative, it is appreciated that the EIR will evaluate this alternative at an equal level to the proposed project. There are impacts from non-lethal options that need to be evaluated.

There are concerns with the description of this alternative. The non-lethal program alternative assumes that the county will contract with an unnamed governmental or non-governmental agency to administer the program to provide operational assistance related to wildlife damage and interaction to livestock managers needs. The vague description of what governmental or non-governmental agencies could be considered to administer the program as well as the limitation of assistance only to livestock managers (What about public health concerns, property damage, urban issues and impacts to other forms of agriculture from wildlife damage?) does not provide credibility in consideration of this option.

Initial Study and Checklist

Proposed Project

Wildlife damage management to protect agriculture

This section discusses the various agricultural commodities that can benefit from the services provided by an IWDM program. These include livestock, field crops, row crops and tree crops. However, this section does not mention timber as one of the commodities that benefits from an IWDM program. In Mendocino County, timber represents the second highest value commodity with a gross “at mill” value of \$76,696,600.¹ Mendocino County ranked 4th in the state in timber volumes and produced roughly 11% of the state’s total timber harvest in 2016.

Certain commercial timber species in Mendocino County, especially redwood, are subject to damage from wildlife such as bears. Bear damage in redwoods typically involves the removal of bark and damage to the cambial layer. Trees can be fully girdled or damage can be distributed with patches of bark being stripped away from the trunk to higher locations on the tree.

Since timber is a valuable agricultural commodity in Mendocino County that would benefit from a IWDM program, timber needs to be listed in this section and related sections within the initial study and checklist.

Wildlife Damage Management for the Protection of Property

The reference to feral/wild swine damage is extremely relevant in Mendocino County. Feral/wild swine can be found throughout the county and create significant impacts to both developed and non-developed areas. The document description limits the erosion related impacts from swine to developed areas, and this is not the case. The erosion impacts to agricultural and other resource properties (non-developed areas) is significant and needs to be included in this document description. With water quality program mandates in place for a number of agricultural commodities, the ability to limit feral/wild swine damage through an IWDM program and other means is critical to avoid potential liabilities for water quality violations.

¹ 2016 Mendocino County Crop Report (latest statistics available)

Selecting Wildlife Damage Management Methods

For the proposed project, on page 11-12 of the document the process for selecting wildlife damage management methods is described as,

“When responding to requests for assistance under the terms of the IWDM Program CSA, WS may provide technical assistance, direct control assistance, and/or research assistance. Technical and direct control assistance, as defined below, may involve the use of either lethal or nonlethal methods, or a combination of the two. Preference is given to non-lethal methods when practical and effective.”

Since direct control assistance involves both non-lethal and lethal methods, and since non-lethal methods are given initial preference when working to resolve a wildlife conflict, the project description of the direct control assistance starting on page 13 seems to indicate the reverse since this section leads with the various lethal methods that APHIS-WS are authorized to use. The proposed project description for direct control assistance should be edited to describe non-lethal methods first and then lethal methods to be consistent.

Direct Control Assistance-Lethal Methods-Cage and Corral Traps

Cage and corral traps are described as a lethal method of direct control assistance on page 14. In the description of the traps it is stated, “*These traps are used to capture animals alive and can often be used where lethal tools would be too hazardous.*” Since the traps themselves are not-lethal, this section should be consolidated in the non-lethal direct control assistance section discussed on page 20. Similar differentiations can be made for lethal and non-lethal snares described on page 14.

Euthanasia of target animals that are captured in cage and corral traps is a lethal method of control assistance, so a general section on target animal euthanasia should be included in the direct control assistance-lethal methods section.

Direct Control Assistance-Lethal Methods-Tracking Dogs or Trailing Dogs

Tracking dogs or trailing dogs are also described as a lethal method of direct control assistance on page 16. In the description of the dogs it is stated, “*Dogs will not be allowed to kill the target animal*”. Since the act of using dogs to track or trail target species, this section should be amended to be included in the non-lethal direct control assistance section.

Euthanasia of target animals that are determined to be in need of removal is a lethal method of control assistance, so a general section on target animal euthanasia should be included in the direct control assistance-lethal methods section.

Direct Control Assistance-Non-Lethal Methods

This section from page 16-21 is seeming to describe non-lethal methods of direct control assistance provided by APHIS-WS under the proposed project. However, most of the non-lethal methods described are in fact not connected with the services provided by APHIS-WS and would not be considered direct control assistance, but should be defined as technical assistance advice or recommendations provided to individuals calling for assistance with wildlife interactions.

As described on page 12, “*Technical assistance is defined as advice, recommendations, information, equipment, literature, instructions, and materials provided to others for use in managing wildlife damage problems and understanding wildlife damage management principles and techniques. Technical assistance is the primary method used in responding to requests for assistance. Individuals calling for assistance are given advice and information on ways to reduce predation on livestock, damage to*

property or avoid attracting nuisance wildlife onto their property. The implementation of technical assistance recommendations is the responsibility of the requester based on information, demonstrations, and advice on available and appropriate wildlife damage management methods provided by APHIS-WS personnel. Technical assistance includes demonstrations on the proper use of management devices (i.e., propane exploders, exclusionary devices, cage traps, etc.) and information on animal husbandry, habitat management, and animal behavior modification that could reduce damage. These types of non-lethal management methods are described in the following section. Technical assistance is provided following consultation or an on-site visit with the requester, and generally several management strategies are described to the requester for short and long-term solutions to damage problems; these strategies are based on the level of risk, need, and practical application.

This statement described the technical assistance services provided by APHIS-WS and clearly states that the implementation of technical assistance recommendations is the responsibility of the requester. Almost all of the non-lethal methods described in this section are not implemented by APHIS-WS personnel, but are implemented, if desired, by individuals who are seeking non-lethal options for reducing wildlife impacts. For this reason, the inclusion of non-lethal practices such as livestock guardian animals, fencing, animal husbandry, animal behavior modification, modification of human behavior, habitat management, etc. is not relevant to describing the non-lethal actions taken by APHIS-WS as part of the description of the proposed project.

The implementation of non-lethal methods by private parties versus APHIS-WS personnel is further described on page 24 with the statement, *“Neither APHIS-WS nor County staff would be involved in implementing these actions, nor would the agreement as proposed allow for County funds to be provided directly to resource owners to acquire materials or resources to implement non-lethal methods on private property.³⁴ As such, under the proposed project, the use of non-lethal methods by private parties would be at the sole discretion of the resource owner. The use of non-lethal methods by private parties, and potential environmental effects, would occur with or without the proposed project, and there are no aspects of the proposed project that would change what non-lethal controls a resource owner might use, either by limiting them or adding new ones. “*

This section on pages 16-21 should be amended to discuss the non-lethal technical services directly provided by APHIS-WS personnel and related WS directives (such as those described in the adaptive management section) for non-lethal activities. All of the non-lethal practices implemented by individuals seeking resolution to wildlife damages should be listed separately and correctly described as such.

Non-Lethal Program Alternative

The description of the non-lethal program alternative on page 22 is vague as the entire alternative is described in three paragraphs. The description of this alternative needs to be significantly expanded to provide sufficient information of what an anticipated IWDP program would look like in Mendocino County if a non-lethal program alternative is pursued.

If this alternative would not use or recommend lethal methods to attempt to resolve wildlife damage and conflict, then not all of the non-lethal direct control assistance options described under the proposed project would be available. Since cage and corral traps, certain snares and the use of dogs to track or trail are not in themselves lethal methods, but the act of euthanizing target animals as a result of these activities is lethal, then the use of cage and corral traps, snares and dogs would be prevented under the non-lethal program alternative. Since relocation of target animals that were apprehended via trap, snare, dog or other method is not allowed (as described on page 13 and referenced by CA Code of Regulation), then these methods would not be allowed under the non-lethal program alternative since euthanasia would be prevented. The description of the non-lethal program alternative should be clarified to specifically

discuss what non-lethal operational and technical assistance practices will and will not be applied under this alternative.

On page 22 it is stated that, *“This Alternative assumes that Mendocino County would contract with an outside governmental or non-governmental agency to provide personnel who would give technical information and operational assistance on non-lethal management methods to livestock managers. For example, with respect to deterrent methods, field technicians would instruct livestock managers how to use deterrent tools in ways that maximize their effectiveness while minimizing the potential for predators to habituate to the deterrents.”*

There are questions with this statement that need to be addressed.

1. What outside governmental or non-governmental agencies could be considered to administer this program? Are there examples from other counties? How would these agencies be vetted to demonstrate appropriate training and knowledge to administer an IWDM program?
2. Why is the description of assistance from an outside governmental or non-governmental agency limited to livestock managers? If this alternative will not provide assistance to urban residents, rural property owners, other agricultural commodities or for public health concerns, then the description of this alternative needs to specifically state which services will or will not be applied under this alternative.
3. Would this alternative provide assistance for multiple wildlife species or just predators?

It is also stated on page 22 that, *“This alternative could also involve cost sharing with property owners for reimbursement of management methods, such as building of new fences or repair of fences; purchasing new livestock protection animals; maintenance of livestock animals; and scare devices.”*

There are questions with this statement that needs to be addressed.

1. Where would the funding come from to administer a cost sharing program?
2. How would cost sharing equations for management methods be determined based on the true costs of construction and repair (i.e. fencing) for the topography of Mendocino County?
3. Would there be an indemnification program to pay for losses due to wildlife damage to property, infrastructure, crops, livestock, etc? How would an indemnification program be paid for and how would payments be determined? What guarantees could be made that an indemnification program would be sustainable and not be phased out after a few years?

Finally on page 22, it is stated that, “ Similar to the proposed project, adaptive management would be a key component of the Non-Lethal Alternative. Adaptive management has been an important and effective component of other non-lethal programs, such as the Wood River Wolf Project in Idaho.(referenced to a study by Suzanne A. Stone).

In reading the Stone study, adaptive management was an important component of the study involving the Wood River Wolf Project in Idaho. However, the APHIS-WS was utilized in this study to provide trained professional staff and to provide data on sheep killed by wolves. Like in this referenced study, WS is used in a number of states to provide expertise on wildlife damages and confirmation of livestock injured or killed by specific wildlife species.

If Mendocino County does not pursue a contract with APHIS-WS as in the proposed project, what options under the non-lethal program alternative would individual citizens have to consult with the expertise of APHIS-WS personnel?

Variation of Non-Lethal Program Alternative

Again, the description of this program alternative is vague and needs further definition. Some questions regarding this alternative that need to be addressed include:

1. Who would administer lethal methods if determined to be necessary? Who is responsible to verify that these individuals are properly trained in the use of lethal methods?
2. If lethal methods would be limited to animal (wildlife?) attacks on humans that result in injuries or death, would the individuals contracted for administering lethal methods be trained to identify the target animal?
3. Disease threats from rabies and plague are not limited to just predator species. Removing wildlife suspect of a public health threat by lethal means will require training, not only on proper administration of lethal methods, but also on recognition of disease symptoms and on the sampling/paperwork protocols needed to confirm disease. How will these issues be addressed in the description of the program?

Evaluation of Environmental Impacts

General Comments

Each environmental factor that is potentially affected by the proposed project or the non-lethal program alternative was combined into one single checklist. This was confusing as the discussion for the various checklist items for either the proposed project or alternative conflicted with the impacts that were checked. It is recommended that two separate checklists be developed, one for the proposed project and one for the non-lethal program alternative, for each environmental factor being considered.

There seem to be a number of conflicting discussion items in the environmental factors that would potentially be affected by the proposed project or the non-lethal program alternative. Some of these are discussed below and should be addressed as the inconsistencies influence the determination of impact within the checklist.

Establishing an appropriate baseline is essential for an EIR analysis because an inappropriately defined baseline can cause the impacts of a project or project alternative to be over or under-reported.

Aesthetics

Discussion item 4: Light/Glare

Proposed Project:

Have pyrotechnics been implemented by APHIS-WS in Mendocino County in recent history? If this tool is not applicable to the IWDM program in Mendocino County, then it shouldn't be analyzed as an aesthetic impact.

Agricultural and Forest Resources

All Discussion Items

Proposed Project

In the previous aesthetics discussion for item number 4, light/glare, for both the proposed project and the non-lethal program alternative it describes the use of frightening/light emitting devices would be only carried out primarily in rural areas, where only a few receptors would be exposed to the new light source. Therefore the result is a less than significant impact.

Now in this section, the use of APHIS-WS methods (propane exploders specifically used as an example) are stated to potentially create conflicts between the existing agricultural uses and the nearby non-agricultural land uses creating a potentially significant impact.

How does the same practice (propane exploders) be determined to result in a less than significant impact for aesthetics, but create a potentially significant impact for agricultural and forestry resources?

The statement that the use of IWDM services within the proposed project can lead to conflict and result in the conversion of agricultural lands to other uses definitely requires further analysis. Have there been any documented cases of conflicts related to the use of APHIS-WS IWDM services leading to property owner conflicts that resulted in the conversion of agricultural lands in Mendocino County?

It is stated on page 29 that, *“The potential for wildlife damage management is anticipated to be significantly reduced in forest land areas, due to the relative lack of crops and livestock. Predator conflicts and wildlife damage would instead be concentrated in and around agricultural lands.”*

This statement is not true as bears can create significant impacts to commercial timber species and the use of APHIS-WS has been noted to be used to assist in resolving these conflicts. In addition, there is use of timberland (zoned Forest Land or Timber Production Zone) for livestock grazing in Mendocino County which could require the use of APHIS-WS to resolve conflicts. Plus, a number of residential uses occur on timberland which utilize APHIS-WS to resolve wildlife conflicts that are not just limited to predator species.

Further analysis is needed to defend the reasons for determining that the proposed project will lead to potentially significant impacts for items 1-5 in the agricultural and forest resources checklist. There is limited discussion of item 1, 4 and 5, however items 2 and 3 were not discussed at all.

The Monterey County NOP/IS document from March 2017 for their APHIS-WS IWDM program found that there would be no impact for items 1-5 in the agricultural and forest resources checklist, The Monterey document states, *“Project activities do not include any changes to zoning, land use, or other components that would result in the conversion of farmland or forest land to other uses. No **impact** would occur. One of the program objectives is to prevent and minimize damage to agricultural property, consistent with the County General Plan.”*

Production agriculture in Monterey County was valued at \$4.4 billion dollars in the 2017 Monterey County Crop Report. The total gross value for all agricultural commodities produced in Mendocino County was last evaluated to be roughly \$243 million in the 2016 Mendocino County Crop Report. If a county such as Monterey, with a significant agricultural industry, determined that there would be no impact from the implementation of their APHIS-WS IWDM program on agricultural or forest resources, then the assessment that the APHIS-WS IWDM program will create potentially significant impacts on agricultural and forest resources in Mendocino County needs to be reevaluated. Although the agricultural commodities produced, the geography and the IWDM program needs vary between Monterey and

Mendocino County, it is a challenge to think that the assessment of the APHIS-WS programs and the potential impacts to agricultural and forestry resources would be as vast as what is indicated in the two NOP/IS documents

Non-Lethal Program Alternative

The description for the determination of impacts in the agricultural and forest resources checklist for the non-lethal program alternative is vague and therefore difficult to comment on at this stage.

It is stated that the non-lethal program alternative will not include the implementation of lethal detrimental wildlife control strategies. First, the use of the word detrimental is not defended or provided further explanation and needs to be removed from this document. Second, the inability to not use any lethal practices to assist in the reduction or elimination of impacts to agricultural commodities needs to be fully analyzed for this alternative. Part of this analysis should include an economic analysis of loss due to wildlife damage to agricultural commodities from the inability to use lethal methods to resolve wildlife conflicts under the non-lethal program alternative.

Biological Resources

Discussion Item 1 and 2: Species Concerns Proposed Project

The APHIS-WS IWDM program controls nuisance and disruptive target species that result in impacts on property, agricultural commodities and human health. None of the target species are state- or federally-listed animals under the California Endangered Species Act (CESA) or the Federal Endangered Species Act (FESA). Take of non-target special-status species is avoided through implementing approved control methods and training techniques.

Non-Lethal Program Alternative

If guard animals, especially guard dogs, are included as a tool for the IWDM program in the non-lethal program alternative, then the impacts to non-target species need to be considered. To be effective, guard animals protect the livestock they are housed with from perceived harm. This perceived harm can be a threat from a target or non-target species. In the act of protecting the livestock, or out of other animal related actions (boredom, pack mentality, etc.), non-target species can be impacted from the use of guard animals. The impact to non-target species needs to be evaluated with the use of guard animals under the non-lethal program alternative.

Discussion Item 3 and 4: Oak Woodlands and Sensitive Communities Proposed Project

The APHIS-WS IWDM program does not involve tree removal, so how was it concluded that the proposed project would lead to the conversion of oak woodlands?

In relation to sensitive natural communities, the APHIS-WS IWDM program assists in the removal of target species such as feral/wild swine that can impact sensitive natural communities. In the evaluation of discussion item 4, the benefit to sensitive natural communities from actions related to the APHIS-WS IWDM program needs to be evaluated.

Discussion Item 5: section 404 Clean Water Act concerns
Proposed Project

The APHIS-WS IWDM program does not include any development or construction activities. Wildlife management activities do not include placing any fill to wetlands or other waters of the U.S., so how was it concluded that the proposed project would have a substantial adverse effect on federal or state protected wetlands?

Further analysis is needed to defend the reasons for determining that the proposed project will lead to potentially significant impacts for items 1-7 in the biological resources checklist. Items 1-7 were not discussed in any detail to explain the rationale for determining the level of impact.

Discussion item 8: Habitat Conservation Plan
Proposed Project

It is stated on page 35, that, *“In addition, MRC lands are used solely for timber harvesting, livestock or farming operations are not conducted within MRC lands; considering the absence of agricultural activities within MRC land, predator conflicts would be anticipated to be limited.”*

As mentioned in earlier comments, the timber industry is impacted by wildlife damage to commercial timber species such as that which is seen with bear damage. Farming or ranching operations may not take place on MRC lands, however the absence of agricultural activities does NOT mean an absence of potential wildlife impacts. This statement also indicates that an IWDM program is limited to predator conflicts, which is not the case (although the non-lethal program alternative item 8 description is not limited to predators, but states wildlife damage management). For these reasons, this statement should be amended.

Hazards and Hazardous Materials

Proposed Project

Discussion items 1-3: Hazardous Materials

All chemicals used by APHIS-WS are regulated by a number of governmental agencies, as well as by WS directives. These directives and regulations ensure that any potential chemical materials that are transported, used, or disposed of as a result of the program would be subject to oversight and accountability.

Page 42 of the document states, *“The IWDM program would include the use of chemical repellents as part of wildlife management within the County. Direct control would involve the use and transport of such repellents throughout the County. However, the repellents, such as Raccoon Eviction Fluid, are not considered hazardous to the environment or public health. The use, transport, and disposal of such repellents would not have the potential to create a hazard to the public or the environment (e.g., impacts to water quality) throughout the County, including in areas within one-quarter mile of a school, and could result in reasonably foreseeable releases due to accident or upset conditions. Potential hazards would be limited to non-chemical euthanasia methods such as firearms, which could create hazards if not used properly.”*

This statement is confusing. It is stated that the proposed project would use minimal hazardous chemicals of which the use, transportation and disposal of would not have potential to create a hazard to the public or the environment. The statement then goes on to say that non-chemical euthanasia methods such as firearms could create a hazard if not used properly. Then it is concluded that due to this, the proposed project would result in a potentially significant impact.

Is the use and transport of firearms being confused as a hazardous material instead of a potential hazard from improper use? Is the hazardous material the lead in the ammunition? Firearms themselves are not a hazardous material and this statement needs to be amended.

Furthermore, on page 59 within the Mandatory Findings of Significance, it is stated that, “ *Chemicals used during the control of wildlife may result in hazards to human health or degradation of the quality of the environment.* ” This is in conflict with the statement on page 42 listed above.

The use of chemicals by the APHIS-WS IWDM program in Mendocino County needs to be clarified prior to a determination of a potentially significant impact for discussion items 1-3.

Discussion Item 8: Wildland Fires

Proposed Project

It is stated on page 44 that, “ *The IWDM program could include the use of pyrotechnic scare methods, such as propane exploders that could pose a risk of causing wildfires within the County. Therefore, implementation of the proposed project could result in an increased risk of wildfires within the County, which would be considered a potentially significant impact.* ”

It is appreciated that the document is aware of the historic and heightened concern related to wildfire in Mendocino County. Have pyrotechnic scare methods been implemented by APHIS-WS in Mendocino County in recent history? Even if the tools are available to use, it does not mean that they will be used based on the target species in Mendocino County. This section needs to be amended to accurately reflect the tools that are used in Mendocino County by APHIS-WS.

Non-Lethal Program Alternative

As mentioned above, the use of pyrotechnic scare methods and its relevance to an IWDM program in Mendocino County needs to be reviewed. Electric fencing however, depending on installation methods and maintenance, can be a concern in relation to wildland fires. If electric fencing is promoted under the non-lethal program alternative, the potential wildland fire impact needs to be assessed.

Hydrology and Water Quality

Non-Lethal Program Alternative

On page 46, it is stated that, “ *Similar to the proposed project, the non-lethal program alternative would not result in any development activity that would have the potential to result in substantial changes to drainage patterns, increased stormwater runoff, the placement of structures within floodplains, or the depletion of groundwater. Installation of exclusion fencing would result in limited ground disturbance but would not substantially alter drainage patterns of an area. Consequently, the non-lethal program alternative would result in no impact. No mitigation measures are required.* ”

If permanent or temporary fencing is used as a tool in the non-lethal program alternative IWDM program, there could be impacts to drainage patterns that need to be considered. Depending on the location in relation to water courses and riparian areas, fencing can create additional impacts to drainage patterns if

they are subject to flooding conditions which can be seen in certain areas of Mendocino County. During a high water event, fences can retain debris which further hinders water flow and can lead to wash outs and erosion issues. Fences that are completely washed out end up entwined in riparian areas can lead to further impacts to drainage patterns. These potential impacts need to be considered if fencing is to be used as a recommendation for the non-lethal program alternative.

Noise

All discussion items

Proposed Project

As stated above, the relevance of the use of pyrotechnics and propane exploders in the APHIS-WS program in Mendocino County needs to be reviewed. Any sound frightening device implemented by a private landowner, would not need to be evaluated under the proposed project for noise related impacts since WS staff are only making recommendations on the use of non-lethal alternatives such as sound devices. In terms of firearm discharge for lethal methods used in the proposed project, the use of firearms would be minimal in any one location and would not be repetitive enough to create excessive or permanent increases in noise levels. This section needs to be clarified to explain how the proposed project would lead to potentially significant impacts in relation to noise for discussion items 1-5.

Non-Lethal Program Alternative

If guard dogs are funded through cost-sharing by this alternative, then the noise impacts from dog barking needs to be evaluated in this section.

Public Services

Discussion Item 1-2: Fire and Sheriff Services

Proposed Project

The use of pyrotechnics and propane exploders in the APHIS-WS program in Mendocino County needs to be reevaluated before assumptions can be made on impacts to fire and sheriff resources from the use of these tools in this section.

Also, the use of firearms under the proposed project, may lead to the occasional report to law enforcement. However, it is not anticipated that the frequency of these reports would lead to a potentially significant impact on the sheriffs office.

Further analysis is needed to defend the reasons for determining that the proposed project will lead to potentially significant impacts for items 1-2 in the public services checklist.

Non-Lethal Proposed Alternative

Depending on how this alternative, or variations of this alternative are determined in relation to the use of lethal methods, there is potential for increased need of services by law enforcement staff. Law enforcement staff could be include: the Sheriff's department, local police departments, California Highway Patrol or wardens with the California Department of Fish and Wildlife (CDFW).

Since law enforcement is trained in the proper use of firearms, if there is a need for using lethal methods for a wildlife public health issue, then there could be increased demands on law enforcement. CDWF


wardens are often called in by local law enforcement jurisdictions to assist with wildlife related reports. The potential for increased response demand by law enforcement needs to be evaluated for the non-lethal proposed alternative.

Mandatory Findings of Significance

Since this section is a cumulative review of a number of the discussion items in previous sections, the concerns and comments listed above for the other checklists are relevant to this section. Further analysis is needed to defend the reasons for determining that the proposed project will lead to potentially significant impacts for items 1-3 in the mandatory findings of significance checklist.

Mendocino County Farm Bureau and the Mendocino County Cattlemen’s Association appreciate the opportunity to provide comment on the Notice of Preparation (NOP) and Initial Study (IS) environmental impact report (EIR) for the proposed integrated wildlife damage management (IWDM) program project and requests that the comments be addressed in the draft EIR. As this EIR process moves forward, we will continue to engage and provide additional comments as necessary. If there are any questions, please feel free to contact us.

Sincerely,



Frost Pauli
President, MCFB



Jennifer Smith-Reed
President, MCCA

CC:

Mendocino County Board of Supervisors
bos@mendocinocounty.org

Mendocino County Agricultural Commissioner
Harinder Grewal
grewalh@mendocinocounty.org

County CEO Carmel Angelo
angeloc@mendocinocounty.org



**ANIMAL LEGAL
DEFENSE FUND** EST
1979

525 East Cotati Avenue
Cotati, California 94931

T 707.795.2533
F 707.795.7280

info@aldf.org
aldf.org

October 1, 2018

Ignacio Gonzalez, Interim Director
Department of Planning and Building Services
860 North Bush Street
Ukiah, CA 95482
gonzalezn@mendocinocounty.org

RE: Comments on Notice of Preparation of an Environmental Impact Report for the Proposed Integrated Wildlife Damage Management Program Project

Dear Director Gonzalez,

The Animal Legal Defense Fund (ALDF) provides the following comments on the Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the proposed Integrated Wildlife Damage Management (IWDM) Program Project (proposed project). We appreciate the County's efforts to prepare an EIR and consider a non-lethal alternative. However, the NOP suffers from several deficiencies that need to be corrected in the EIR.

Specifically, this NOP fails to acknowledge the negative environmental effects of the proposed project, while overstating its benefits; likewise, it fails to acknowledge the benefits of the non-lethal alternative, while overstating its drawbacks. It also fails to assess the benefits and drawbacks of the two programs relative to one another.

These deficiencies will need to be corrected in the EIR. According to the California Environmental Quality Act (CEQA) Guidelines, the NOP "*shall* provide . . . sufficient information describing the project and the potential environmental effects . . ." ¹ CEQA Guidelines also state that the EIR "*shall* describe a range of reasonable alternatives to the project . . . which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." ² When evaluating the alternatives, the Guidelines state that the EIR "*shall* include sufficient information about each alternative to allow meaningful

¹ Cal. Code Regs. tit. 14, § 15082(a)(1) (2018) (emphasis added).

² *Id.* § 15126.6(a) (emphasis added)

evaluation, analysis, and comparison with the proposed project.”³ Therefore, current scientific evidence regarding the environmental effects, both positive and negative, of both the proposed project and any non-lethal alternatives will need to be thoroughly discussed in the EIR.

I. The NOP Does Not Adequately Identify the Relative Effects of the Proposed Project and Non-Lethal Alternative.

A. Lethal Methods Have Negative Impacts on Wildlife Populations.

The goal of the proposed project is “to protect livestock, crops, human health and safety and property in the County from wildlife damage.”⁴ However, the effects of the proposed project on livestock, crops, human health and safety and property are not discussed in the NOP.

The NOP makes the unsubstantiated claim that coyotes, badgers, skunks, weasels, and raccoons may be killed “without restriction” because “current levels of these species can generally sustain a high level of removal without irreparable consequences.”⁵ This acknowledges that there is no credible scientific evidence to support the notion that the indiscriminate killing of predators serves any genuine interest in managing other species, whether by reducing livestock losses or predator populations.⁶ Rather, sound science shows that indiscriminate killing is ineffective and likely leads to *increases* in both predator populations and risk of depredations.

The evidence is clear: more than 100 years of coyote killing has not reduced their populations. In fact, since mass killings of coyotes began in 1850, the range of this species has tripled in the United States.⁷ In addition, since only a few, individual predators participate in depredation, indiscriminate and preemptive killing of predators can lead to the disruption of predators’ social structure and foraging ecology in ways that increases the likelihood of predations, *i.e.* by

³ *Id.* § 15126.6(d) (emphasis added).

⁴ County of Mendocino Department of Planning and Building Services, *Notice of Preparation of an Environmental Impact Report for the Proposed Integrated Wildlife Damage Management Program Project*, pp. 1 (August 31, 2018) (available at <https://www.mendocinocounty.org/home/showdocument?id=23498>).

⁵ *Id.* at Attachment 1, p. 7.

⁶ Letter from Project Coyote to Governor Deal, et al., (Mar. 2, 2017), available at http://www.projectcoyote.org/wp-content/uploads/2017/03/2017.03.02_Revised-Science-Letter_-Science-Letter_GACoyoteChallenge.pdf.

⁷ Robert Crabtree and Jennifer Sheldon, *Coyotes and Canid Coexistence in Yellowstone*, in *Carnivores in Ecosystems: The Yellowstone Experience*, ed. T. Clark et al. (New Haven [Conn.]: Yale University Press, 1999).

increasing the number of surviving pups and transient individuals that are predisposed to depredate livestock.

Indiscriminate killing of coyotes can stimulate increases in their populations by disrupting their social structure, which encourages more breeding and migration, and ultimately results in more coyotes.⁸ While widespread killing may temporarily reduce coyote numbers in a given area, coyote populations recover quickly, even when up to 70 percent of their numbers are removed.⁹ It is impossible to completely eradicate coyotes from an area.¹⁰ New coyotes will quickly replace vacant territorial niches where coyotes have been removed. Coyote pairs hold territories, which leaves single coyotes ("floaters") continually looking for new places to call home.¹¹ When they are not lethally targeted by humans, unexploited coyotes and certain other predator populations self-regulate their numbers by means of dominant individuals defending non-overlapping territories and suppressing breeding by subordinate pack members.

The proposed program also fails to recognize and protect predators' valuable contribution to the health and vitality of our ecosystems. Coyotes, for example, are an integral part of healthy ecosystems, providing a number of free, natural ecological services.¹² They help to control disease transmission by keeping rodent populations in check, curtailing hantavirus, a rodent-borne illness that can sicken and kill humans. In addition, coyotes clean up carrion, increase biodiversity, remove sick animals from the gene pool, disperse seeds, and foster soil fertility. Coyotes balance their ecosystems and have trophic cascade effects such as indirectly protecting ground-nesting birds from smaller carnivores and increasing the biological diversity of plant and wildlife communities.¹³

⁸ F. F. Knowlton, E. M. Gese, and M. M. Jaeger, Coyote Depredation Control: An Interface between Biology and Management, *Journal of Range Management* 52, no. 5 (1999); Robert Crabtree and Jennifer Sheldon, Coyotes and Canid Coexistence in Yellowstone, in *Carnivores in Ecosystems: The Yellowstone Experience*, ed. T. Clark et al. (New Haven [Conn.]: Yale University Press, 1999); J. M. Goodrich and S. W. Buskirk, Control of Abundant Native Vertebrates for Conservation of Endangered Species, *Conservation Biology* 9, no. 6 (1995).

⁹ Connolly, G.E. 1978. Predator control and coyote populations: a review of simulation models. Pages 327-345 in M. Bekoff, ed. *Coyotes: biology, behavior, and management*. Academic Press, New York, N.Y.

¹⁰ Washington Department of Fish and Wildlife, *Living with Wildlife*, <http://wdfw.wa.gov/living/coyotes.html>.

¹¹ Gehrt, S.D. 2004. Chicago coyotes part II. *Wildlife Control Technologies* 11(4):20-21, 38-9, 42.

¹² Fox, C.H. and C.M. Papouchis. 2005. Coyotes in Our Midst: Coexisting with an Adaptable and Resilient Carnivore. Animal Protection Institute, Sacramento, California. (provided concurrently herewith).

¹³ S. E. Henke and F. C. Bryant, "Effects of Coyote Removal on the Faunal Community in Western Texas," *Journal of Wildlife Management* 63, no. 4 (1999); K. R. Crooks and M. E.

In sum, the wholesale destruction of predators and other animals, like in the proposed project, harms California's wildlife resources and ecosystems both directly, indirectly, and cumulatively. The proposed project reduces biodiversity, decreases habitat, and increases the number of "pest" species, thereby degrading the value of California's environment and natural resources. The NOP fails to account for any of these drawbacks when describing the proposed project.

B. Lethal Methods Have Negative Impacts on Individual Animals.

In addition to being ecologically destructive, Wildlife Services' methods are cruel and pose a danger to both people and other animals. Devices such as "Conibear" traps, leghold traps, and snares often result in injury, pain, suffering or death of target and non-target animals—including companion animals, livestock, and threatened and endangered wildlife. Nationwide, these traps and other similarly non-selective lethal control devices have unintentionally killed many pets, vertebrates of 150 species,¹⁴ and thousands of mammals of at least 20 different taxa that are listed as threatened or endangered federally or in certain states.¹⁵ Some of the animals the agency has mistakenly killed are members of species that have been the subjects of costly conservation efforts (e.g. gray wolves, wolverines, river otters, swift and kit foxes, and bald and golden eagles). Since 2000, Wildlife Services has killed more than 50,000 members of over 150 non-target species, including birds of prey (e.g., red-tailed hawk, great horned owl), armadillos, pronghorns, porcupines, long-tailed weasels, javelinas, marmots, snapping turtles, turkey vultures, great blue herons, ruddy ducks, sandhill cranes, and ringtail cats. The NOP fails to recognize these drawbacks when describing the proposed project.

Further, each of these methods causes horrible injuries and prolonged agony to animals, which are compounded by the animals' violent struggles to escape. Animals often remain trapped for days without food or water. Wildlife Services' traps, which are often carelessly placed and left unmonitored, have also permanently injured hikers. Traps have also snared and caught companion animals, many of whom have been killed or seriously injured. Such incidents have occurred not only in wilderness or rural areas, but often in populated suburban

Soule, "Mesopredator Release and Avifaunal Extinctions in a Fragmented System," *Nature* 400, no. 6744 (1999); E. T. Mezquida, S. J. Slater, and C. W. Benkman, "Sage-Grouse and Indirect Interactions: Potential Implications of Coyote Control on Sage-Grouse Populations," *Condor* 108, no. 4 (2006); N. M. Waser et al., "Coyotes, Deer, and Wildflowers: Diverse Evidence Points to a Trophic Cascade," *Naturwissenschaften* 101, no. 5 (2014).

¹⁴ Knudson, T. The killing agency: Wildlife Services' brutal methods leave a trail of animal death—wildlife investigation. *The Sacramento Bee*, April 29, 2012.

¹⁵ Bergstrom, B.J., L.C. Arias, A.D. Davidson, A.W. Ferguson, L.A. Randa, and S.R. Sheffield. 2014. License to kill: reforming federal wildlife control to restore biodiversity and ecosystem function. *Conservation Letters* 7: 131-142.

landscapes. The proposed project also mentions the use of glue boards.¹⁶ Though this method is buried in the “quick-kill’ traps” paragraph, glue boards do not instantly kill their victims. Instead, the animals are left to suffer for several days until they die of starvation, dehydration, suffocation, heart attack, or self-mutilation.¹⁷ Like the other proposed lethal methods, glue traps are extremely indiscriminate, brutal, and inhumane. The NOP also fails to recognize these drawbacks when describing the proposed project.

C. Lethal Methods Are Ineffective Relative to Non-Lethal Methods.

The NOP fails to cite to any scientific evidence suggesting that lethal predator control is effective in protecting livestock, crops, human health and safety or property—yet repeatedly claims that the non-lethal alternative will be ineffective by comparison. The NOP also fails to give due regard to evidence that demonstrates prevention is the best method for minimizing conflicts with predators such as coyotes.¹⁸ In fact, non-lethal methods have proven more effective than the methods employed by Wildlife Services.¹⁹ Some ranchers have seen losses due to predation drop by over sixty percent.²⁰ Eliminating access to easy food sources, such as bird seed and garbage, supervising dogs while outside, and keeping cats indoors reduces conflicts with wildlife. Practicing good animal husbandry and using strategic nonlethal predator control methods to protect livestock (such as electric fences, guard animals, and removing dead livestock) are more effective than lethal control

¹⁶ County of Mendocino, *NOP*, Attachment 1, p. 15.

¹⁷ See Alison Hermance, *Never Use Glue Traps*, WildCare (March 7, 2018), <https://www.discoverwildcare.org/never-use-glue-traps/>; Catseye, *Facts About Mouse Glue Traps*, <https://www.catseyepest.com/blog/facts-about-mouse-glue-traps> (last visited Sept. 28, 2018).

¹⁸ Fox, C.H. and C.M. Papouchis, *Coyotes in Our Midst: Coexisting with an Adaptable and Resilient Carnivore*, Animal Protection Institute, Sacramento, California (2005).

¹⁹ Fox, C.H., *Analysis of The Marin County Strategic Plan for Protection of Livestock & Wildlife: An Alternative to Traditional Predator Control*, Master’s Thesis: Prescott College, Prescott, Arizona. p. 112 (2008).

²⁰ Fox, C.H., *Analysis of The Marin County Strategic Plan for Protection of Livestock & Wildlife: An Alternative to Traditional Predator Control*, Master’s Thesis: Prescott College, Prescott, Arizona. p. 112 (2008); Fox, C. H. *Coyotes and Humans: Can We Coexist?*, R.M. Timm and J. H. O’Brien (eds.), Proceedings, 22nd Vertebrate Pest Conference. Publ. Univ. Calif.-Davis, pp. 287-293 (2006); Fimrite, P., *Ranchers Shift From Traps to Dogs to Coyotes*, SAN FRANCISCO CHRONICLE, p. 1 (April 27, 2012) (available at <http://www.sfgate.com/science/article/Ranchers-shift-from-traps-to-dogs-to->).

in addressing coyote-human conflicts.²¹ Yet the NOP fails to discuss the scientifically proven effectiveness of the non-lethal alternative.²²

D. Lethal Methods Are Not Cost Effective Relative to Non-Lethal Methods.

ALDF further reminds the County that the non-lethal alternative is a more cost effective means of wildlife management. The economics of spending County funds to kill a large number of beneficial predatory species rather than using those tax dollars to introduce effective alternative methods of controlling harm to livestock do not bear out. Indeed, Wildlife Services' actions actually harm, rather than protect, the County's valuable natural resources and environment. The NOP fails to recognize the relative cost effectiveness of the non-lethal alternative compared to the proposed project.

E. Lethal and Non-Lethal Methods Have Different Environmental Impacts.

Though the NOP recognizes that "the potential environmental effects of each method would vary,"²³ it designates the proposed project, the non-lethal alternative, and the variation of the non-lethal alternative as having the same environmental impact categorizations.²⁴ This is inaccurate, and again fails to account for the different environmental impacts of the different projects.

For example, Section F.III.5. in the NOP discusses the creation of objectionable odors. In this Section, the NOP fails to address that there would be the creation of objectionable odors from the animal carcasses in the proposed project, but not in the non-lethal alternative. Similarly, Section F.XII. overlooks the fact that the proposed project would generate noise from shooting animals whereas the non-lethal alternative would not.

²¹ Adrian Treves et al., "Forecasting Environmental Hazards and the Application of Risk Maps to Predator Attacks on Livestock," *BioScience* 61, no. 6 (2011); Philip J. Baker et al., "Terrestrial Carnivores and Human Food Production: Impact and Management," *Mammal Review* 38, (2008); A. Treves and K. U. Karanth, "Human-Carnivore Conflict and Perspectives on Carnivore Management Worldwide," *Conservation Biology* 17, no. 6 (2003); J. A. Shivik, A. Treves, and P. Callahan, "Nonlethal Techniques for Managing Predation: Primary and Secondary Repellents," *Conservation Biology* 17, no. 6 (2003); N. J. Lance et al., "Biological, Technical, and Social Aspects of Applying Electrified Fladry for Livestock Protection from Wolves (*Canis Lupus*)," *Wildlife Research* 37, no. 8 (2010); Andrea Morehouse and Mark Boyce, "From Venison to Beef: Seasonal Changes in Wolf Diet Composition in a Livestock Grazing Environment," *Frontiers in Ecology and the Environment* 9, no. 8 (2011).

²² County of Mendocino, *NOP*, Attachment 1, p. 16-21.

²³ *Id.* at p. 23.

²⁴ *Id.* at 24-60.

II. Exceptions for Public Health and Safety Must Be Clearly Defined and Narrowly Applied.

The NOP is also deficient because it does not clearly define the public health and safety exception under the variation of the non-lethal program alternative. Under the variation of the non-lethal program alternative section, the NOP states that the exception is:

limited to instances when public health and safety is in danger. This can be generally defined as animal attacks on humans that result in injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs.²⁵

However, under the proposed project section, it states that human health and safety concerns:

include, but are not limited to: animal attacks on humans that result in injuries or death; disease threats from rabies and plague outbreaks where predators act as reservoirs; odor and noise nuisances from skunks and raccoons under houses; and airstrike hazards from coyotes or other predators crossing runways at airports or airbases.²⁶

The County must apply a clear and consistent exception for the proposed project and the non-lethal program alternative(s) in the EIR.

For clarification, WS Directive 2.120, *National Wildlife Disease Surveillance and Emergency Response Program* (Oct. 7, 2005), states that the mission of the program is to “provide Federal leadership in managing wildlife disease threats to agricultural, human health and safety, and natural resources by assisting . . . with management of zoonotic and other wildlife diseases of concern.”²⁷ The County’s definition of the public health and safety exception should conform to this national standard; the exception should not be used as a tool to remedy nuisances or conflicts with companion animals since there are preexisting remedies in tort and property law for that purpose. The exception must also be clearly defined and limited.

²⁵ *Id.* at 22.

²⁶ *Id.* at 8.

²⁷ U.S. Department of Agriculture Animal and Plant Health Inspection Service. WS Directive 2.120, *National Wildlife Disease Surveillance and Emergency Response Program*. October 7, 2005.

Further, since this is a variation of the non-lethal program alternative which merely includes a “very limited exception[],”²⁸ the County must make explicit that indiscriminate lethal methods and cruel killing methods are not permitted even under the public health and safety exception. The County must also ensure a process by which individual animals responsible for damage are accurately identified and verified before being targeted under this exception.

* * *

In conclusion, we appreciate the opportunity to provide comments and urge you to consider these comments and the scientific evidence when preparing the EIR. Please contact us with any questions or concerns.

Sincerely,



Alexandra Monson, Legal Fellow
Cristina Stella, Staff Attorney
Animal Legal Defense Fund
525 E. Cotati Ave.
Cotati, CA 94931

²⁸ *Id.* at 22.



John Bailey
Interim Director
Hopland Research and Extension Center
4070 University Road
Hopland, CA 95449
707.744.1424 x 112
jtbailey@ucanr.edu

October 1, 2018

Ignacio Gonzalez
Interim Director
County of Mendocino
Department of Planning and Building
860 North Bush Street
Ukiah, CA 95482
707.234.6650
gonzalez@mendocinocounty.org

Dear Mr. Gonzalez,

We are writing to comment on the Notice of Preparation (NOP) for an Environmental Impact Report (EIR) for the proposed Integrated Wildlife Damage Management (IWDM) Program Project.

Here at the University of California Hopland Research and Extension Center (HREC), which covers 5,358 acres in the Mayacamas Range east of Hopland, we have a large flock of sheep that suffers from predation from a range of predators, primarily coyotes but occasionally in the past mountain lions and bears. In maintaining our flock size and health, we have worked with Wildlife Services over a span of more than two decades. We have found them to be professional and efficient, and able to address wildlife challenges that even our well-trained staff here were not able to solve. We have not found them to dramatically impact our wildlife populations, which are, even after multiple decades of work with Wildlife Services, according to UC Berkeley wildlife researchers, on par with Yellowstone or African game parks.

Our comments consist of these points below.

1. Wildlife Services personnel have been willing and able to work with us on an integrated approach, including as a first measure non-lethal predator controls, and achieve success where we would, if left to our own efforts, have been likely to resort to lethal methods. At times their guidance has lead us to pursue a less lethal approach to wildlife issues.
 - a. Please include in the scope of this EIR an examination of the historical effectiveness and efficiency of Wildlife Services vs. that of a non-lethal consultant.
 - b. Also include an examination of how often Wildlife Services enacts non-lethal versus lethal methods.
2. By limiting the IWDM Program to only non-lethal methods, there will be, based on conversations we have had with private operators and the experiences of UC Cooperative Extension advisors in other counties, the unintended consequence of private parties resorting to their own lethal methods. Instead of having well trained professionals from Wildlife Services deploying a range of options, you will likely see private parties carrying out lethal controls in an unsupervised, untrained manner.
 - a. Include in the scope of this EIR an examination of the impacts, under the non-lethal option, of members of the public taking lethal measures into their own hands without the experience or conservation values

of Wildlife Services. For example, projections should be done regarding the potential increase in use of poisons, traps, and firearms by unsanctioned, untrained individuals in response to wildlife conflicts.

3. Livestock Protection Dogs (LPD) are not a non-lethal method. These dogs regularly kill wildlife.
 - a. The scope of this EIR should include an analysis of potential wildlife losses and house pet losses due to increased LPD activity as projected under the non-lethal scenario.
4. The Non-Lethal Program Alternative “may provide cost-sharing to private parties” (p 24 of NOP) for fencing or to purchase and sustain guard animals. In contrast to Wildlife Services, who are open to help anyone who contacts them for assistance, this cost-sharing would allocate public funds for a private use that would then be tied to that private property (ie. the fence or dog would be owned by one particular party). This increases the chances of public funds benefitting a select group of private individuals rather than the broader group that Wildlife Services benefits.
 - a. Include an analysis of the use and likely concentration of public funds in a few private hands. For example, how many guard dog purchases and miles of fence construction are likely. How many individuals can be effectively serviced in this method versus having Wildlife Services working?
5. Some of the figures listed around non-lethal methods appear to be either overstated or oversimplified, or the research is out of date. For example, the “estimated 44-95 percent” reduction in lamb losses linked to light/siren combinations on pages 19 and 27 of the NOP is from 1992. Since that time the research and technology has changed significantly, and we have found that the effectiveness of these light/siren combinations varies dramatically and only works well sometimes, and even then in combination with other factors (pasture size, time of year, terrain...)
 - a. In the EIR the research cited should be updated to reflect current knowledge and the details around effective deployment of a given technique, as well as limitations, should be considered.

Please consider these comments as you move forward with your EIR. We feel them to be of importance. If you have questions or would like more detailed comments, please feel free to contact me at the phone or email listed above.

Thank you,



John Bailey
Interim Director

James Lewers
Senior Animal Technician



Alison Smith
Principle Agricultural Technician





CALIFORNIA FARM BUREAU FEDERATION

OFFICE OF THE GENERAL COUNSEL

2300 RIVER PLAZA DRIVE, SACRAMENTO, CA 95833-3293 · PHONE (916) 561-5665 · FAX (916) 561-5691

Via Email

gonzalezn@mendocinocounty.org

October 1, 2018

Ignacio Gonzalez, Interim Director
Mendocino County Planning and Building Services
860 North Bush Street
Ukiah, CA 95482

Re: Comments on the Notice of Preparation of an Environmental Impact Report for the Proposed Integrated Wildlife Damage Management Program Project

Dear Mr. Gonzalez:

The California Farm Bureau Federation (“Farm Bureau”) is a non-governmental, non-profit, voluntary membership California corporation whose purpose is to protect and promote agricultural interests throughout the state of California and to find solutions to the problems of the farm, the farm home, and the rural community. Farm Bureau is California’s largest farm organization, comprised of 53 county Farm Bureaus currently representing approximately 40,000 agricultural, associate, and collegiate members in 56 counties. Farm Bureau strives to protect and improve the ability of farmers and ranchers engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of California’s resources.

Farm Bureau appreciates the opportunity to provide California Environmental Quality Act (“CEQA”) comments on the Notice of Preparation of an Environmental Impact Report (“EIR”) for the Proposed Integrated Wildlife Damage Management Program Project in Mendocino County (“Proposed Project”). Farm Bureau supports the Proposed Project and offers the following comments regarding the scope and content of the environmental analysis and environmental documentation for the forthcoming EIR. Farm Bureau also incorporates by reference comments submitted by Mendocino County Farm Bureau on September 28, 2018.

Summary of the Proposed Project

Since the early 1900’s, the United States Department of Agriculture Animal and Plant Health Inspection Service—Wildlife Services (APHIS-WS) Program has operated in a majority of California counties performing a variety of wildlife damage management activities that protect human health and safety, public resources and property, and the livestock and ranching industries by addressing human/wildlife conflicts. APHIS-WS uses an Integrated Wildlife Damage Management approach that employs a variety of methods, non-lethal and in some cases lethal, to manage wildlife conflicts or damage. APHIS-WS deals with diseased animals posing a threat to human health and safety, urban environment

(personal and public) property damage, wild animals threatening humans, and individual animals in a local population that have become habituated to the killing of livestock and pets. Technical assistance and education (techniques to reduce the attraction of predatory or problem animals) are provided to resource owners requesting the services in an attempt to enable them to resolve problems on their own in a non-lethal manner.

As evidenced in the 2010 figures from USDA, California's cattle and sheep producers lost \$5.5 million worth of livestock to predators. An assessment of the economic impact of bird and rodent damage to 22 crops in 10 California counties completed by APHIS-WS in 2009 estimated crop damage of up to \$504 million annually. APHIS-WS helps to reduce these losses by working with farmers and ranchers to implement measures to prevent damage, remove problem wildlife, and protect human health, safety, public resources, and property. Given these figures, not only is the Proposed Project important for the agricultural and livestock industry, it is also important to protect human health and safety, public resources, and property in Mendocino County

Proper Environmental Setting and Baseline¹

When reviewing the Proposed Project, as well as project alternatives such as the Non-Lethal Alternative, a proper baseline and environmental setting must be used.² Specifically, the EIR must include a description of the physical environmental conditions at the time the Notice of Preparation ("NOP") is published or, if no NOP, when environmental analysis is commenced.³ A proper baseline and environmental setting is important since it is the time and conditions used as the point of comparison for determining the significance of a proposed project's environmental effects. Here, the Proposed Project continues the APHIS-WS Program in which a variety of methods will be utilized to manage wildlife conflicts or damage. In other words, the current baseline is the existence of an Integrated Wildlife Damage Management Program which protects human health and safety, public resources and property, and the livestock and ranching industries by addressing human/wildlife conflicts through the use of non-lethal and lethal methods. In contrast, the Non-Lethal Alternative proposes to use only non-lethal methods. Thus, the resulting impacts from the Non-Lethal Alternative, as well as other alternatives such as a non-project alternative, on the agricultural, livestock, and forestry environments need to be compared to the current baseline, which employs both lethal and non-lethal methods.

Agricultural Resources Must Be Considered During Environmental Review

Agricultural resources, which include forestry and livestock resources, are important

¹ Environmental review under CEQA focuses on potential impacts of the project on the "environment," which is broadly defined to include the agricultural environment. "'Environment' means the physical conditions which exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved shall be the area in which significant effects would occur either directly or indirectly as a result of the project. The 'environment' includes both natural and man-made conditions." (Cal. Code Regs., tit. 14, § 15360 ("CEQA Guidelines"); see also Pub. Resources Code, § 21060.5.) .

² Cal. Code Regs., tit. 14, § 15360 § 15125(a).

³ *Ibid.*

features of the existing environment of the state, and are protected under federal policies, such as the Farmland Protection Policy Act and National Environmental Policy Act (“NEPA”), state policies, and CEQA. In order to preserve agriculture and ensure a healthy farming industry, the Legislature has declared that “a sound natural resource base of soils, water, and air” must be sustained, conserved, and maintained.⁴ Prior to negatively impacting agricultural lands, decision makers must consider the impacts to the agricultural industry, the state as a whole, and “the residents of this state, each of whom is directly and indirectly affected by California agriculture.”⁵

CEQA requires analysis of significant environmental impacts and irreversible changes resulting from proposed projects.⁶ These include unavoidable impacts; direct, indirect, and cumulative effects; irreversible and irretrievable commitment of resources; relationships between short-term uses and long-term productivity; and growth-inducing impacts to the environment. Pursuant to CEQA, the physical environment includes agricultural lands and resources. Given the national and statewide importance of agriculture and the legal requirements of environmental review, a proper assessment of all direct, indirect, and cumulative effects on the agricultural environment resulting from all project alternatives must be conducted.^{7, 8}

1. Proper Analysis of Impacts to Agricultural Lands

The EIR should properly analyze all potential impacts to agricultural resources, such as land use conversion due to either land going out of production or farmers having to seek other uses for their land if not able to continue lands in agricultural production due to predation losses and the lack of available lethal and non-lethal protection methods if the Proposed Project is not adopted. If lands are taken out of agricultural production becoming available for other uses, this could impact the environment in many instances. The EIR should analyze this potential land conversion pressure fully and determine if significant environmental impacts could occur if the Proposed Program is not approved. Conversion of agricultural lands to other uses can cause numerous impacts, such as dewatering of land, impacts to surface and groundwater, paving over of prime agricultural lands, increased development, installation of permanent structures, and loss of vegetative buffers and habitat.

⁴ Food & Agr. Code, § 802(g).

⁵ Food & Agr. Code, § 803.

⁶ Pursuant to CEQA, “[s]ignificant effect on the environment” means, “a substantial, or potentially substantial, adverse change in the environment.” (Pub. Resources Code, § 21068.) The CEQA Guidelines make it clear the “environment” in question encompasses, “any physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise and objects of historic or aesthetic significance.” (Pub. Resources Code, § 21060.5.)

⁷ Any and all adverse environmental effects on agricultural resources resulting from the project, as well as cumulative impacts that will occur over time, must be fully assessed and disclosed under CEQA, as well as avoided or mitigated as required by CEQA.

⁸ Of particular relevance for such analysis of impacts on the agricultural environment is CEQA Guidelines Appendix G, section II, Agriculture and Forestry Resources. Cal. Code Regs., tit. 14, § 15000 et seq. (“CEQA Guidelines, Appendix G).

2. All Impacts to Agricultural Resources Must be Fully Mitigated

All feasible mitigation measures that are analyzed in the environmental review documents need to address the impacts to agricultural resources, must be fully described, and must mitigate for the impacts.

3. Social and Economic Impacts Must be Analyzed Under CEQA

Although impacts that are solely economic in nature do not constitute “significant effects on the environment,” economic or social impacts that will or have the potential to cause a physical change should be considered.⁹ The term “significant effect on the environment” is defined in section 21068 of CEQA as meaning “a substantial or potentially substantial adverse change in the environment.”¹⁰ This focus on physical changes is further reinforced by sections 21100 and 21151.¹¹ Despite the implication of these sections, CEQA does not focus exclusively on physical changes, and it is not exclusively physical in concern.¹² Thus, in certain situations such as the adoption of a program that only allows non-lethal measures, economic and social effects of the project must be used to determine the significant effects on the environment.¹³ In order to give the public a proper scope of potential and cumulative impacts, the EIR should, in the very least, analyze the dollar value of the agricultural landowners’ or operators’ cost associated with predation risks due to the inability to use lethal methods if the Non-Lethal Alternative is adopted.

Conclusion

Farm Bureau appreciates the opportunity to provide comments on the Notice of Preparation of an Environmental Impact Report for the Proposed Integrated Wildlife Damage Management Program Project in Mendocino County. Farm Bureau supports the Proposed Project and looks forward to further involvement and discussion with the County of Mendocino on the development of the Project.

Sincerely,



Kari E. Fisher
Senior Counsel

KEF/pkh

⁹ Cal. Code Regs., tit. 14, §§ 15064(e), 15131.

¹⁰ Pub. Resources Code, § 21068.

¹¹ Discussion following Cal. Code Regs., tit. 14, § 15131.

¹² *Ibid.*

¹³ *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal. App. 3d 151, 170, [“The lead agency shall consider the secondary or indirect environmental consequences of economic and social changes. . . . economic or social change may be used to determine that a physical change shall be regarded as a significant effect of the environment. Where a physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project. Alternatively, economic and social effects of a physical change may be used to determine that the physical change is a significant effect on the environment.”].

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



October 1, 2018

Mr. Ignacio Gonzalez
Interim Director
County of Mendocino
Department of Planning and Building Services
860 North Bush Street
Ukiah, California 95482

Sent via email (gonzalezn@mendocinocounty.org)

SUBJECT: Comments regarding the scope and content of the draft EIR for the proposed Integrated Wildlife Damage Management Program Project for Mendocino County

Dear Interim Director Gonzalez,

On behalf of Project Coyote, the Animal Welfare Institute, and the Mountain Lion Foundation, please accept these comments on the Notice of Preparation of an Environmental Impact Report (EIR) for the Proposed Integrated Wildlife Damage Management (IWDM) Program Project. We expect Mendocino County (County) to give the issues we have outlined in these comments careful consideration and to rely on peer-reviewed literature, gold-standard experimental design, and consultation with outside governmental and non-governmental organizations and individuals in preparing the draft EIR (DEIR).

I. Mendocino County's duties under the law

In preparing the DEIR, we urge Mendocino County to follow the requirements enumerated in the California Endangered Species Act (CESA), Fish and Game Code § 2050 et seq., and the public trust duty held by the State of California and its political subdivisions.

A. Mendocino County's duties under CESA

The California Legislature has declared that: “[I]t is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat.”¹ “Central to CESA is its prohibition on the taking of an endangered or threatened species.”² Section 2080 of the Fish and Game Code states: “[n]o person shall . . . take, possess, purchase, or sell within this state, any species, or any part or product thereof, that . . . [is] determin[ed] to be an endangered species or a threatened species.” To “take” means to hunt, pursue, catch, capture or kill or attempt to hunt, pursue, catch, capture, or kill.³ “Person” has been found to include state agencies.⁴ In reaching this

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



conclusion, the Court found that “interpreting section 2080 to exclude state agencies would lead to the unreasonable result that major actors, whose operations result in the taking of endangered and threatened species, would be exempt from the general take prohibition.”⁵ The Court also noted “the general rule that ‘[l]aws providing for the conservation of natural resources’ such as . . . CESA ‘are of great remedial and public importance and thus should be construed liberally.’”⁶ The prohibition against take applies to wildlife located on public as well as private land.⁷

As explained by the Supreme Court of California:

CESA allows the [Department of Fish and Wildlife] to authorize a “take” that is incidental to an otherwise lawful activity if certain conditions are met. . . . At the heart of CESA is the obligation to mitigate such takes. The impacts of the authorized take shall be minimized and fully mitigated. The measures required to meet this obligation shall be roughly proportional in extent to the impact of the authorized taking on the species. Where various measures are available to meet this obligation, the measures required shall maintain the applicant’s objectives to the greatest extent possible. All required measures shall be capable of successful implementation. For purposes of this section only, impacts of taking include all impacts on the species that result from any act that would cause the proposed taking.⁸

Take of a listed species may occur pursuant to an incidental take permit (ITP) issued by the California Department of Fish and Wildlife (CDFW). No permit may be issued if it would jeopardize the continued existence of the species.⁹ In order to obtain a permit, applicants must submit an application to CDFW that addresses, among other topics: (1) an analysis of whether and to what extent the project or activity for which the permit is sought could result in the taking of species to be covered by the permit; (2) an analysis of the impacts of the proposed taking on the species; (3) an analysis of whether issuance of the incidental take permit would jeopardize the continued existence of a species; (4) a complete, responsive jeopardy analysis that shall include consideration of the species’ capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of known population trends, known threats to the species; and reasonably foreseeable impacts on the species from other related projects and activities; (5) proposed measures to

minimize and fully mitigate the impacts of the proposed taking; (6) a proposed plan to monitor compliance with the minimization and mitigation measures and the effectiveness of the measures; and (7) a description of the funding sources and the level of funding available for implementation of the minimization and mitigation measures.

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



Under CESA, the County is required to obtain an ITP prior to engaging in activities that would result in the incidental take of CESA listed species.

B. Mendocino County's duties under the Public Trust Doctrine

The California public trust doctrine obligates Mendocino County to regulate the State's wildlife assets in a manner that benefits all citizens of the County and State.¹⁰ The State of California and its political subdivisions have a legal duty to actively manage natural assets, including wildlife, in a manner that benefits all Californians. This duty is derived from a long common law tradition requiring each state to protect and preserve the natural assets shared by its citizens.¹¹

Common law principles reaching back to antiquity place a duty on the State, as a sovereign representative of the people, to hold common assets in trust for its citizens. This trust duty requires the State to preserve natural assets and to protect its citizens' interests in those assets by safeguarding against their exploitation for private gain at the expense of the public good. These principles, known as the "public trust doctrine," arose to protect the public's access to tidelands and navigable waters, especially for use in navigation, commerce, and fishing. Over time, California courts have recognized additional trust duties beyond such waters and uses. California case law recognizes that the doctrine expresses a state's intrinsic responsibility to protect the public's interest in shared natural assets, including wildlife. California courts have made this determination directly, citing the important shared asset provided by wildlife.¹² California courts have also made this determination implicitly through the recognition that the proper allocation of California water assets must consider the ecological impact of usage because aquatic assets are inextricably tied to wildlife.¹³ California law treats wildlife as an important natural asset that provides significant public benefits and requires judicially enforced governmental protections ensuring wise use.

Pursuant to the California public trust doctrine, government actors like Mendocino County are charged with fulfilling state trust duties. In fulfilling those duties, the government must consider the ecological impacts on wildlife assets before authorizing government activities affecting natural assets and strike an appropriate balance between protecting wildlife and competing demands. Implicit in this duty is the mandate that state actors must retain oversight of management of natural assets, rather than relinquishing control of such management to non-state or private parties.¹⁴

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



II. The DEIR should consider a range of wildlife damage control programs that would prioritize the use of non-lethal measures.

CEQA requires that the EIR “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives.”¹⁵

A. Program alternatives the DEIR should consider

We urge the County to evaluate the following three program alternatives at an equal level to the proposed IWDM project:

➤ **Alternative Project 1:**

Mendocino County would not renew its agreement with USDA Wildlife Services (“Wildlife Services”). The program would not use or recommend lethal control methods. The County would contract with an outside governmental or non-governmental agency (or agencies) to provide personnel who would give technical information and operational assistance on non-lethal management methods to reduce/eliminate human-wildlife conflicts. The program could involve a cost-share program with property owners for reimbursement of non-lethal control programs.

➤ **Alternative Project 2:**

Mendocino County would renew its agreement with USDA Wildlife Services but require Wildlife Services to use only non-lethal control measures. This is similar to an alternative included in the Initial Study but USDA Wildlife Services would provide the advice, guidance, and technical support for the development and implementation of non-lethal wildlife management control measures, not another government agency or non-governmental organization.

➤ **Alternative Project 3:**

Mendocino County would renew its agreement with USDA Wildlife Services. The County would require Wildlife Services to use and exhaust all reasonable non-lethal control measures before resorting to the use of lethal control in

the very limited exception for instances where public health and safety is in danger. The only lethal measure that would be permitted would be the use of firearms from the ground.¹ No other lethal control measure, including, but not

¹ “From the ground” could include lethal control efforts with firearms from elevated platforms but should not include any form of aerial gunning.

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



limited to, trapping, poisoning, or aerial gunning, would be permitted. We commend the County for explicitly stating that aerial gunning would not be part of the proposed IWDM alternative (Initial Study at 43) but note that it has not made this commitment regarding the proposed variation of its non-lethal alternative that would permit the use of lethal control measures to address threats to public health and safety. The same prohibition on the use of aerial gunning should be applied to all alternatives given the significant animal welfare concerns associated with this practice.

Before lethal methods can be considered, the County should mandate that all feasible non-lethal management tools are used, such methods are documented, relevant results are measured, and these results are reported.

The exception for “instances where public health and safety is in danger” must be clearly defined. We recommend that the exception only be applied in situations to be identified through the decision-making process. We encourage the County to engage in a separate consultation process with interested stakeholders to help define under what public health and safety circumstances lethal control would be warranted. Instances discussed on page 8 of the Initial Study under “Wildlife Damage Management to Protect Human Health and Safety” involving odor and noise nuisances, harassment of pets, wildlife eating pet food, and wildlife posing disease threats to pets will not be covered under this exception.

B. Full and fair evaluation of alternatives

We urge the County to conduct an objective, full and fair evaluation of the IWDM program and the project alternatives. Alternatives that could avoid or substantially lessen any significant effects of the project must be considered “even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.”¹⁶

Based on our reading of the Initial Study, we are concerned that the County has made a pre-determination in favor of the IWDM Program by failing to objectively

disclose all relevant factors, including economic impacts, associated with the analysis. To address our concerns of bias, we urge that the DEIR:

- Objectively analyzes the performance, effectiveness, costs, and benefits of both lethal and non-lethal methods of wildlife damage management

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



- Includes information from a broad range of governmental and non-governmental agencies, organizations and individuals on lethal and non-lethal methods of control. USDA Wildlife Services and organizations historically in favor of lethal methods should not be the sole or primary source of information regarding lethal or non-lethal methods. We have provided a list of consultants as an attachment to this letter.
- Provides data to support the claim on page 12 of the Initial Study that “[p]reference is given to non-lethal methods when practical and effective.”

III. The EIR should use peer-reviewed literature, studies with gold-standard experimental design, and information from outside consultants

A 2018 study in PLOS Biology found, after synthesizing four independent reviews spanning forty years of scientific research on lethal and non-lethal methods for preventing predation on livestock, that “scarce quantitative comparisons of interventions and scarce comparisons against experimental controls preclude strong inference about the effectiveness of methods.”¹⁷ This “lack of scientific synthesis and consensus about functional effectiveness has allowed more subjective factors to dominate decision-making about predator control and likely wasted time and money on interventions that do not optimally protect livestock.”¹⁸

A. The EIR should prioritize the peer-reviewed literature using gold-standard experimental design

Following recommendations of van Eeden et al. 2018, Eklund et al. 2017, and Treves et al. 2016, peer-reviewed literature should address the performance and effectiveness of animal damage management methods including lethal methods and baseline preventative husbandry techniques supplemented with deterrents. The EIR should prioritize gold-standard experimental design for evaluating the effectiveness of methods for protecting livestock from predators.¹⁹ Gold standard studies are achieved through “random assignment to control and treatment groups without bias (systematic error) in sampling, treatment, measurement, or reporting.”²⁰ Eklund et al. 2017 notes over 20,000 papers on human-wildlife conflict, over 500 involving

some sort of test of effectiveness of methods. Of those 500, only about 21 included some form of experimental control.²¹ Treves et al. 2016, using more exacting standards (silver and gold without bias), found only 12 studies from North America and Europe.²² One of the 12 was eventually removed by subsequent analyses. Therefore, the evaluation of effectiveness has been done by independent scientists through the year 2017 and need not be repeated, only supplemented.

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



Following recommendations of van Eeden et al. 2018, Eklund et al. 2017, and Treves et al. 2016, we suggest starting the process of ranking a list of methods to protect livestock with the most rigorously tested methods of prevention, before recommending less exacting methods, and subjecting all evidence to the highest standards of scientific scrutiny. For example: (a) begin with published meta-analyses in Eklund et al. 2017²³ and Treves et al. 2016²⁴; (b) exclude studies in Eklund et al. 2017 that were rejected for bias by Treves et al. 2016 and Santiago-Avila et al. 2018;²⁵ (c) deploy standards described by Treves et al. 2016 to examine more recent studies of non-lethal livestock protection, using Eklund et al.'s search strategy. We note that several recent studies involve property protection unrelated to livestock; those would need to be reexamined from the perspective of predation upon livestock.

Following recommendations of van Eeden et al. 2018, and Treves et al. 2016, the EIR should not recommend any method for preventing predation on livestock that has not been evaluated experimentally with the gold standard design (randomized, controlled experiment without bias in sampling, treatment, measurement, or reporting) and subjected to peer review in the scientific literature.

When faced with two or more apparently equally effective methods for protecting livestock, the EIR should rank the methods based on the number of gold-standard tests of each, the similarity of the situations in which each was tested to the biophysical conditions to which they might be applied by the EIR, and the ease with which the method can be monitored and evaluated once implemented in those conditions. When a method has been shown to be risky (it may elevate livestock losses) or ineffective, it should not be recommended. If it is used anyway, then a procedure for evaluating its effect throughout implementation would be essential, using the highest possible standards of inference from Treves et al. 2016.

B. The County should consult with outside experts and organizations when conducting the DEIR

Mendocino County must consult with outside governmental and non-governmental agencies and experts when conducting the DEIR, solicit relevant and applicable information from them, and fully evaluate that information for potential inclusion in the DEIR. USDA Wildlife Services and organizations historically in favor of lethal methods should not be the sole or primary source of information regarding lethal or non-lethal methods. Minimally, we recommend soliciting input from the consultants from the list provided as an attachment to this letter.

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



IV. Other issues the DEIR should address

Using peer-reviewed literature and studies that use credible, gold-standard experimental design, and in consultation with a broad range of outside agencies, organizations and individuals, the DEIR must evaluate or address the following items:

A. The DEIR should clarify the following items regarding the IWDM Program and the Project Alternatives

- It is unclear in the Initial Study whether the DEIR will consider the Variation to the Non-Lethal Program Alternative separately from the Non-Lethal Program Alternative in determining whether the project would have a “significant impact.” We recommend that it does.
- Regarding the Variation of the Non-Lethal Program Alternative, the DEIR should clarify when the lethal control exception will apply. As noted above, the DEIR should explicitly define “instances when public health and safety is in danger” and provide specific examples which should be developed in consultation with interested stakeholders and experts. Instances discussed on page 8 of the Initial Study under “Wildlife Damage Management to Protect Human Health and Safety” involving odor and noise nuisances, harassment of pets, wildlife eating pet food, and wildlife posing disease threats to pets will not be covered under this exception.
- Regarding the Variation of the Non-Lethal Program Alternative, the DEIR should identify which agency or agencies could perform the lethal control measures.
- Regarding the IWDM Program and other lethal project alternatives (including the Variation of the Non-Lethal Program Alternative), the DEIR should clarify which lethal methods may be employed under these projects and for what species. We recommend that the only lethal measure that would be permitted would be the use of firearms from the ground.² No other lethal control measure, including trapping/snaring, poisoning, or aerial gunning, would be permitted. The DEIR must evaluate impacts of all control methods on target and non-target species and must include a comprehensive evaluation of the effects of each method on pain and suffering to individual animals as well as selectivity.

² “From the ground” could include lethal control efforts with firearms from elevated platforms but should not include any form of aerial gunning.

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



- The DEIR should clarify whether the County / USDA Wildlife Services will use aerial gunning, gas cartridges, chemical immobilizing, chemical euthanizing, and pesticides in the Variation of the Non-Lethal Program Alternative. We commend the County for excluding these methods in the IWDM Program and encourage the County to also exclude them in the Variation of the Non-Lethal Program Alternative.
- Regarding the IWDM Program and other lethal project alternatives (including the Variation of the Non-Lethal Program Alternative), the DEIR should clarify whether the County will eliminate the use of certain lethal methods (e.g. snares) that are unacceptably inhumane, potentially indiscriminate, ineffective or damaging beyond those already mentioned in the Initial Study (i.e. aerial gunning, gas cartridges, chemical immobilizing, chemical euthanizing, and pesticides).
- Regarding the IWDM Program and other lethal project alternatives (including the Variation of the Non-Lethal Program Alternative), the DEIR should clarify the County's expectations for how often lethal methods will be used, taking into consideration data regarding how often lethal methods have been used to protect agriculture, human health and safety, property, and natural assets in the County under the past IWDM Program.
- Regarding the Non-Lethal Program Alternative, the DEIR should identify which governmental or non-governmental agencies it will consider entering into contract with to provide technical information and operational assistance on non-lethal management methods.
- Regarding the Non-Lethal Program Alternative, the DEIR should identify whether other non-lethal methods beyond those employed in the IWDM Program will be considered. The DEIR should thoroughly evaluate all non-lethal methods, including those not mentioned in the Initial Study (e.g., Foxlights, EShepherd collars, Critter Gitters, fladry (including electrified fladry), range riders, flerds (cattle and sheep grazing together as a unit), and carcass management).
- The Initial Study claims on page 12 that "[p]reference is given to non-lethal methods when practical and effective" under the IWDM Program. The DEIR should clarify this claim and provide data to support that this has been the practice of USDA Wildlife Services during its past work in the County.
- The DEIR should clarify when the County/USDA Wildlife Services will provide funds and direct control assistance for lethal and non-lethal methods

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



versus when they will not provide funds and will only provide technical assistance when recommending/implementing these methods.

B. The DEIR should evaluate the role of apex predators and mesopredators in maintaining ecosystem function, ecological integrity, and biodiversity.

A growing number of scientific studies published in peer-reviewed literature demonstrate the importance of predators and mesopredators to the ecosystems they inhabit and the ecological consequences of manipulating predator populations to ecosystem health and function. Apex predators like coyotes, bears and mountain lions—*i.e.*, predators at the top of a food chain in a given area—create a “trophic cascade” of beneficial effects that flow through and sustain ecosystems and the web of life. For example, wolves in Yellowstone and Grand Teton National Parks have been found to benefit a host of species including aspen, songbirds, beavers, bison, fish, pronghorn, foxes, and grizzly bears.²⁶

Coyotes provide a range of ecological benefits including limiting mesocarnivore populations and increasing bird diversity and abundance;²⁷ keeping rodent and rabbit populations in check (which keeps urban areas clean, controls wildlife that compete with grazing animals for food, and protects against crop loss and damage);²⁸ controlling disease transmission by controlling rodents;²⁹ and clearing communities of dead carcasses.

C. The DEIR should evaluate the following items related to lethal control measures:

- An evaluation of the efficacy, performance, costs and benefits of lethal methods of control employed by Wildlife Services in the IWDM program and other lethal methods that may be used in the IWDM and the Variation of the Non-Lethal Program Alternative.
- An evaluation of the short and long-term effects of lethal control on targeted species—especially predators including but not limited to coyotes, mountain lions and black bears.
- An evaluation of biological selectivity and animal welfare concerns related to lethal control methods. The Initial Study suggests on pages 10 and 16 that Wildlife Services uses methods that take into consideration biological selectivity and animal welfare concerns. The Initial Study states that Wildlife Services uses leg snares, collarum snares, Conibear traps, and glue boards. Peer-reviewed science shows that these devices are not always selective or humane. Birds, mammals, pets, and endangered species may be caught in

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



these traps. We urge the EIR to consider peer-reviewed literature to evaluate all lethal methods mentioned in the Initial Study and other lethal methods that may be used in Mendocino County.

- An evaluation of the potential short and long-term effects of lethal control on non-targeted species (including humans, pets, livestock, and endangered and threatened species), their habitats and the nearby environment. The evaluation should include statistics concerning the number and type of federally-listed endangered and threatened species taken, harmed, or harassed by USDA Wildlife Services in the County each year.

D. The DEIR must evaluate the following items related to non-lethal control measures

- Non-lethal models of wildlife damage management currently employed in rural areas, including:
 - Marin Livestock and Wildlife Protection Program, Lava Lake Land and Livestock, and the Benton County (OR) Agriculture and Wildlife Protection Program.³
 - Non-lethal work being done by USDA Wildlife Services, in collaboration with agricultural producers and conservation organizations, to reduce human-predator conflicts in California and other states.
- Short and long-term effects of non-lethal control on targeted species, especially predators (including coyotes, mountain lions, and black bears).
- Short and long-term effects of non-lethal control on non-targeted species (including humans, pets, livestock, and endangered and threatened species), their habitats and the nearby environment.
- The efficacy of non-lethal methods of control including:

³ Other jurisdictions, including Benton County, Oregon, are experimenting with cost-share programs that emulate Marin Livestock and Wildlife Protection Program but are tailoring their program to meet their needs. We urge Mendocino County to review all non-lethal programs used in other jurisdictions and to consider a program that will work best for the County, taking into consideration input from local experts and others listed in the consultant document provided in the attachment.

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



- Livestock guardian animals (dogs, donkeys, llamas); fencing; animal husbandry (night and seasonal enclosures, timing of breeding, altering herd composition, herding/vigilance); animal behavior modification—frightening devices (sounds, lights, pursuit or other methods to disperse animals, propane exploders, pyrotechnics), electronic distress sounds, chemical repellants; modification of human behavior; habitat management; cage traps and immobilization; and adaptive management
 - Other non-lethal methods not mentioned in the Initial Study, including foxlights, e-shepherd collars, fladry (including electrified fladry), range riders, fherds (cattle and sheep grazing together to form a herd), and carcass management
- E. The DEIR should consider whether there is a need for lethal control methods at all, taking into consideration the frequency and severity of wildlife damage problems, animal welfare concerns, and the benefits predators provide to ecosystem function and health in rural and urban settings. To do this, the DEIR should include:
- Determination of how often human behavior (including hunting of predators and intentional or unintentional feeding of wildlife) has led to conflicts between wildlife and humans, livestock, pets, property, and natural assets in Mendocino County, and whether such problems could be avoided in the future using non-lethal methods.
 - Data related to how often wildlife damage problems occur in the County including data related to livestock depredations, wildlife attacks on humans, wildlife attacks on pets, wildlife-related spread of disease, odor and nuisance complaints, airstrike incidents, urban wildlife issues, property destruction issues, and natural assets destruction.
- F. The DEIR should disclose what wildlife damage control methods are efficacious, biologically selective, and socially appropriate and explain how those determinations are made.

The Initial Study (at page 10) notes that wildlife damage control methods “should be ... efficacious, biologically selective, and socially appropriate.” While those standards should be the minimum satisfied to justify the use of wildlife damage control methods, it is not clear what methods, particularly lethal methods, meet those standards and how such determinations are made. The County must elaborate on this issue in its DEIR by disclosing what methods,

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



including those that have been used in the past for wildlife damage management in the County, satisfy those standards, provide the data or other evidence to demonstrate how each method meets these standards, and explain what methodology is used to make such determinations. Absent such evidence, including data demonstrating that such methods are “socially appropriate,” the methods should not be considered for use for wildlife damage management in the County.

- G. The DEIR must evaluate the feasibility of Wildlife Services providing materials (such as fencing and fladry) and resources directly to private resource owners for use by and for the benefit of private resource owners, as the agency has now done in numerous states, including North Dakota, Montana, Wyoming, Idaho, Oregon, and California.⁴
- H. The DEIR should explain why the Initial Study appears to preclude local oversight and authority of wildlife damage management.

Pages 11-12 and 23-24 of the Initial Study indicate that the County will relinquish control over aspects of the IWDM to USDA Wildlife Services. For example, page 12 states: “Although the County would provide funding for the services, County staff would not be involved in the decision-making regarding which methods should or should not be used.” This deprives the public of effective opportunities to challenge dangerous, unconscionable and/or socially unacceptable control practices that would be in place if the County maintained direct control over wildlife management (i.e. access to decisionmakers and the opportunity for regulatory ballot measures).

Because human-wildlife conflicts are contextual and site-specific, the DEIR should consider addressing these conflicts at a local level with input from local stakeholders.

⁴ Monterey County, California, recently completed a similar EIR regarding its agreement with Wildlife Services to conduct predator control in that county. As part of that process, a Draft EIR (“DEIR”) was published in August 2017. (Please see <http://www.co.monterey.ca.us/government/departments-a-h/agricultural-commissioner#ag>.) The DEIR states that “the current federal [Wildlife Services] program does not allow for federal funds to be used in a cost-share program to provide materials (e.g., fencing or fladry) or resources (guard animals) directly to resource owners for use by and for the benefit of private resource owners.” (See pp. 2.0-8; 5.0-17.) That is inaccurate. In recent years, Wildlife Services has begun working with conservation organizations and agricultural producers in numerous western states to share the costs of installing and maintaining electric fencing and fladry to reduce conflicts with carnivores. The Mendocino County EIR should consider the feasibility of Wildlife Services doing so in Mendocino County as well.

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



- I. The DEIR must identify key procedures that will be incorporated into the proposed wildlife damage control program, including:
- Methods for unambiguous verification of the circumstances and likely cause of livestock depredation incidents and the methodology used for such assessments. When depredation is verified, identify and disclose the methods used for identifying probable culprits of damage, rather than indiscriminately identify predators as the cause and using such a determination to justify lethal control actions.
 - A process to accurately verify wildlife damage, track damage, and identify species causing the damage.
 - A transparent process for monitoring and documenting the short and long-term effects and efficacy of the program on targeted and non-targeted species, their habitats, and the nearby environment.
 - A process for continually analyzing the effects of the program. For example, the frequency with which the County will evaluate outcomes of the program selected through this decision-making process.
 - An adaptive management process for determining when and under what circumstances it would prepare a supplemental or new EIR in support of more effective conflict management methods.

Conclusion

We are grateful that Mendocino County is preparing a DEIR for the Proposed Integrated Wildlife Damage Management Program Project. We hope the County will consider a range of alternative projects that prioritize non-lethal control methods. We urge the County to give the issues outlined in this letter careful, full, and fair consideration using peer-reviewed literature and credible, gold-standard experimental design, and to do so in consultation with outside governmental and non-governmental organizations, experts, and other interested stakeholders.

Sincerely,

A handwritten signature in black ink, appearing to read "Camilla H. Fox".

Camilla H. Fox
Founder & Executive Director
Project Coyote

A handwritten signature in black ink, appearing to read "David Parsons".

David Parsons
Wildlife Biologist
Project Coyote Science Advisory Board Member

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



Donald Lipmanson
Attorney at Law
Of Counsel to Project Coyote

DJ Schubert
Wildlife Biologist
Animal Welfare Institute

And on behalf of:

Lynn Cullens
Executive Director
Mountain Lion Foundation

PROJECT COYOTE

F O S T E R I N G C O E X I S T E N C E



- ¹ Fish & Game Code § 2052.
- ² *Envtl. Prot. & Info. Ctr. (EPIC) v. CA Dept. of Forestry & Fire Prot.*, 44 Cal. 4th 459, 507 (2008) (citing Fish & Game Code § 2080).
- ³ Fish & Game Code § 86.
- ⁴ *Watershed Enforcers v. Dep't of Water Res.*, 185 Cal. App. 4th 969, 975, 988 (2010).
- ⁵ *Id.* at 983.
- ⁶ *Id.* at 979 (citations omitted).
- ⁷ See Fish & Game Code § 2080.
- ⁸ EPIC, 44 Cal. 4th at 507 (citing Fish & Game Code § 2081(b); Cal. Code Regs. tit. 14, § 783 et seq.).
- ⁹ Fish & Game Code § 2081(c).
- ¹⁰ See *Nat'l Audubon Soc'y v. Superior Court*, 33 Cal.3d 419 (1983); *Ctr. for Biological Diversity, Inc. v. FPL Grp., Inc.*, 166 Cal. App. 4th 1349, 1361-63 (2008); Cal. Fish & Game Code § 1801(b).
- ¹¹ See *Nat'l Audubon Soc'y*, 33 Cal.3d at 441; *Ctr. for Biological Diversity, Inc.*, 166 Cal. App. 4th at 1360-1363.
- ¹² See *Ctr. for Biological Diversity, Inc.*, 166 Cal. App. 4th at 1360-1363.
- ¹³ See *Nat'l Audubon Soc'y*, 33 Cal.3d at 419.
- ¹⁴ See *Ill. Cent. R.R. Co. v. Illinois*, 146 U.S. 387 (1892).
- ¹⁵ California Environmental Quality Act (CEQA), Pub. Res. Code § 15126.6.
- ¹⁶ *Id.*
- ¹⁷ L. van Eeden et al., [Carnivore conservation needs evidence-based livestock protection](#), PLOS Biology, Sept. 2018: at 1.
- ¹⁸ *Id.* at 2.
- ¹⁹ *Id.* at 3-6; Eklund et al. [Limited evidence on the effectiveness of interventions to reduce livestock predation by large carnivores](#), Scientific Reports 2907, May 2017 at 7; A. Treves, M. Krofel, J. McManus, [Predator control should not be a shot in the dark \("Predator Control"\)](#), Frontiers in Ecology and the Environment, 2016 at 380-88.
- ²⁰ A. Treves et al., at 380.
- ²¹ A. Eklund et al., at 2.
- ²² A. Treves et al., at 380.
- ²³ A. Eklund et al., *id.*
- ²⁴ A. Treves et al., *id.*
- ²⁵ F. J. Santiago-Avila, A. M. Cornman, A. Treves, [Killing wolves to prevent predation on livestock may protect one farm but harm neighbors](#), PLOS One, Jan. 2018.
- ²⁶ W.J. Ripple et al., [Trophic cascades from wolves to grizzly bears in Yellowstone](#), J. Anim. Ecol., Jan. 2014; W.J. Ripple et al., [Can restoring wolves aid in lynx recovery?](#), 35 Wildlife Soc'y Bulletin 514 (Dec. 2011); W.J. Ripple et al. [Trophic Cascades in Yellowstone. The First 15 Years After Wolf Reintroduction](#), 145 Biological Conservation 205 (Jan. 2012).
- ²⁷ K.R. Crooks & M.E. Soulé, [Mesopredator release and avifaunal extinctions in a fragmented system](#), Nature, Aug. 1999, at 563-66.
- ²⁸ J. M. Fedriani, T.K. Fuller, & R.M. Sauvajot, [Does Anthropogenic Food Enhance Densities of Omnivorous Mammals? An Example with Coyotes in Southern California](#), 24 Ecography 325 (June 2009).
- ²⁹ A. Watts, V.M. Lukasik, S.M. Alexander, and M.J. Fortin, [Urbanization, grassland, and diet influence coyote \(*Canis latrans*\) parasitism structure](#), EcoHealth, Dec. 2015, at 645-59.

Mendocino County- list of experts/contacts recommended by Plaintiffs for consultants drafting EIR (provided by Camilla Fox, Project Coyote)

Jeanine Pfeiffer, PhD

Ethnoecologist
Lecturer
San Jose State University
Humanities and Environmental Studies Departments
<http://www.sjsu.edu/people/jeanine.pfeiffer/>
<http://jeaninepfeiffer.com>
Email: jeanine.pfeiffer@sjsu.edu
Phone: 707-9697490

Expertise: Jeanine Pfeiffer is an ethnoecologist focusing on biocultural diversity: the connections between nature and culture. After working in over thirty countries, she settled in Mendocino County, where she serves as a scientific advisor for local government, tribes, and community-based agencies, and teaches environmental science classes for San José State University.

Dr. Pfeiffer's students at San José State University researched the cultural significance of predatory species considered to be problematic within Mendocino by USDA Wildlife Services. At consultant's request, Dr. Pfeiffer would provide a copy of that report and could connect them with tribal leaders and hunter and recreational fishing groups within Mendocino County.

Kim Rodrigues, PhD and RPF 2326

Former Director- Hopland Research and Extension Center
Emeritus Forest Advisor, UCCE
kimrodriguesphd@gmail.com
916-761-7683

Kimberly pursued her Ph.D. in Environmental Science and Management, at UC Berkeley, under the guidance of Dr. Lynn Huntsinger, integrating participatory research methods supportive of adaptive management goals. Career goals include an academic administrative assignment that includes the potential to apply her environmental science experiences to large and diverse landscapes, directly working with a participatory science approach. Becoming a Director for one of UC ANR's Research and Extension Centers is a perfect culmination for her experiences, skills and interests. Kim has a demonstrated record as a collaborative team leader and outstanding administrator, a recognized resource professional and an excellent trainer and presenter.

Expertise: Can share the research and management data during her tenure at the Hopland Research and Extension Center including testing of various non-lethal predator deterrents including Foxlights, guard dogs and e-collars, as well as other management tools, such as fencing and pasture rotation, human presence, etc.

Traci Pellar

Founder, Mendocino Wildlife Association
707-357-5693
tpellar@gmail.com

Expertise: Mendocino Wildlife Association offers a 24 hour hotline service (707-984-6363) and help trouble shoot wildlife issues such as, but not limited to; raccoons in the attic, bats in my siding, foxes under my deck, bears on my porch, orphaned or injured wildlife. We work with Ronnie and Ellie from Woodlands Wildlife, Bird Rescue, Native Song Bird Rescue, Sonoma Wildlife, Fawn Rescue and Humboldt Bird AllyX. Additional offerings:

*Fawn Rescue- under the license of Sonoma Fawn Rescue Mendocino Wildlife Association has their own fawn rescue in Willits.

*Education - Mendocino Wildlife Association holds a Living with Wildlife first Responders training at least once a year.

*Mendocino Wildlife Association has worked with Hopland Extension Center to network with local ranchers about the use of non-lethal options.

Website www.mendowildlife.com

Tom Wheeler

Executive Director and Staff Attorney
Environmental Protection Information Center
145 G Street Suite A
Arcata, CA 95521
Office: (707) 822-7711
Cell: (206) 356-8689
tom@wildcalifornia.org
www.wildcalifornia.org

Expertise:
Endangered Species Act
Imperiled species throughout Northern California

Adrian Treves, PhD

Professor

Nelson Institute for Environmental Studies

University of Wisconsin–Madison

30A Science Hall

550 North Park Street, Madison, WI 53706, USA

+1-608-890-1450 • atreves@wisc.edu • [Carnivore Coexistence Lab website](#)

Expertise:

Gold-standard experimental design for evaluating the effectiveness of methods for protecting livestock from predators

Public trust doctrine and recent legal precedents

Human dimensions of predator management

Animal ethics for government managers of wildlife

Fladry, Critter-Gitters, Foxlights®

Lethal control

New relevant findings

1. Light device shows evidence of effectiveness in randomized experiment to protect camelids from pumas

Human-caused mortality is the major threat to terrestrial carnivore populations and undermines ecosystem health globally. Reducing conflicts between people and predators with non-lethal methods can preserve nature and protect human needs. The scarcity of rigorous evidence for the effectiveness of methods to prevent predation on domestic animals presents a major obstacle to science-based policy. Here, we report a randomized cross-over experimental test of the functional effectiveness of a non-lethal method to protect livestock from predation. To our knowledge, this is the first randomized experiment conducted on pumas in Latin America using light deterrents (Foxlights®). We found that Foxlights® deterred pumas but not Andean foxes from preying on alpaca and llamas in the Andean Plateau of Chile. Many experts assume that rigorous experiments are infeasible because livestock owners will not accept the placebo control or wild ecosystems are too complex to overcome confounding variables. Here we provide evidence to reject both assumptions. Strong inference is needed for wildlife policy, lest biodiversity, livestock, and their owners all be ill-served. **In press, *Frontiers in Ecology and the Environment* by Omar Ohrens, Cristian Bonacic, Adrian Treves**

2. **Carnivore conservation needs evidence-based livestock protection**

Carnivore predation on livestock often leads people to retaliate. Persecution by humans has contributed strongly to global endangerment of carnivores. Preventing livestock losses would help to achieve three goals common to many human societies: preserve nature, protect animal welfare, and safeguard human livelihoods. Between 2016 and 2018, four independent reviews evaluated >40 years of research on lethal and non-lethal interventions for reducing predation on livestock. From 114 studies, we find a striking conclusion: scarce quantitative comparisons of interventions and scarce comparisons against experimental controls preclude strong inference about the effectiveness of methods. For wise investment of public resources in protecting livestock and carnivores, evidence of effectiveness should be a prerequisite to policy-making or large-scale funding of any method, or at a minimum, measured during implementation. An appropriate evidence base is needed, and we recommend a coalition of scientists and managers be formed to establish and encourage use of consistent standards in future experimental evaluation. **In press, *PLOS Biology* by Lily Van Eeden...and 19 other authors... Adrian Treves.**

Randy and Pam Comeleo

Helped develop the non-lethal [The Benton County Agriculture and Wildlife Protection Program](#)
541-754-4491
rottyler@peak.org

More info.: <https://www.co.benton.or.us/awpp>

Randy and Pam helped develop the [The Benton County Agriculture and Wildlife Protection Program](#) and organized Benton County's Farming with Wildlife Workshop:

https://www.co.benton.or.us/sites/default/files/fileattachments/agriculture_amp_wildlife_protection_program/page/5383/farming-with-wildlife-workshop-program.pdf

Pilot program awards \$35K to farm operations using non-lethal wildlife deterrents to protect livestock and crops

<https://www.co.benton.or.us/boc/page/pilot-program-awards-35k-farm-operations-using-non-lethal-wildlife-deterrents-protect>

Mr. Comeleo is author of the article "Using Coyotes to Protect Livestock: Wait. What?" in the Oregon Small Farm News:

<http://smallfarms.oregonstate.edu/sites/default/files/newsletter-covers/sfnspring2018.pdf>

Stacy K. Carlsen

Marin County Agricultural Commissioner
Agriculture, Weights and Measures - Marin County
Agriculture • Weights & Measures
1682 Novato Blvd. Suite 150-A
Novato, CA 94947
Phone: (415) 473-6700

Developed the Marin County Livestock & Wildlife Protection Program:

More info. about program:

<http://www.projectcoyote.org/wp-content/uploads/2015/03/PC-Marin-County-Livestock.pdf>

http://www.projectcoyote.org/wp-content/uploads/2015/02/SFGate_Ranchers_Shift_From_Traps-web.pdf

Additional info. on non-lethal methods/models:

http://www.projectcoyote.org/programs/ranching_with_wildlife/nonlethal-solutions-reduce-conflicts/

http://www.projectcoyote.org/wp-content/uploads/2016/01/Capital-Ag-Press_Foxlights.pdf

http://www.projectcoyote.org/wp-content/uploads/2016/01/WesternLivestockJournal_Wielgus_Study.pdf

http://www.projectcoyote.org/programs/ranching_with_wildlife/ranching-wildlife-2016-workshop/

Donald Lipmanson, Esq.

101 Morris Street, Ste. 213

Sebastopol, CA 95472

707-391-7624

dlipman@mcn.org

Education:

M.A. in Politics, Princeton U. 1970

J.D. John F. Kennedy University School of Law, 1995

Expertise:

- 23 years practicing law; six years (2000-2006) service as Mendocino County's 5th District planning commissioner; five years hosting local community radio station KZYX's weekly Environment Show; author of ABA Animal Law Section Spring 2017 newsletter article entitled "Sword and Shield: Lawsuits and Civic Action Furthering Coexistence with Wildlife."
- Having lived in a rural Mendocino County subdivision near both forests and vineyards for 25+ years, he is familiar with 1) differing social values of among local socio-economic subpopulations, 2) conflicts between the needs of agricultural operations and those of nearby rural residences, 3) the public's concern for or indifference to local environmental issues, and 4) finding common ground to help reconcile basic disagreements issues as emotionally charged as wildlife damage/management/protection.



United States Department of Agriculture

Animal and
Plant Health
Inspection
Service

3419A Arden
Way
Sacramento,
CA 95825

October 5, 2018

Ignacio Gonzalez, Interim Director
County of Mendocino
Department of Planning and Building Services
860 North Bush Street
Ukiah, CA 95482

Dear Mr. Gonzalez,

The United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services California office (WS-CA) has reviewed Mendocino County's final Initial Study and Notice of Preparation of an Environmental Impact Report (EIR) for the Proposed Integrated Wildlife Damage Management Program Project. The documents were made publicly available on August 31, 2018.

Wildlife Services California has found inaccuracies in the description of the WS-CA integrated wildlife damage management (IWDM) actions taking place in Mendocino County. WS-CA acknowledges that the National Environmental Policy Act and the California Environmental Quality Act may have different definitions of significance. We are providing the attached comments to assist the County with improving the accuracy of the description of the proposed action in order to better inform your environmental analysis and conclusions. WS-CA is looking forward to providing additional information on any elements the County may need to support the preparation of the EIR.

Should you have any questions, please do not hesitate to contact either myself or Mark Ono, Assistant State Director, at (916) 979-2675.

Respectfully submitted,

Dennis Orthmeyer
State Director, California

Attachment: USDA-APHIS-Wildlife Services comments to Mendocino County's Initial Study and NOP 10/05/18

USDA-APHIS-Wildlife Services comments to Mendocino County's Initial Study and NOP
10/5/2018

Comment #	Location in Document	Quotation	Comment
1	Reoccurring	APHIS-WS / WS / USDA-WS / USDA	Multiple abbreviations are being used for same agency in an inconsistent fashion. Please use WS-CA.
2	Reoccurring	Propane cannons/pyrotechnics	These methods have not been used in Mendocino in the past 10 years of the program. While WS believes they have applications and would like to include them among proposed IWDM methods, we don't think they should have been as heavily emphasized in the IS. The EIR should reflect this rarity of use.
3	Reoccurring	Predator vs. Wildlife	WS-CA operates a broad array of activities in Mendocino County that addresses all wildlife conflict, not just predators. The EIR should focus on all wildlife work, not just the issues surrounding predators.
4	Notice, page 3, paragraph 1	The proposed project is approval of the IWDM Program to protect livestock, crops, human health & safety and property in the County from wildlife damage.	This description is incomplete as it excludes poultry, apiary, timber, orchards, vineyards, and natural resources. Please ensure the EIR includes protection of all resources that could be protected by the proposed action.
5	Notice, page 3, paragraph 5	Technical assistance data maintained by APHIS-WS through the MIS for one year would also be used to help develop the work plan and budget for the subsequent year throughout the remaining term of the CSA.	MIS acronym used without definition. MIS is WS-CA's acronym for our Management Information System database.
6	IS page 2, paragraph 2	In 1986, Animal Damage Control was transferred into USDA-Animal and Plant Health Inspection Service (APHIS), which oversees predator management programs in 36 of the state's 58 counties.	WS-CA currently has programs in 35 California counties. WS-CA is not a land or resource management agency and does not manage predator (or other wildlife) populations. WS-CA does assist resource owners with the management of wildlife that are causing damage.
7	IS page 2, paragraph 3	At the County level, the Mendocino County Agricultural Commissioner's office facilitates the contractual agreements for these services and assists landowners in contacting the Specialists for the control of problem animals.	WS-CA does not consider any wildlife "problem animals." WS-CA carry out activities that provide people with information, advice, and operational assistance to resolve human-wildlife conflict by utilizing the integrated wildlife damage management approach.
8	IS page 4 & 5, figure 2 & Table 1		Tribal lands should not be combined with federal category. Each tribe can make sovereign decisions about wildlife conflict management and as such these areas should not be combined with lands managed by federal agencies.
9	IS page 7, paragraph 4	In the North District, CDFW has management authority and responsibility for resident wildlife including furbearers, game species and nongame mammals that cause damage, including: badger, bobcat, coyote, gray fox, red fox, black-tailed jackrabbit, muskrat, Virginia opossum, desert cotton-tail rabbit, raccoon, striped skunk, western spotted skunk, and California ground squirrel.	The North District is a part of the WS-CA program, but the term is not defined or necessary here. This information is true for all of California including Mendocino County. The species list included here is not a full list of wildlife that have been reported to cause damage in Mendocino or wildlife for which CDFW has authority over. Bear, beaver, and mountain lion should be added to this list.
10	IS page 7, paragraph 4 & 5	Bobcats may only be taken under permit issued by CDFW either for human health and safety or agricultural and property protection. . . . Feral swine, deer, beaver, elk, bobcat, turkeys, mountain lion, black bear and gray squirrel are managed by CDFW pursuant to Fish and Game Code sections requiring CDFW to issue a permit to authorize the removal of individual animals that damage specified resources.	The need for a depredation permit when taking bobcats is stated twice. Secondly, depredation permits are not issued for protection of human health and safety.
11	IS page 7, paragraph 5	Current state policies enable lethal removal of wild pigs by sport hunters and property owners threatened with property damage.	This statement is not unique to feral swine. Deer, beaver, elk, turkey, black bear, and gray squirrel may also be lethally taken recreationally or under a depredation permit. It may be possible that this statement was meant to highlight the CDFW "encounter rule", but this section does not involve recreational take. Feral swine causing or threatening to cause property damage may be taken immediately upon encounter by the landowner without a depredation permit pursuant to FGC 4181.1.
12	IS page 7, multiple locations	Furbearer	The term furbearer is used without definition. Refer to California Fish and Game Code 4000 for the legal definition.

13	IS page 7, paragraph 6	Coyotes, badgers, skunks, weasels and raccoons may be taken year-round with no restriction and furbearers can be taken at any time if they are found destroying livestock or poultry.	This action is not solely or primarily authorized for the protection of livestock and poultry. These species may be taken in protection of all property.
14	IS page 7, paragraph 6	This is allowed because current population levels of these species can generally sustain a high level of removal without irreparable consequences.	The CDFW has the authority over this type of take. State take regulations should be referenced here.
15	IS page 8, paragraph 6	The IWDM Program would provide for responses to these complaints, as well as to requests from land and homeowners to alleviate property damage from coyotes, raccoons, skunks and badgers including, but not limited to: damage to golf courses, parks, schools and residential and commercial properties, as well as, odor problems and disease threats from burrowing raccoons, skunks, opossums, ground squirrels and badgers; and damage to irrigation systems from coyotes biting holes in pipes.	Most of the animals listed do not burrow or cause odor issues. WS-CA considers disease carried by wildlife under dwellings as a disease threat to human health and safety not a property threat. Common wildlife damage of property examples from Mendocino County include damage to roofing or wiring of buildings, attacks on pets, destruction of irrigation systems, and consumption or destruction to landscaping, turf or nursery plants.
16	IS page 8, paragraph 8	Wildlife Damage Management for the Protection of Natural Resources	Not listed as a resource in summary of project "protection of livestock, crops, health and human safety, and property." See also comment #1. The EIR should be clear about the resources that will be protected by this project.
17	IS page 8, paragraph 8	Natural resource protection in Mendocino County can include protecting sensitive species or other natural resources from mammal damage. This has been associated with managing damage from muskrats when they burrow into stream banks and undermine the integrity of the banks, causing erosion, sedimentation, collapse of the bank and damage to riparian areas. APHIS-WS may also assist cooperators with requests to protect other natural resources from mammal damage.	Conflicts with muskrats have never been reported in Mendocino County; therefore, they have never been lethally taken. However, WS-CA has taken muskrats in other counties.
18	IS page 9, paragraph 1	The proposed project is approval of the IWDM Program to protect livestock, crops, human health and safety and property in the County from wildlife damage.	See Comments #1 & 17.
19	IS page 10, paragraph 1	APHIS-WS is authorized by law to manage a program to reduce human/wildlife conflicts, and this environmental analysis will evaluate the ways by which the IWDM Program will authorize APHIS-WS to carry out its authority in Mendocino County.	This paragraph appears to state that Mendocino County shall authorize WS-CA based on the analysis. The IWDM program is a federal action carried out by WS-CA under federal authority. Mendocino County will use this analysis to choose what type of wildlife damage management program to operate/fund, but the County's decision has no bearing on the authority of a federal agency.
20	IS page 10, paragraph 4 □	TWS WDM Policy Statement	This statement was updated in 2016 and includes new language. The updated reference can be found at: http://wildlife.org/wp-content/uploads/2016/04/SP_WildlifeDamage.pdf
21	Page 13, bullets 2 & 3	* Develop and implement wildlife damage management actions for the protection of agricultural resources, public health and safety, and property. * Develop and implement wildlife damage management methods and actions targeting invasive species (e.g., wild pigs) that may damage or threaten property, livestock, crops, and/or public safety.	Reoccurring scope issue. See above comments #1, 17, 19.
22	Page 13, bullet 5	* Collect samples for wildlife diseases that may affect agriculture and public safety.	WS-CA also conducts disease surveillance for wildlife diseases that affect property (i.e. pets and horses) and natural resources (other wildlife.)
23	Page 13, paragraph 5	Lethal Methods	Generally, WS-CA list nonlethal actions first as this is how to WS-CA staff in the field choose to implement these actions. WS-CA staff typically use nonlethal alternatives first when they are practical and effective.
24	Page 13, paragraph 5	The lethal control of animals by APHIS-WS is authorized under APHIS-WS Directive 2.505.	WS Directives are policies that instruct staff. They are not authorities.

25	Page 14, paragraph 1	Captured wildlife may be euthanized using a handgun or rifle.	WS-CA adhere to state and federal regulations and American Veterinary Medical Association (AVMA) standards when selecting appropriate methods for euthanasia whenever practicable. In free-ranging wildlife, the AVMA recommends methods "be as age-, species-, or taxonomic/class-specific as possible." WS-CA personnel will use methods appropriate for the species and conditions. (WS Directive 2.505)
26	Page 14, paragraph 2	Cage and Corral Traps	These are incorrectly listed in the "Lethal Methods" section. These are live capture methods that do not produce a lethal result. <input type="checkbox"/>
27	Page 14, paragraph 4	Snares - Also, most snares incorporate a breakaway feature to release non-target wildlife and livestock.	It is not accurate to say that most snares we use have this feature. If the need exists, WS-CA staff can incorporate a breakaway feature in the snare to release non-target wildlife and livestock.
28	Page 15, paragraph 4	Shooting - Shooting is conducted with hand guns, rifles, and shotguns...	Pneumatic pellet rifles can also be used for shooting activities.
29	Page 16, paragraph 1	Tracking or Trailing Dogs	These methods are inaccurately listed in the Lethal Methods section. These are live capture methods that do not produce a lethal result. WS Directives prohibit employees from allowing dogs to fight, injure, or kill wildlife. This method is used by WS-CA staff to locate an animal. <input type="checkbox"/>
30	Page 17, paragraph 3	Livestock guardian dogs can create problems. They can be aggressive toward people, harass nontarget wildlife or livestock, injure herding dogs, or destroy property.	Incomplete, please consider adding additional information. Livestock protection dogs (LPDs) are known to kill wildlife including predators and nonpredatory species. Despite being bred and raised to serve as LPDs, some dogs attack the livestock they are assigned to protect or livestock on neighboring properties. Also notable is the substantial delay in the feasible time to implement this technique as most LPDs are raised and trained on site. As such, it may take 1-2 years for an LPD to become a deterrent to predators and not all puppies become successful LPDs.
31	Page 17, paragraph 5	With respect to potential problems, male donkeys can be overly aggressive towards livestock, and females in heat may be aggressive towards lambs or kids.	Incomplete, please consider adding additional information. Despite their larger body size, which may act as a deterrent to some predators, donkeys are prey animals and can be attacked and killed by wildlife. If needed, WS-CA can supply statistics regarding predation events on donkeys.
32	Page 18, paragraph 1	Fencing is also understood to be an important component to the most effective use of livestock protection dogs. As part of a larger study of livestock protection dogs over a 5-year period, Gehring et al. found that effective fencing and training was a crucial link for successfully incorporating livestock protection dogs into working farms and preventing roaming of the dogs.	This language may be more appropriate to include in the Livestock Protection Dog section not fencing.
33	Page 19, paragraph 3	Pyrotechnics is another form of frightening device that range from shell crackers or scare cartridges fired from shotguns to noise bombs fired from flare pistols. They can be used to frighten birds or mammals but are most often used to prevent crop depredation by birds or to discourage birds from undesirable roost locations. Noise bombs are firecrackers that travel about 75 feet before exploding. Whistle bombs are similar to noise bombs, but whistle in flight and do not explode.	This additional information could be incorporated into this section. These methods are rarely used in Mendocino County (not used in the past 10 years) partially due to increasing fire danger in California.
34	Page 20, paragraph 5	Cage traps and immobilization	As described here this method is not a resolution to wildlife damage management. Was the intent to relate this with relocation? Relocation is not a commonly used method of wildlife conflict resolution in California and is rarely authorized by CDFW.
35	Page 20, paragraph 7	All applied techniques should be compatible with each other. For example, it is important to note that traps can kill livestock protection dogs if they are caught and not released in a reasonable period of time.	California law has established daily trap check intervals so the scenario of a lethal result due to an animal being "not released in a reasonable period of time" is not a reasonably foreseeable outcome of the proposed action. This language may be more applicable to the LPD section rather than traps. In addition, WS-CA staff take care to place traps in the shade during warm weather and avoid placing traps in areas that could collect water when it rains.
36	Page 21, paragraph 4, bulleted item under 3)	Assignment of up to four APHIS-WS wildlife specialists...	The proposed action will include only two Wildlife Specialist positions.
37	Page 21	...Environmental Protection Agency approved chemicals (including immobilizing and euthanasia drugs)...	I&E drugs are not regulated by EPA, as they are not pesticides. I&E drugs are regulated by FDA and DEA and State and Federal law.
38	Page 22, paragraph 5	non-lethal programs, such as the Wood River Wolf Project in Idaho.	Participation in the Wood River Project did not prevent landowners from taking lethal action or authorities from providing technical assistance regarding lethal methods.

39	Page 29	Due to the programmatic nature of the IWDM program, the proposed project would not result in the direct conversion of important agricultural or timberland for other purposes. However, the implementation of the proposed project could result in conflicts with existing agricultural operations and other uses. Such conflicts are anticipated to be particularly pronounced in areas where agricultural activity occurs in proximity to other nearby residences, and the application of particular direct control methods, for instance propane exploders, would have the potential to create conflicts between the existing agricultural uses and the nearby non-agricultural land uses. Conflicts between existing agricultural activities and nearby non-agricultural land uses resulting from implementation of the proposed project could reduce the viability of agricultural activities within the County, leading to eventual conversion of agricultural lands to other uses.	Propane cannons and pyrotechnics have not been used within the County in the past 10 years. As this program has been in operation in Mendocino County for decades without such an issue arising, WS-CA does not believe this scenario is likely to occur. As part of the IWDM process, the surrounding land use of an area is evaluated by WS-CA staff. They select appropriate methods to resolve wildlife damage to avoid land use conflicts. Also, mechanical noise making devices can be implemented during restricted hours to minimize impacts to neighbors as needed. Therefore, the conversion of land use due to potential use of these methods is exceedingly unlikely to occur.
40	Page 29, paragraph 1	The potential for wildlife damage management is anticipated to be significantly reduced in forest land areas, due to the relative lack of crops and livestock. Predator conflicts and wildlife damage would instead be concentrated in and around agricultural lands.	It is inaccurate to say that wildlife damage management is rare on forested lands. A considerable amount of grazing occurs on timber lands in Mendocino County. Property protection from bears is also common in these areas.
41	Page 29, paragraph 4	The non-lethal program alternative would involve activities similar to the proposed project with the key difference ...	The paragraph immediately preceding this statement describes a reimbursement program for fencing, LPDs and other equipment. This is very different from the proposed action which does not install any structures on the landscape nor fund LPDs. These differences should be addressed and the impacts evaluated.
42	Page 29, paragraph 4	... that personnel would not perform site visits to implement lethal detrimental wildlife control strategies.	WS objects to the phrase "lethal detrimental wildlife control strategies." WS would not engage in or propose any action that would involve detrimental control strategies.
43	Page 29, paragraph 4	As discussed above for the proposed project, various techniques that would be implemented under the non-lethal program alternative could result in conflicts related to agricultural uses.	The nonlethal alternative includes funding for LPDs which are an additional element beyond those placed on the landscape by the proposed action. The EIR should include a discussion of these potential effects. LPDs are known to bark and cause noise conflicts with neighbors. Additionally LPDs have no "off-switch" which is a key difference from applying a mechanical method of noise disturbance. Analysis of the differences between these programs should be included in the EIR.
44	Page 34, paragraph 1	The IWDM Program would include wildlife control methods such as modifications of habitat, exclusionary fencing, frightening devices, and other such methods to prevent damage from wildlife.	WS-CA does not modify habitat or fund/install fencing. Although WS-CA would not be implementing such methods that modify habitat, technical assistance would continue to be provided.
45	Page 34, paragraph 1	In cases where all practical non-lethal methods do not succeed in preventing wildlife damage or wildlife poses an imminent threat to public safety and/or health removal or killing of wildlife by trapping or shooting may be conducted. Such wildlife control methods could have an adverse effect on biological resources through adverse effects to special-status species, reduction in habitats, or changes in sensitive natural communities.	WS-CA consults with the USFWS and the CDFW on it's impacts on threatened and endangered species. Both agencies are in agreement with WS-CA that cost share program activities are not likely to adversely impact federal status species in Mendocino County. Discussion of the biological effects of IWDM in the EIR should incorporate WS policies, the WS Decision Model, and legal requirements which drive WS-CA's actions and decision making, and scientific analysis using the best available information.
46	Page 35, paragraphs 5&6	Under the proposed project, APHIS-WS would not provide technical assistance or direct control within MRC managed lands as the MRC preforms such management activities in compliance with the MRC NCCP/HCP. In addition, MRC lands are used solely for timber harvesting, livestock or farming operations are not conducted within MRC lands; considering the absence of agricultural activities within MRC land, predator conflicts would be anticipated to be limited. In the event that wildlife damage management is needed, APHIS-WS would coordinate with MRC to ensure that selected methods would not conflict with the goals and requirements of the MRC HCP/NCCP. As such, a less-than-significant impact would result. No mitigation measures are required.	Although there has been an ownership change, historically MRC lands have been grazed and worked by WS-CA. Access to MRC lands is also granted to conduct IWDM for neighboring properties. Bears have caused considerable damage to timber in nearby areas, resulting in requests for IWDM assistance. The potential for the IWDM program to be applied within the County should not be restricted geographically due to decisions of current ownership. It is correct that WS-CA coordinates all activities with land managers to ensure proposed activities do not conflict with land uses and local restrictions.

47	Page 42, paragraph 1	The IWDM program would include the use of chemical repellents as part of wildlife management within the County. Direct control would involve the use and transport of such repellents throughout the County. However, the repellents, such as Raccoon Eviction Fluid, are not considered hazardous to the environment or public health. The use, transport, and disposal of such repellents would not have the potential to create a hazard to the public or the environment (e.g., impacts to water quality) throughout the County, including in areas within one-quarter mile of a school, and could result in reasonably foreseeable releases due to accident or upset conditions.	WS-CA use and store all chemicals according to label requirements and all state and federal regulations. When used according to label instructions, repellents are not considered a threat to public health and/or the environment.
48	Page 42, paragraph 3	The non-lethal program alternative would not involve the use of toxicants, nor would the non-lethal program be expected to include reimbursement to private parties for use of chemical repellents. Thus, the potential use of chemical repellents does not need to be analyzed.	This statement conflicts with statements in determination section on page 59. Additionally, many nonlethal programs recommend the use of repellents and use ammonia to encourage animals to vacate basements, sheds and attics. Please provide a full description of the methods used for the nonlethal alternative in the EIR.
49	Page 44, paragraph 4	The IWDM program could include the use of pyrotechnic scare methods, such as propane exploders that could pose a risk of causing wildfires within the County. Therefore, implementation of the proposed project could result in an increased risk of wildfires within the County, which would be considered a potentially significant impact.	This statement is inaccurate. Propane cannons/explosers are not pyrotechnic devices and neither have been used in the past 10 years in Mendocino County. WS directives on method selection include the evaluation of method safety including the risk of wildfire when determining the method to be used for conflict resolution. As such these tools are not selected when there is risk of causing wildlife.
50	Page 44, paragraph 6	The non-lethal program alternative would involve the use of all non-lethal wildlife control methods that would be implemented under the proposed project, and for the variation of this alternative, extremely limited use of lethal methods only when public health and safety is threatened. As such, wildlife control methods that would have the potential to increase fire risk within the County, such as propane exploders and electric fencing, would be used under the non-lethal program alternative. Therefore, implementation of the proposed project could result in an increased risk of wildfires within the County, which would be considered a potentially significant impact.	The nonlethal alternative includes the funding and placement of electric fencing which is an additional element beyond the IWDM program description that may be a potential threat of starting wildfires. The start of the County fire which burned 90,288 acres in Napa and Yolo counties in June/July 2018, has been attributed to an improperly installed electric fence unit. The potential affects of these methods should be addressed in the EIR. <input type="checkbox"/>
51	Page 48, paragraph 2	The production of timber within the County is not subject to substantial loss or damage by wildlife, and, under the MRC HCP/NCCP the MRC provides resource management within MRC owned lands. Land managed by the MRC is not used for agricultural activities, and, therefore, APHIS-WS would not be anticipated to provide wildlife control services to lands managed by MRC under the proposed project. In the event that wildlife damage management is needed, APHIS-WS would coordinate with MRC to ensure that selected methods would not conflict with the goals and requirements of the MRC HCP/NCCP. Thus, the proposed project would not conflict with any adopted HCP or NCCP and a less-than-significant impact would occur. No mitigation measures are required.	This passage is inaccurate. Timber is an agricultural resource and sustains considerable losses due to bears stripping bark from trees to eat the cambium layer. This is a well documented problem in California, Oregon, and Washington. There is potential for WS-CA to work on or near any lands in Mendocino county, if requested. Analysis should include the potential for work to be conducted on MRC lands.
52	Page 50, table	3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? 3. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	There is an error in numbering. There are two #3s in table.
53	Page 50, noise table	1. Exposure of persons to or generation of noise levels in excess of standards established in the local General Plan or noise ordinance, or applicable standards of other agencies?	WS-CA directs staff to consider the surrounding area and time of day when selecting and implementing methods.
54	Page 50, table	2. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	WS-CA does not believe any of its activities in Mendocino are capable of causing ground vibration or groundborne noise.
55	Page 50, table	3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	WS-CA's use of equipment is temporary or intermittent to resolve specific issues. WS-CA does not believe any of its equipment or intermittent use thereof has the potential to create a permanent increase in ambient noise.

56	Page 50, table	<p>4. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?</p> <p>5. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?</p>	<p>WS-CA does not concentrate any activity around airfields in Mendocino County. WS-CA believes that the intermittent use of IWDM methods would be unlikely to create a permanent increase in ambient noise.</p>
57	Page 52, paragraphs 4&5	<p>Similarly, lethal control methods, such as shooting, may result in increased reports of disturbances to the Mendocino County Sheriff's Office. Response to increased reports of disturbances would increase demand on sheriff protection services within the County. Should demand on fire and sheriff protection services increase due to more frequent wildfires and disturbance calls, respectively, new or physically altered government facilities may be required, construction of which could result in adverse effects to the environment, and, consequently, the proposed project would result in a potentially significant impact.</p>	<p>WS directives and methods already minimize noise impacts and the potential for fire. Without program expansion, it would not be reasonably foreseeable for these issues to occur in the future to the extent that a new sheriff or fire stations may need to be built. WS-CA is unaware of any Sheriff/fire department calls, complaints or log records caused by WS-CA in the decades that the IWDM program has been implemented.</p>
58	Page 53, paragraphs 2	<p>Similar to the proposed project, discussed above, the non-lethal program alternative may result in the use of pyrotechnic and other scare devices in proximity to existing residences. The use of such devices may result in increased disturbance calls to the Mendocino County Sheriff's Office. Increased disturbance calls would represent an increase in demand on sheriff protection services within the County, and may result in the need for new or physically altered government facilities in order to provide adequate sheriff protection and response services.</p>	<p>LPDs are known to cause noise disturbances and are an additional element that should be discussed here in contrast with the IWDM program. Discussion of noise/disturbance caused by LPDs should be discussed in the EIR. As stated above, if used as directed in the WS-CA program, the other methods are unlikely to result in substantial disturbance.</p>
59	Page 55, paragraph 1	<p>Furthermore, site trips are anticipated to occur relatively infrequently, with few, if any, trips occurring each day.</p>	<p>This statement does not reflect current IWDM activities accurately. WS-CA employees are commonly in the field assisting resource owners in Mendocino County.</p>
60	Page 56, paragraph 1	<p>As discussed in Section V, Cultural Resources, of this Initial Study, the only wildlife control methods with the potential to result in any ground disturbance would be the placement of snares or traps.</p>	<p>The most common application of snares cause no ground disturbance. Most traps cause no ground disturbance. Exceptions would be feral swine corral traps where feral swine themselves may cause shallow disturbances of soil while confined in the trap; and padded-jaw foothold traps which have limited applications as they can only be used in California for the protection of public safety or threatened and endangered species protection.</p>
61	Page 56, paragraph 3	<p>The non-lethal program alternative would include all activities as would occur under the proposed project with the exception of lethal control methods. The non-lethal program alternative may include cost-sharing between the private party implementing control methods and the non-governmental or outside governmental agency implementing the non-lethal program alternative. For instance, should wildlife management require installation of fencing, private parties constructing fencing may be reimbursed for some costs. The placement of fencing would require minor ground disturbance for placement and securing of fence posts. Although minor ground disturbance would occur during the placement of fencing, such ground disturbance would be limited to small areas of excavation associated with the placement of fence posts. Such areas of disturbance would be limited spatially and in depth, and the likelihood of encountering any significant resource during post hole digging is low.</p>	<p>We agree that digging fence posts would cause relatively minor ground disturbance, but it would be much greater disturbance than that caused by setting traps. Besides ground disturbance, fencing can be permanent and can introduce permanent visual changes to the character of an area. If that area is located where important historic resources potentially exist (whether known or undiscovered artifacts), they can have the potential to affect cultural resources. LPDs also dig extensively and collect bones. All of these elements should be included in the analysis of the EIR.</p>
62	Page 59, paragraph 5	<p>In such cases, toxicants and pesticides may be used, which, as discussed above for the proposed project, may result in hazards to human health or degradation of the quality of the environment.</p>	<p>Conflicts with statements on page 42. Toxicants and pesticides were omitted from the nonlethal alternative. Now they are being mentioned here. What products are proposed for use? Suggest they be added to the hazardous materials section for review.</p>

APPENDIX D

**Table 1
Wildlife Damage Summary**

Year	Species	Agriculture Non-Livestock	Human Health	Agriculture Livestock	Natural Resource	Property	Sum of Damages Loss
2007	Bears, Black	\$4,450.00	\$0.00	\$3,765.00	\$0.00	\$13,225.00	\$21,440.00
	Beavers	\$0.00	\$0.00	\$0.00	\$0.00	\$100.00	\$100.00
	Bobcats	\$0.00	\$0.00	\$910.00	\$0.00	\$1,100.00	\$2,010.00
	Coyotes	\$0.00	\$0.00	\$14,095.00	\$0.00	\$100.00	\$14,195.00
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$0.00	\$10,445.00	\$500.00	\$75.00	\$11,020.00
	Foxes, Gray	\$0.00	\$0.00	\$10.00	\$0.00	\$0.00	\$10.00
	Geese, Canada	\$400.00	\$0.00	\$0.00	\$0.00	\$0.00	\$400.00
	Lions, Mountain (Cougar)	\$0.00	\$0.00	\$11,015.00	\$0.00	\$1,100.00	\$12,115.00
	Opossums, Virginia	\$0.00	\$0.00	\$0.00	\$0.00	\$75.00	\$75.00
	Raccoons	\$15.00	\$0.00	\$100.00	\$0.00	\$430.00	\$545.00
	Skunks, Striped	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$1,000.00
	Swine, Feral	\$11,500.00	\$0.00	\$0.00	\$0.00	\$7,600.00	\$19,100.00
	Woodpeckers, Acorn	\$0.00	\$0.00	\$0.00	\$0.00	\$5,000.00	\$5,000.00
Subtotal	\$16,365.00	\$0.00	\$40,340.00	\$500.00	\$29,805.00	\$87,010.00	
2008	Bears, Black	\$5,350.00	\$0.00	\$2,450.00	\$0.00	\$11,525.00	\$19,325.00
	Bobcats	\$0.00	\$0.00	\$730.00	\$0.00	\$2,000.00	\$2,730.00
	Cats, Feral/Free Ranging	\$0.00	\$0.00	\$0.00	\$0.00	\$100.00	\$100.00
	Coyotes	\$0.00	\$0.00	\$8,740.00	\$0.00	\$250.00	\$8,990.00
	Deer, Black-Tailed	\$0.00	\$0.00	\$0.00	\$0.00	\$750.00	\$750.00
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$1,000.00	\$6,680.00	\$1,200.00	\$2,050.00	\$10,930.00
	Elk, Wapiti (Wild)	\$0.00	\$0.00	\$0.00	\$0.00	\$2,000.00	\$2,000.00
	Fishers,	\$0.00	\$0.00	\$320.00	\$0.00	\$450.00	\$770.00
	Horses, Feral	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00
	Lions, Mountain (Cougar)	\$0.00	\$0.00	\$5,150.00	\$0.00	\$3,650.00	\$8,800.00
	Opossums, Virginia	\$0.00	\$0.00	\$0.00	\$0.00	\$45.00	\$45.00
	Raccoons	\$0.00	\$0.00	\$0.00	\$0.00	\$150.00	\$150.00
	Skunks, Striped	\$0.00	\$225.00	\$0.00	\$0.00	\$845.00	\$1,070.00
	Squirrels, Ground (Other)	\$0.00	\$0.00	\$0.00	\$0.00	\$2,500.00	\$2,500.00
	Swine, Feral	\$16,600.00	\$0.00	\$0.00	\$0.00	\$22,050.00	\$38,650.00
Woodpeckers, Acorn	\$0.00	\$0.00	\$0.00	\$0.00	\$3,000.00	\$3,000.00	
Subtotal	\$22,950.00	\$1,225.00	\$24,070.00	\$1,200.00	\$51,365.00	\$100,810.00	
2009	Bears, Black	\$7,950.00	\$0.00	\$2,460.00	\$0.00	\$13,130.00	\$23,540.00
	Bobcats	\$0.00	\$0.00	\$2,245.00	\$0.00	\$0.00	\$2,245.00
	Coyotes	\$0.00	\$0.00	\$7,760.00	\$0.00	\$700.00	\$8,460.00
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$500.00	\$20,740.00	\$3,200.00	\$3,820.00	\$28,260.00
	Foxes, Gray	\$0.00	\$0.00	\$0.00	\$0.00	\$50.00	\$50.00
	Lions, Mountain (Cougar)	\$0.00	\$0.00	\$55,900.00	\$0.00	\$3,850.00	\$59,750.00
	Raccoons	\$0.00	\$0.00	\$40.00	\$0.00	\$475.00	\$515.00
	Ravens, Common	\$0.00	\$0.00	\$0.00	\$0.00	\$2,000.00	\$2,000.00
	Skunks, Striped	\$0.00	\$36,000.00	\$2,500.00	\$0.00	\$1,515.00	\$40,015.00
	Squirrels, Western Gray	\$0.00	\$0.00	\$0.00	\$100.00	\$0.00	\$100.00
	Swine, Feral	\$32,200.00	\$0.00	\$0.00	\$0.00	\$29,150.00	\$61,350.00
	Weasels (Other)	\$0.00	\$0.00	\$100.00	\$0.00	\$0.00	\$100.00
Subtotal	\$40,150.00	\$36,500.00	\$91,745.00	\$3,300.00	\$54,690.00	\$226,385.00	
2010	Bears, Black	\$407,575.00	\$0.00	\$2,875.00	\$800.00	\$43,880.00	\$455,130.00
	Bobcats	\$0.00	\$0.00	\$395.00	\$0.00	\$0.00	\$395.00
	Coyotes	\$0.00	\$0.00	\$9,100.00	\$1,000.00	\$600.00	\$10,700.00
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$0.00	\$8,875.00	\$5,250.00	\$750.00	\$14,875.00
	Foxes, Gray	\$0.00	\$0.00	\$100.00	\$0.00	\$0.00	\$100.00
	Lions, Mountain (Cougar)	\$0.00	\$0.00	\$3,995.00	\$0.00	\$6,775.00	\$10,770.00
	Otters, River	\$4,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4,000.00
	Raccoons	\$0.00	\$1,000.00	\$40.00	\$0.00	\$400.00	\$1,440.00
	Skunks, Striped	\$40.00	\$0.00	\$120.00	\$0.00	\$2,070.00	\$2,230.00
	Swine, Feral	\$14,160.00	\$0.00	\$0.00	\$0.00	\$40,075.00	\$54,235.00
	Subtotal	\$425,775.00	\$1,000.00	\$25,500.00	\$7,050.00	\$94,550.00	\$553,875.00
2011	Bears, Black	\$566,050.00	\$0.00	\$6,980.00	\$0.00	\$19,380.00	\$592,410.00
	Bobcats	\$0.00	\$0.00	\$1,540.00	\$0.00	\$2,050.00	\$3,590.00
	Coyotes	\$0.00	\$0.00	\$10,835.00	\$0.00	\$0.00	\$10,835.00
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$0.00	\$3,665.00	\$0.00	\$500.00	\$4,165.00
	Foxes, Gray	\$0.00	\$0.00	\$40.00	\$0.00	\$0.00	\$40.00
	Lions, Mountain (Cougar)	\$0.00	\$0.00	\$6,130.00	\$0.00	\$1,525.00	\$7,655.00
	Opossums, Virginia	\$0.00	\$0.00	\$0.00	\$0.00	\$90.00	\$90.00
	Raccoons	\$0.00	\$0.00	\$105.00	\$0.00	\$3,850.00	\$3,955.00
	Ravens, Common	\$10,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$10,000.00
Skunks, Striped	\$0.00	\$0.00	\$80.00	\$0.00	\$5,310.00	\$5,390.00	

Continued on next page

**Table 1
Wildlife Damage Summary**

Year	Species	Agriculture Non-Livestock	Human Health	Agriculture Livestock	Natural Resource	Property	Sum of Damages Loss
	Squirrels, Ground, California	\$0.00	\$0.00	\$0.00	\$0.00	\$2,500.00	\$2,500.00
	Swine, Feral	\$3,450.00	\$0.00	\$0.00	\$0.00	\$10,250.00	\$13,700.00
	Subtotal	\$579,500.00	\$0.00	\$29,375.00	\$0.00	\$45,455.00	\$654,330.00
2012	Bears, Black	\$34,694.60	\$0.00	\$2,664.40	\$0.00	\$11,310.00	\$48,669.00
	Bobcats	\$0.00	\$0.00	\$1,159.70	\$0.00	\$750.00	\$1,909.70
	Coyotes	\$0.00	\$0.00	\$18,194.40	\$0.00	\$0.00	\$18,194.40
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$2,000.00	\$4,185.00	\$4,294.86	\$750.00	\$11,229.86
	Foxes, Gray	\$0.00	\$0.00	\$149.40	\$0.00	\$0.00	\$149.40
	Lions, Mountain (Cougar)	\$3,294.86	\$0.00	\$2,554.00	\$0.00	\$300.00	\$6,148.86
	Opossums, Virginia	\$0.00	\$0.00	\$0.00	\$0.00	\$45.00	\$45.00
	Raccoons	\$0.00	\$0.00	\$103.40	\$0.00	\$1,885.00	\$1,988.40
	Skunks, Striped	\$0.00	\$0.00	\$20.00	\$0.00	\$1,600.00	\$1,620.00
	Swine, Feral	\$28,924.00	\$0.00	\$0.00	\$0.00	\$30,640.00	\$59,564.00
Subtotal	\$66,913.46	\$2,000.00	\$29,030.30	\$4,294.86	\$47,280.00	\$149,518.62	
2013	Bears, Black	\$47,638.10	\$0.00	\$6,879.42	\$0.00	\$9,485.00	\$64,002.52
	Bobcats	\$0.00	\$0.00	\$1,362.48	\$0.00	\$0.00	\$1,362.48
	Coyotes	\$0.00	\$0.00	\$13,043.88	\$4,044.86	\$0.00	\$17,088.74
	Deer, Black-Tailed	\$150.00	\$0.00	\$0.00	\$0.00	\$0.00	\$150.00
	Deer, Mule	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$1,000.00
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$0.00	\$2,308.00	\$5,942.29	\$0.00	\$8,250.29
	Elk, Wapiti (Wild)	\$0.00	\$0.00	\$0.00	\$0.00	\$2,500.00	\$2,500.00
	Foxes, Gray	\$0.00	\$0.00	\$249.00	\$0.00	\$0.00	\$249.00
	Lions, Mountain (Cougar)	\$0.00	\$0.00	\$2,926.42	\$0.00	\$200.00	\$3,126.42
	Opossums, Virginia	\$0.00	\$0.00	\$0.00	\$0.00	\$270.00	\$270.00
	Raccoons	\$0.00	\$1,000.00	\$124.50	\$0.00	\$8,350.00	\$9,474.50
	Skunks, Spotted	\$0.00	\$0.00	\$120.00	\$0.00	\$0.00	\$120.00
	Skunks, Striped	\$0.00	\$0.00	\$99.60	\$0.00	\$1,425.00	\$1,524.60
Swine, Feral	\$56,684.29	\$0.00	\$0.00	\$0.00	\$6,025.00	\$62,709.29	
Subtotal	\$104,472.39	\$1,000.00	\$27,113.30	\$9,987.15	\$29,255.00	\$171,827.84	
2014	Bears, Black	\$96,693.52	\$0.00	\$7,910.74	\$1,647.43	\$22,055.00	\$128,306.69
	Beavers	\$0.00	\$0.00	\$0.00	\$0.00	\$100.00	\$100.00
	Bobcats	\$0.00	\$0.00	\$2,305.28	\$0.00	\$700.00	\$3,005.28
	Coyotes	\$0.00	\$0.00	\$14,535.53	\$0.00	\$0.00	\$14,535.53
	Deer, Mule	\$0.00	\$0.00	\$0.00	\$0.00	\$30.00	\$30.00
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$0.00	\$55,162.19	\$0.00	\$500.00	\$55,662.19
	Elk, Wapiti (Wild)	\$0.00	\$0.00	\$0.00	\$0.00	\$150.00	\$150.00
	Foxes, Gray	\$0.00	\$0.00	\$14.90	\$0.00	\$0.00	\$14.90
	Lions, Mountain (Cougar)	\$0.00	\$0.00	\$2,724.87	\$0.00	\$800.00	\$3,524.87
	Opossums, Virginia	\$0.00	\$0.00	\$0.00	\$0.00	\$125.00	\$125.00
	Raccoons	\$0.00	\$0.00	\$24.90	\$0.00	\$3,228.00	\$3,252.90
	Ravens, Common	\$0.00	\$0.00	\$0.00	\$0.00	\$200.00	\$200.00
Skunks, Spotted	\$0.00	\$0.00	\$0.00	\$0.00	\$2,360.00	\$2,360.00	
Swine, Feral	\$90,795.30	\$0.00	\$0.00	\$2,000.00	\$3,115.00	\$95,910.30	
Subtotal	\$187,488.82	\$0.00	\$82,678.41	\$3,647.43	\$33,363.00	\$307,177.66	
2015	Bears, Black	\$54,887.97	\$0.00	\$3,622.90	\$0.00	\$10,375.00	\$68,885.87
	Bobcats	\$0.00	\$0.00	\$1,765.51	\$0.00	\$0.00	\$1,765.51
	Coyotes	\$0.00	\$0.00	\$19,713.63	\$0.00	\$0.00	\$19,713.63
	Deer, Black-Tailed	\$0.00	\$0.00	\$0.00	\$0.00	\$50.00	\$50.00
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$0.00	\$465.00	\$3,294.86	\$1,550.00	\$5,309.86
	Foxes, Gray	\$0.00	\$0.00	\$211.38	\$0.00	\$20.00	\$231.38
	Lions, Mountain (Cougar)	\$0.00	\$0.00	\$4,206.56	\$0.00	\$1,050.00	\$5,256.56
	Opossums, Virginia	\$10.00	\$0.00	\$44.50	\$0.00	\$445.00	\$499.50
	Porcupines	\$250.00	\$0.00	\$0.00	\$0.00	\$0.00	\$250.00
	Raccoons	\$0.00	\$2,000.00	\$198.50	\$0.00	\$9,025.00	\$11,223.50
	Ravens, Common	\$0.00	\$0.00	\$0.00	\$0.00	\$250.00	\$250.00
	Skunks, Striped	\$0.00	\$0.00	\$49.00	\$0.00	\$1,295.00	\$1,344.00
	Starlings, European	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00	\$1,000.00
	Swine, Feral	\$45,151.87	\$0.00	\$0.00	\$0.00	\$4,335.00	\$49,486.87
Weasels, Long-Tailed	\$0.00	\$0.00	\$162.48	\$0.00	\$0.00	\$162.48	
Subtotal	\$100,299.84	\$2,000.00	\$30,439.46	\$3,294.86	\$29,395.00	\$165,429.16	
2016	Bears, Black	\$8,182.44	\$0.00	\$4,256.83	\$0.00	\$12,850.00	\$25,289.27
	Bobcats	\$0.00	\$0.00	\$550.67	\$0.00	\$1,000.00	\$1,550.67
	Coyotes	\$500.00	\$0.00	\$8,042.47	\$0.00	\$800.00	\$9,342.47
	Dogs, Feral, Free-Ranging and Hybrids	\$0.00	\$0.00	\$18,184.54	\$0.00	\$0.00	\$18,184.54
	Elk, Wapiti (Wild)	\$0.00	\$0.00	\$0.00	\$0.00	\$2,250.00	\$2,250.00
	Foxes, Gray	\$0.00	\$0.00	\$250.04	\$0.00	\$50.00	\$300.04
	Lions, Mountain (Cougar)	\$0.00	<i>(Continued on next page)</i>	\$17,430.97	\$0.00	\$1,825.00	\$19,255.97

**Table 1
Wildlife Damage Summary**

Year	Species	Agriculture Non-Livestock	Human Health	Agriculture Livestock	Natural Resource	Property	Sum of Damages Loss
	Opossums, Virginia	\$0.00	\$0.00	\$0.00	\$0.00	\$60.00	\$60.00
	Raccoons	\$500.00	\$0.00	\$192.42	\$0.00	\$5,910.00	\$6,602.42
	Skunks, Striped	\$0.00	\$0.00	\$0.00	\$0.00	\$1,175.00	\$1,175.00
	Swine, Feral	\$15,360.00	\$0.00	\$0.00	\$0.00	\$1,175.00	\$16,535.00
	Turkeys, Wild	\$1,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,000.00
	Subtotal	\$25,542.44	\$0.00	\$48,907.94	\$0.00	\$27,095.00	\$101,545.38
2017	Bears, Black	\$19,305.28	\$0.00	\$6,348.90	\$0.00	\$14,895.00	\$40,549.18
	Bobcats	\$0.00	\$0.00	\$699.14	\$0.00	\$350.00	\$1,049.14
	Coyotes	\$0.00	\$0.00	\$10,370.12	\$0.00	\$1,100.00	\$11,470.12
	Dogs, Feral, Free- Ranging and Hybrids	\$0.00	\$0.00	\$3,610.54	\$0.00	\$500.00	\$4,110.54
	Eagles, Golden	\$0.00	\$0.00	\$425.04	\$0.00	\$0.00	\$425.04
	Elk, Wapiti (Wild)	\$0.00	\$0.00	\$0.00	\$0.00	\$1,420.00	\$1,420.00
	Fishers	\$0.00	\$0.00	\$0.00	\$0.00	\$100.00	\$100.00
	Foxes, Gray	\$0.00	\$0.00	\$344.88	\$0.00	\$0.00	\$344.88
	Lions, Mountain (Cougar)	\$0.00	\$0.00	\$5,044.70	\$0.00	\$2,000.00	\$7,044.70
	Opossums, Virginia	\$0.00	\$0.00	\$0.00	\$0.00	\$190.00	\$190.00
	Raccoons	\$0.00	\$0.00	\$62.82	\$0.00	\$5,500.00	\$5,562.82
	Rats, Black (Roof)	\$0.00	\$0.00	\$0.00	\$0.00	\$100.00	\$100.00
	Ravens, Common	\$0.00	\$0.00	\$105.62	\$0.00	\$0.00	\$105.62
	Skunks, Spotted	\$0.00	\$0.00	\$0.00	\$0.00	\$50.00	\$50.00
	Skunks, Striped	\$0.00	\$0.00	\$0.00	\$0.00	\$4,195.00	\$4,195.00
	Swine, Feral	\$13,501.43	\$0.00	\$0.00	\$0.00	\$7,585.00	\$21,086.43
	Subtotal	\$32,806.71	\$0.00	\$27,011.76	\$0.00	\$37,985.00	\$97,803.47
Grand Total		\$1,602,263.66	\$43,725.00	\$456,211.17	\$33,274.30	\$480,238.00	\$2,615,712.13

WORKGROUP STAFF SUMMARY FOR FEBRUARY 21, 2017

3. DEPREDATION**Today's Item****Information** **Decision**

- (A) Receive an informational presentation by DFW on statutes and regulations related to depredation.
- (B) Discuss potential changes to depredation-related regulations to propose for revision.

Summary of Previous/Future Actions (N/A)**Background**

In Nov 2016, the Workgroup discussed possible approaches to evaluating predator-related regulations and decided to initially focus on major discussion topics rather than specific regulations; the Workgroup selected depredation and recreational take as the first two topics to address. The Workgroup also requested DFW provide background information on the topics to help inform discussions.

Today, DFW will present an overview of California laws and regulations that relate to depredation of wildlife resources in California. A summary of the relevant statutes and regulations are provided in Exhibit 1. Following the presentation, the Workgroup will discuss issues of concern related to depredation and potential recommended changes to regulations.

Significant Public Comments (N/A)**Recommendation**

Provide direction to staff on next steps.

Exhibits

1. [DFW summary of California laws and regulations regarding depredation, dated Jan 2017](#)

Workgroup Decision/Recommendation (N/A)

California Laws and Regulations Regarding Depredation of Bird and Mammal Wildlife* Resources:

**Division 2, Chapter 8, Article 1, Fish and Game Code §1800: As used in this chapter "Wildlife" means birds, mammals, and reptiles not raised in captivity.*

Relevant Fish and Game Code Sections:

Division 2. Department of Fish and Game

Chapter 8. Conservation of Wildlife Resources

Article 2. Policy

[FGC§1800 "Wildlife"](#)

[FGC§1801. Declaration of Policy: FGC§1801\(g\)](#)

Division 4. Birds and Mammals

Part 1. Provisions Generally Applicable to Both

Article 1. Methods of Taking

[FGC§3003.1. Use of body-gripping trap](#)

[FGC§3003.5. Pursue, Drive, or Herd Any Bird or Mammal with Motorized Vehicle; Exceptions](#)

Part 2. Birds

Chapter 1. General Provisions

[FGC§3500. Resident and migratory game birds enumerated; "Game birds"](#)

Chapter 3. Nongame Birds

[FGC§3801. Taking of specified birds](#)

[FGC§3801.5. Permitted taking of birds injuring growing crops](#)

[FGC§3803. Taking by department of birds preying upon game](#)

Part 3. Mammals

Chapter 1. Game Mammals

[FGC§3950. Game mammals enumerated](#)

[FGC§3960.2. Use of dogs to pursue bears or bobcats pursuant to depredation permit; Conditions; Holder of depredation permit](#)

[FGC§3960.6. Pursuit of Bears or Bobcats by Dogs Guarding or Protecting Livestock or Crops; Limitations](#)

Chapter 2. Fur Bearing Mammals

Article 1. Trapping Provisions

[FGC§4000. Fur-bearing mammals enumerated](#)

[FGC§4002. Methods for taking fur-bearing Mammals](#)

[FGC§4003. Use of Poison to Take – Permit Required](#)

[FGC§4004. Prohibited traps; Required signs when conibear trap set; Prohibited methods of killing trapped mammals](#)

[FGC§4005. Take with Traps or Sell Raw Furs; License Required](#)

Chapter 3. Nongame Mammals and Depredators

Article 1. Nongame Mammals

[FGC§4150. Definitions; Restricted taking or possessing](#)

[FGC§4152. Permitted taking of nongame mammals injuring crops or other property; Exemption from requirements of license or permit](#)

[FGC§4153. Power of department; Cooperative agreements; Taking of predatory mammal](#)

Article 2. Depredators

[FGC§4180. Taking of fur-bearing mammals injuring property](#)

[FGC§4180.1 Unlawful removal or killing in den of immature depredator mammal](#)

[FGC§4181. Permit to kill animals damaging or destroying land or property; Sale or shipment of animals; Traps; Permit for taking bears; Information on options for wild pig control; Procedures regarding elk](#)

[FGC§4181.1. Taking of bear or wild pig inflicting injury to livestock; Conditions; Permit](#)

[FGC§4181.2. "Damage"; Guidelines for determining damage caused by wild pigs](#)

[FGC§4181.5. Revocable permit for taking of deer damaging property; Permitted type of weapons to be used](#)

[FGC§4185. Taking bears in San Bernardino and Riverside Counties within fence surrounding beehives; Signs](#)

[FGC§4186. Taking of cottontail or brush rabbits by landowner or tenant; Transportation and sale](#)

[FGC§4188. Option for allowing licensed hunters to take wild pigs, wild turkeys or deer damaging or threatening to damage property](#)

[FGC§4190. Identification of relocated depredatory animals](#)

Chapter 8. Fully Protected Mammals

[FGC§4700. Enumeration of fully protected mammals; Prohibition against taking; Power to authorize collecting for scientific research](#)

Chapter 9. Bear

[FGC§4763. Application of chapter to taking of bear to protect livestock or property from damage.](#)

Chapter 10. Mountain Lions

[FGC§4801. Removal or taking of mountain lion perceived to be threat to public health or safety](#)

[FGC§4801.5. Protection of mountain lions](#)

[FGC§4802. Report of injury to property or livestock](#)

[FGC§4803. Confirmation of report](#)

[FGC§4804. Issuance of permits; Conditions](#)

[FGC§4805. Authorization for pursuit after and taking of depredation mountain lion](#)

[FGC§4806. Report of capture, injuring, or killing of mountain lion](#)

[FGC§4807. Immediate taking of mountain lion encountered while injuring or killing livestock or domestic animals; Report](#)

[FGC§4808. "Agent"](#)

[FGC§4809. Manner of taking](#)

Relevant California Code of Regulations Sections:

Title 14. Natural Resources

Division 1. Fish and Game Commission-Department of Fish and Game

Subdivision 2. Game, Furbearers, Nongame, and Depredators

Chapter 4. Depredation

[T14CCR§400. Deer Depredation Hunts](#)

[T14CCR§401. Issuance of Permit to Take Animals Causing Damage](#)

[T14CCR§402. Issuance of Permits to Kill Mountain Lion Causing Damage](#)

Chapter 5. Furbearing Mammals

[T14CCR§465. Methods for Taking Furbearers](#)

[T14CCR§465.5. Use of Traps](#)

Chapter 6. Nongame Animals

[T14CCR§472. General Provisions](#)

[T14CCR§475. Methods of Take for Nongame Birds and Nongame Mammals](#)

Chapter 7. Migratory Game Birds

[T14CCR§503. Crop Damage and Nuisance Canada Geese.](#)

Subdivision 3. General Regulations

Chapter 1. Collecting Permits

[T14CCR§656 Permits to Take Beaver or Bear in a Refuge.](#)

Full Text - California Laws and Regulations Regarding Depredation of Bird and Mammal Wildlife* Resources:

**Division 2, Chapter 8, Article 1, Fish and Game Code §1800: As used in this chapter "Wildlife" means birds, mammals, and reptiles not raised in captivity.*

Relevant Fish and Game Code Sections:

Division 2. Department of Fish and Game

Chapter 8. Conservation of Wildlife Resources

Article 2. Policy

FGC§1800 "Wildlife"

As used in this chapter "wildlife" means birds, mammals, and reptiles not raised in captivity.

FGC§1801. Declaration of Policy: FGC§1801(g)

To alleviate economic losses or public health or safety problems caused by wildlife to the people of the state either individually or collectively. Such resolution shall be in a manner designed to bring the problem within tolerable limits consistent with economic and public health considerations and the objectives stated in subdivisions (a), (b) and (c).

Division 4. Birds and Mammals

Part 1. Provisions Generally Applicable to Both

Article 1. Methods of Taking

FGC§3003.1. Use of body-gripping trap

(a) It is unlawful for any person to trap for the purposes of recreation or commerce in fur any fur-bearing mammal or nongame mammal with any body-gripping trap. A body-gripping trap is one that grips the mammal's body or body part, including, but not limited to, steel-jawed leghold traps, padded-jaw leghold traps, conibear traps, and snares. Cage and box traps, nets, suitcase-type live beaver traps, and common rat and mouse traps shall not be considered body-gripping traps.

(b) It is unlawful for any person to buy, sell, barter, or otherwise exchange for profit, or to offer to buy, sell, barter, or otherwise exchange for profit, the raw fur, as defined by Section 4005, of any fur-bearing mammal or nongame mammal that was trapped in this state, with a body-gripping trap as described in subdivision (a).

(c) It is unlawful for any person, including an employee of the federal, state, county, or municipal government, to use or authorize the use of any steel-jawed leghold trap, padded or otherwise, to capture any game mammal, fur-bearing mammal, nongame mammal, protected mammal, or any dog or cat. The prohibition in this subdivision does not apply to federal, state, county, or municipal government employees or their duly authorized agents in the extraordinary case where the otherwise prohibited padded-jaw leghold trap is the only method available to protect human health or safety.

(d) For purposes of this section, fur-bearing mammals, game mammals, nongame mammals, and protected mammals are those mammals so defined by statute on January 1, 1997.

FGC§3003.5. Pursue, Drive, or Herd Any Bird or Mammal with Motorized Vehicle; Exceptions

It is unlawful to pursue, drive, or herd any bird or mammal with any motorized water, land, or air vehicle, including, but not limited to, a motor vehicle, airplane, powerboat, or snowmobile, except in any of the following circumstances:

(a) On private property by the landowner or tenant thereof to haze birds or mammals for the purpose of preventing damage by that wildlife to private property.

(b) Pursuant to a permit from the department issued under regulations as the commission may prescribe.

(c) In the pursuit of agriculture.

Part 2. Birds

Chapter 1. General Provisions

FGC§3500. Resident and migratory game birds enumerated; “Game birds”

(a) Resident game birds are as follows:

- (1) Doves of the genus *Streptopelia*, including, but not limited to, spotted doves, ringed turtledoves, and Eurasian collared-doves.
- (2) California quail and varieties thereof.
- (3) Gambel's or desert quail.
- (4) Mountain quail and varieties thereof.
- (5) Sooty or blue grouse and varieties thereof.
- (6) Ruffed grouse.
- (7) Sage hens or sage grouse.
- (8) Hungarian partridges.
- (9) Red-legged partridges including the chukar and other varieties.
- (10) Ring-necked pheasants and varieties thereof.
- (11) Wild turkeys of the order Galliformes.

(b) Migratory game birds are as follows:

- (1) Ducks and geese.
- (2) Coots and gallinules.
- (3) Jacksnipe.
- (4) Western mourning doves.
- (5) White-winged doves.
- (6) Band-tailed pigeons.

(c) References in this code to “game birds” means both resident game birds and migratory game birds.

Chapter 3. Nongame Birds**FGC§3801. Taking of specified birds**

Notwithstanding Section 3007 or any other provision of this code or regulations made pursuant thereto requiring the possession of a hunting license, a landowner or lessee or agent of either in immediate possession of written authority from the landowner or lessee, shall not be required to obtain a hunting license or a depredation permit to take the following nongame birds on land owned or leased by the landowner or lessee. Hunters otherwise taking the following nongame birds shall be licensed pursuant to Section 3007. The following nongame birds taken in compliance with this section may be taken and possessed by any person at any time, except as provided in Section 3000:

- (a) English sparrows (*Passer domesticus*).
- (b) Starlings (*Sturnus vulgaris*).

FGC§3801.5. Permitted taking of birds injuring growing crops

Nongame birds not covered by the Migratory Bird Treaty Act which are found to be injuring growing crops or property may be taken by the owner or tenant of the premises. They may also be so taken by officers or employees of the Department of Food and Agriculture or by federal or county officers or employees when acting in their official capacities pursuant to the provisions of the Food and Agricultural Code pertaining to pests, or pursuant to Article 6 (commencing with Section 6021) of Chapter 9 of Part 1 of Division 4 of the Food and Agricultural Code.

Landowners and tenants taking birds in accordance with this section are exempt from Section 3007.

FGC§3803. Taking by department of birds preying upon game

The department may take any individual bird, or birds of any species, that, in its opinion, are unduly preying upon any species of bird, mammal, reptile, amphibian, or fish.

Part 3. Mammals**Chapter 1. Game Mammals****FGC§3950. Game mammals enumerated**

(a) Game mammals are: deer (genus *Odocoileus*), elk (genus *Cervus*), prong-horned antelope (genus *Antilocapra*), wild pigs, including feral pigs and European wild boars (genus *Sus*), black and brown or cinnamon bears (genus *Euarctos*), mountain lions (genus *Felis*), jackrabbits and varying hares (genus *Lepus*), cottontails, brush rabbits, pigmy rabbits (genus *Sylvilagus*), and tree squirrels (genus *Sciurus* and *Tamiasciurus*).

(b) Nelson bighorn sheep (subspecies *Ovis canadensis nelsoni*) are game mammals only for the purposes of sport hunting described in subdivision (b) of Section 4902.

FGC§3960.2. Use of dogs to pursue bears or bobcats pursuant to depredation permit; Conditions; Holder of depredation permit

(a) As used in this section, the terms “bear” and “pursue” have the same meanings as defined in Section 3960.

(b) Notwithstanding Section 3960, not more than three dogs may be used to pursue bears or bobcats pursuant to a depredation permit issued by the department, if all of the following conditions are met:

(1) The applicant demonstrates, in writing, that nonlethal and avoidance measures were undertaken prior to requesting the depredation permit.

(2) The applicant demonstrates, in writing, the specific need for the use of dogs in carrying out the depredation permit.

(3) The depredation permit authorizing the use of dogs is valid for the take of one bear or one bobcat.

(4) The depredation permit authorizing the use of dogs is valid for a period not to exceed 20 consecutive days.

(5) The depredation permit specifies the name and address of any dog handler who will be utilized in the pursuit or taking.

(6) The dog handler has the depredation permit in his or her possession at all times during the pursuit or taking.

(7) The dog handler does not pursue a bear or bobcat more than one mile off the property on which the depredation activity occurred.

(c) After any taking of a bear, the applicant is required to submit the skull to the department as described in the department’s Black Bear Management Plan. No part of any bear taken pursuant to a depredation permit may be sold, purchased, or possessed for sale, as described in Section 4758.

(d) No holder of a depredation permit may solicit or receive compensation from any person in exchange for carrying out the terms of the permit. For these purposes, “compensation” means remuneration paid in money, property, or anything else of value.

(e) The holder of a depredation permit, within 30 days of its issuance, shall report to the department detailing the use of the permit and the results of any pursuits, including information about bear or bobcat pursued and whether the bear or bobcat was or was not harmed, but not killed.

FGC§3960.6. Pursuit of Bears or Bobcats by Dogs Guarding or Protecting Livestock or Crops; Limitations

(a) As used in this section, the terms “bear” and “pursue” have the same meanings as defined in Section 3960.

(b) Notwithstanding Section 3960, the pursuit of bears or bobcats by dogs that are guarding or protecting livestock or crops on property owned, leased, or rented by the owner of the dogs, is not prohibited if the dogs are maintained with, and remain in reasonable proximity to, the livestock or crops being guarded or protected.

Chapter 2. Fur Bearing Mammals

Article 1. Trapping Provisions

FGC§4000. Fur-bearing mammals enumerated

The following are fur-bearing mammals: pine marten, fisher, mink, river otter, gray fox, red fox, kit fox, raccoon, beaver, badger, and muskrat.

FGC§4002. Methods for taking fur-bearing Mammals

Fur-bearing mammals may be taken only with a trap, a firearm, bow and arrow, poison under a proper permit, or with the use of dogs.

FGC§4003. Use of Poison to Take – Permit Required

It is unlawful to use poison to take fur-bearing mammals without a permit from the department. The department may issue such a permit upon a written application indicating the kind of poison desired to be used and the time and place of use.

FGC§4004. Prohibited traps; Required signs when conibear trap set; Prohibited methods of killing trapped mammals

It is unlawful to do any of the following:

- (a) Use a steel-jawed leghold trap, or use any trap with saw-toothed or spiked jaws.
- (b) Use a body-gripping trap, as defined in subdivision (a) of Section 3003.1, for the purpose of recreation or commerce in fur.
- (c) Set or maintain traps that do not bear a number or other identifying mark registered to the department or, in the case of a federal, state, county, or city agency, bear the name of that agency, except that traps set pursuant to Section 4152 or 4180 shall bear an identifying mark in a manner specified by the department. No registration fee shall be charged pursuant to this subdivision.
- (d) Fail to visit and remove all animals from traps at least once daily. If the trapping is done pursuant to Section 4152 or 4180, the inspection and removal shall be done by the person who sets the trap or the owner of the land where the trap is set or an agent of either.
- (e) Use a conibear trap that is larger than 6 inches by 6 inches, unless partially or wholly submerged in water. Unless prohibited by the department as a permit condition, a lawfully set conibear trap that is 10 inches by 10 inches or less may be set pursuant to subdivision (g) of Section 465.5 of Title 14 of the California Code of Regulations.
- (f) When any conibear trap is set on publicly owned land or land expressly open to public use, fail to post signs at every entrance and exit to the property indicating the presence of conibear traps and at least four additional signs posted within a radius of 50 feet of the trap, one in each cardinal direction, with lettering that is a minimum of three inches high stating: "Danger! Traps Set For Wildlife. Keep Out." Signs shall be maintained and checked daily.
- (g) Kill any trapped mammal in accordance with this section by intentional drowning, injection with any chemical not sold for the purpose of euthanizing animals, or thoracic compression, commonly known as chest crushing. This subdivision shall not be construed to prohibit the use of lawfully set conibear traps set partially or wholly submerged in water for beaver or muskrat or the use of lawfully set colony traps set in water for muskrat.

FGC§4005. Take with Traps or Sell Raw Furs; License Required

- (a) Except as otherwise provided in this section, every person, other than a fur dealer, who traps fur-bearing mammals or nongame mammals, designated by the commission or who sells raw furs of those mammals, shall procure a trapping license. "Raw fur" means any fur, pelt, or skin that has not been tanned or cured, except that salt-cured or sun-cured pelts are raw furs.
- (b) The department shall develop standards that are necessary to ensure the competence and proficiency of applicants for a trapping license. No person shall be issued a license until he or she has passed a test of his or her knowledge and skill in this field.
- (c) Persons trapping mammals in accordance with Section 4152 or 4180 are not required to procure a trapping license except when providing trapping services for profit.
- (d) No raw furs taken by persons providing trapping services for profit may be sold.

(e) The license requirement imposed by this section does not apply to any of the following:

- (1) Officers or employees of federal, county, or city agencies or the department, when acting in their official capacities, or officers or employees of the Department of Food and Agriculture when acting pursuant to the Food and Agricultural Code pertaining to pests or pursuant to Article 6 (commencing with Section 6021) of Chapter 9 of Part 1 of Division 4 of the Food and Agricultural Code.
 - (2) Structural pest control operators licensed pursuant to Chapter 14 (commencing with Section 8500) of Division 3 of the Business and Professions Code, when trapping rats, mice, voles, moles, or gophers.
 - (3) Persons and businesses licensed or certified by the Department of Pesticide Regulation pursuant to Chapter 4 (commencing with Section 11701) and Chapter 8 (commencing with Section 12201) of Division 6 of, and Chapter 3.6, (commencing with Section 14151) of Division 7 of, the Food and Agricultural Code, when trapping rats, mice, voles, moles, or gophers.
- (f) Except for species that are listed pursuant to Chapter 1.5 (commencing with Section 2050) of Division 3 or Chapter 8 (commencing with Section 4700), nothing in this code or regulations adopted pursuant thereto shall prevent or prohibit a person from trapping any of the following animals:
- (1) Gophers.
 - (2) House mice.
 - (3) Moles.
 - (4) Rats.
 - (5) Voles.

Chapter 3. Nongame Mammals and Depredators

Article 1. Nongame Mammals

FGC§4150. Definitions; Restricted taking or possessing

A mammal occurring naturally in California that is not a game mammal, fully protected mammal, or fur-bearing mammal is a nongame mammal. A nongame mammal may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission.

FGC§4152. Permitted taking of nongame mammals injuring crops or other property; Exemption from requirements of license or permit

(a) Except as provided in Section 4005, nongame mammals and black-tailed jackrabbits, muskrats, subspecies of red fox that are not the native Sierra Nevada red fox (*Vulpes vulpes necator*), and red fox squirrels that are found to be injuring growing crops or other property may be taken at any time or in any manner in accordance with this code and regulations adopted pursuant to this code by the owner or tenant of the premises or employees and agents in immediate possession of written permission from the owner or tenant thereof. They may also be taken by officers or employees of the Department of Food and Agriculture or by federal, county, or city officers or employees when acting in their official capacities pursuant to the Food and Agricultural Code pertaining to pests, or pursuant to Article 6 (commencing with Section 6021) of Chapter 9 of Part 1 of Division 4 of the Food and Agricultural Code. Persons taking mammals in accordance with this section are exempt from Section 3007, except when providing trapping services for a fee. Raw furs, as defined in Section 4005, that are taken under this section, shall not be sold.

(b) Traps used pursuant to this section shall be inspected and all animals in the traps shall be removed at least once daily. The inspection and removal shall be done by the person who sets the trap or the owner of the land where the trap is set or an agent of either.

FGC§4153. Power of department; Cooperative agreements; Taking of predatory mammal

The department may enter into cooperative agreements with any agency of the state or the United States for the purpose of controlling harmful nongame mammals.

The department may take any mammal which, in its opinion, is unduly preying upon any bird, mammal, or fish.

Article 2. Depredators**FGC§4180. Taking of fur-bearing mammals injuring property**

(a) Except as provided for in Section 4005, fur-bearing mammals that are injuring property may be taken at any time and in any manner in accordance with this code or regulations made pursuant to this code. Raw furs, as defined in Section 4005, that are taken under this section, shall not be sold.

(b) Traps used pursuant to this section shall be inspected and all animals in the traps shall be removed at least once daily. The inspection and removal shall be done by the person who sets the trap or the owner of the land where the trap is set or an agent of either.

FGC§4180.1 Unlawful removal or killing in den of immature depredator mammal

It is unlawful to use snares, hooks, or barbed wire to remove from the den, or fire to kill in the den, any immature depredator mammal.

Nothing in this section shall prohibit the use of fire-ignited gas cartridges or other products registered or permitted under the Federal Insecticide, Rodenticide, and Fungicide Act (7 U.S.C. 135 et seq.)

FGC§4181. Permit to kill animals damaging or destroying land or property; Sale or shipment of animals; Traps; Permit for taking bears; Information on options for wild pig control; Procedures regarding elk

a) Except as provided in Section 4181.1, any owner or tenant of land or property that is being damaged or destroyed or is in danger of being damaged or destroyed by elk, bear, beaver, wild pig, wild turkeys, or gray squirrels, may apply to the department for a permit to kill the animals. Subject to the limitations in subdivisions (b) and (d), the department, upon satisfactory evidence of the damage or destruction, actual or immediately threatened, shall issue a revocable permit for the taking and disposition of the animals under regulations adopted by the commission. The permit shall include a statement of the penalties that may be imposed for a violation of the permit conditions. Animals so taken shall not be sold or shipped from the premises on which they are taken except under instructions from the department. No iron-jawed or steel-jawed or any type of metal-jawed trap shall be used to take any bear pursuant to this section. No poison of any type may be used to take any gray squirrel or wild turkey pursuant to this section. The department shall designate the type of trap to be used to ensure the most humane method is used to trap gray squirrels. The department may require trapped squirrels to be released in parks or other nonagricultural areas. It is unlawful for any person to violate the terms of any permit issued under this section.

(b) The permit issued for taking bears pursuant to subdivision (a) shall contain the following facts:

- (1) Why the issuance of the permit was necessary.
- (2) What efforts were made to solve the problem without killing the bears.
- (3) What corrective actions should be implemented to prevent reoccurrence.

(c) With respect to wild pigs, the department shall provide an applicant for a depredation permit to take wild pigs or a person who reports taking wild pigs pursuant to subdivision (b) of Section 4181.1 with written information that sets forth available options for wild pig control, including, but not limited to, depredation permits, allowing periodic access to licensed hunters, and holding special hunts authorized pursuant to Section 4188. The department may maintain and make available to these persons lists

of licensed hunters interested in wild pig hunting and lists of nonprofit organizations that are available to take possession of depredating wild pig carcasses.

(d) With respect to elk, the following procedures shall apply:

(1) Prior to issuing a depredation permit pursuant to subdivision (a), the department shall do all of the following:

(A) Verify the actual or immediately threatened damage or destruction.

(B) Provide a written summary of corrective measures necessary to immediately alleviate the problem.

(C) Determine the viability of the local herd, and determine the minimum population level needed to maintain the herd.

(D) Ensure the permit will not reduce the local herd below the minimum.

(E) Work with affected landowners to develop measures to achieve long-term resolution, while maintaining viability of the herd.

(2) After completing the statewide elk management plan pursuant to Section 3952, the department shall use the information and methods contained in the plan to meet the requirements of subparagraphs (C), (D), and (E) of paragraph (1).

FGC§4181.1. Taking of bear or wild pig inflicting injury to livestock; Conditions; Permit

(a) Any bear that is encountered while in the act of inflicting injury to, molesting, or killing, livestock may be taken immediately by the owner of the livestock or the owner's employee if the taking is reported no later than the next working day to the department and the carcass is made available to the department.

(b) Notwithstanding Section 4652, any wild pig that is encountered while in the act of inflicting injury to, molesting, pursuing, worrying, or killing livestock or damaging or destroying, or threatening to immediately damage or destroy, land or other property, including, but not limited to, rare, threatened, or endangered native plants, wildlife, or aquatic species, may be taken immediately by the owner of the livestock, land, or property or the owner's agent or employee, or by an agent or employee of any federal, state, county, or city entity when acting in his or her official capacity. The person taking the wild pig shall report the taking no later than the next working day to the department and shall make the carcass available to the department. Unless otherwise directed by the department and notwithstanding Section 4657, the person taking a wild pig pursuant to this subdivision, or to whom the carcass of a wild pig taken pursuant to this subdivision is transferred pursuant to subdivision (c), may possess the carcass of the wild pig. The person in possession of the carcass shall make use of the carcass, which may include an arrangement for the transfer of the carcass to another person or entity, such as a nonprofit organization, without compensation. The person who arranges this transfer shall be deemed to be in compliance with Section 4304. A violation of this subdivision is punishable pursuant to Section 12000. It is the intent of the Legislature that nothing in this subdivision shall be interpreted to authorize a person to take wild pigs pursuant to this subdivision in violation of a state statute or regulation or a local zoning or other ordinance that is adopted pursuant to other provisions of law and that restricts the discharge of firearms.

(c) The department shall make a record of each report made pursuant to subdivision (a) or (b) and may have an employee of the department investigate the taking or cause the taking to be investigated. The person taking a wild pig shall provide information as deemed necessary by the department. Upon completion of the investigation, the investigator may, upon a finding that the requirements of this section have been met with respect to the particular bear or wild pig taken under subdivision (a) or (b), issue a written statement to the person confirming that the requirements of this section have been met. The person who took the wild pig may transfer the carcass to another person without compensation.

(d) Notwithstanding Section 4763, any part of any bear lawfully possessed pursuant to this section is subject to Section 4758.

(e) Nothing in this section prohibits federal, state, or county trappers from killing or trapping bears when the bears are killing or molesting livestock, but no iron-jawed or steel-jawed or any type of metal-jawed trap shall be used to take the bear, and no person, including employees of the state, federal, or county government, shall take bear with iron-jawed or steel-jawed or any type of metal-jawed traps.

FGC§4181.2. "Damage"; Guidelines for determining damage caused by wild pigs

For the purposes of this article relating to damage caused by wild pigs, "damage" means loss or harm resulting from injury to person or property. The department shall develop statewide guidelines to aid in determining the damage caused by wild pigs. The guidelines shall consider various uses of the land impacted by pigs.

FGC§4181.5. Revocable permit for taking of deer damaging property; Permitted type of weapons to be used

For the purposes of this article relating to damage caused by wild pigs, "damage" means loss or harm resulting from injury to person or property. The department shall develop statewide guidelines to aid in determining the damage caused by wild pigs. The guidelines shall consider various uses of the land impacted by pigs. - See more at: [http://codes.findlaw.com/ca/fish-and-g\(a\)](http://codes.findlaw.com/ca/fish-and-g(a)) Any owner or tenant of land or property that is being damaged or destroyed or is in immediate danger of being damaged or destroyed by deer may apply to the department for a permit to kill those deer. The department, upon satisfactory evidence of that damage or destruction, actual or immediately threatened, shall issue a revocable permit for the taking and disposition of those deer for a designated period not to exceed 60 days under regulations promulgated by the commission.

(b) The regulations of the commission shall include provisions concerning the type of weapons to be used to kill the deer. The weapons shall be those as will ensure humane killing, but the regulations of the commission shall provide for the use of a sufficient variety of weapons to permit the designation of particular types to be used in any particular locality commensurate with the need to protect persons and property. Firearms using .22-caliber rimfire cartridges may be used only when authorized by the director or his designee. No pistols shall be used. The caliber and type of weapon to be used by each permittee shall be specified in each permit by the issuing officer who shall take into consideration the location of the area, the necessity for clean kills, the safety factor, local firearms ordinances, and other factors that apply. Rifle ammunition used shall have expanding bullets; shotgun ammunition shall have only single slugs, or, if authorized by the department, 0 or 00 buckshot.

(c) The department shall issue tags similar to those provided for in Section 4331 at the same time the permit is issued. A permittee under this section shall carry the tags while hunting deer, and upon the killing of any deer, shall immediately fill out both parts of the tag and punch out clearly the date of the kill. One part of the tag shall be immediately attached to the antlers of antlered deer or to the ear of any other deer and kept attached until 10 days after the permit has expired. The other part of the tag shall be immediately sent to the department after it has been countersigned by any person authorized by Section 4341.

(d) A permit issued pursuant to this section may be renewed only after a finding by the department that further damage has occurred or will occur unless that permit is renewed. A person seeking renewal of the permit shall account for all prior tags issued at the time he or she received any prior permits, and if any tags are unused, he or she shall show either that any deer killed could not reasonably be tagged or why the killing was not accomplished within the allotted time and why that killing would be accomplished under a new time period.

FGC§4185. Taking bears in San Bernardino and Riverside Counties within fence surrounding beehives; Signs

In any district or part of a district within San Bernardino and Riverside Counties, bears may be taken at any time with traps within a good and substantial fence, as such fence is described in Section 17121 of the Food and Agricultural Code, surrounding beehives, if no part of the fence is at a distance greater than 50 yards from a beehive, and if a conspicuous sign is posted and maintained at each entrance to the enclosed premises to give warning of the presence of the traps. No iron or steel-jawed or any type of metal-jawed trap shall be used to take bear under this section.

FGC§4186. Taking of cottontail or brush rabbits by landowner or tenant; Transportation and sale

Nothing in this code prohibits the owner or tenant of land, or any person authorized in writing by that owner or tenant, from taking cottontail or brush rabbits during any time of the year when damage to crops or forage is being experienced on that land. Any person other than the owner or tenant of the land shall have in possession when transporting rabbits from the property, written authority from the owner or tenant of land where those rabbits were taken. Rabbits taken under this section shall not be sold.

FGC§4188. Option for allowing licensed hunters to take wild pigs, wild turkeys or deer damaging or threatening to damage property

(a) If a landowner or tenant applies for a permit under Section 4181 for wild pigs or wild turkeys, or under Section 4181.5 for deer, the department shall notify the landowner or tenant about available options for allowing access by licensed hunters, including, but not limited to, access authorized pursuant to Article 3 (commencing with Section 1570) of Chapter 5 of Division 2 to control wild pigs, wild turkeys, and deer.

(b) The commission, in lieu of a permit as described in subdivision (a), and with the consent of, or upon the request of, the landowner or tenant, under appropriate regulations, may authorize the issuance of permits to persons holding valid hunting licenses to take wild pigs, wild turkeys, or deer in sufficient numbers to stop the damage or threatened damage. Before issuing permits to licensed hunters, the department shall investigate and determine the number of permits necessary, the territory involved, the dates of the proposed hunt, the manner of issuing the permits, and the fee for the permit.

FGC§4190. Identification of relocated depredatory animals

The department shall tag, brand, or otherwise identify in a persistent and distinctive manner any large depredatory mammal relocated by, or relocated with the approval of, the department for game management purposes.

Chapter 8. Fully Protected Mammals**FGC§4700. Enumeration of fully protected mammals; Prohibition against taking; Power to authorize collecting for scientific research**

(a)(1) Except as provided in Section 2081.7 or 2835, fully protected mammals or parts thereof may not be taken or possessed at any time. No provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected mammal, and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, the department may authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species. Prior to authorizing the take of any of those species, the department shall make an effort to notify all affected and interested parties to solicit information and comments on the proposed authorization. The notification shall be published in the California Regulatory Notice Register and be made available to each person who has notified the department, in writing, of his or her interest in fully protected species and who has provided an e-mail address, if available, or postal address to the department. Affected and interested parties shall have 30 days after notification

is published in the California Regulatory Notice Register to provide any relevant information and comments on the proposed authorization.

(2) As used in this subdivision, “scientific research” does not include any actions taken as part of specified mitigation for a project, as defined in Section 21065 of the Public Resources Code.

(3) Legally imported fully protected mammals or parts thereof may be possessed under a permit issued by the department.

(b) The following are fully protected mammals:

(1) Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*).

(2) Bighorn sheep (*Ovis canadensis*), except Nelson bighorn sheep (subspecies *Ovis canadensis nelsoni*) as provided by subdivision (b) of Section 4902.

(3) Northern elephant seal (*Mirounga angustirostris*).

(4) Guadalupe fur seal (*Arctocephalus townsendi*).

(5) Ring-tailed cat (genus *Bassariscus*).

(6) Pacific right whale (*Eubalaena sieboldi*).

(7) Salt-marsh harvest mouse (*Reithrodontomys raviventris*).

(8) Southern sea otter (*Enhydra lutris nereis*).

(9) Wolverine (*Gulo luscus*).

Chapter 9. Bear

FGC§4763. Application of chapter to taking of bear to protect livestock or property from damage.

The provisions of this chapter do not apply to the taking of bear which is otherwise authorized to protect livestock, land, or property from damage or threatened damage from bear.

Chapter 10. Mountain Lions

FGC§4801. Removal or taking of mountain lion perceived to be threat to public health or safety

The department may remove or take any mountain lion, or authorize an appropriate local agency with public safety responsibility to remove or take any mountain lion, that is perceived to be an imminent threat to public health or safety or that is perceived by the department to be an imminent threat to the survival of any threatened, endangered, candidate, or fully protected sheep species.

FGC§4801.5. Protection of mountain lions

(a) Unless authorized in this chapter, nonlethal procedures shall be used when removing or taking any mountain lion that has not been designated as an imminent threat to public health or safety.

(b) For purposes of this chapter, imminent threat to public health or safety means a situation where a mountain lion exhibits one or more aggressive behaviors directed toward a person that is not reasonably believed to be due to the presence of responders.

(c) For purposes of this chapter, nonlethal procedures means procedures that may include, but are not limited to, capturing, pursuing, anesthetizing, temporarily possessing, temporarily injuring, marking, attaching to or surgically implanting monitoring or recognition devices, providing veterinary care, transporting, hazing, rehabilitating, releasing, or taking no action.

(d) The department may, as the department determines is necessary to protect mountain lions or the public, authorize qualified individuals, educational institutions, governmental agencies, or nongovernmental organizations to implement nonlethal procedures on a mountain lion in accordance with subdivision (a).

FGC§4802. Report of injury to property or livestock

Any person, or the employee or agent of a person, whose livestock or other property is being or has been injured, damaged, or destroyed by a mountain lion may report that fact to the department and request a permit to take the mountain lion.

FGC§4803. Confirmation of report

Upon receipt of a report pursuant to Section 4802, the department, or any animal damage control officer specifically authorized by the department to carry out this responsibility, shall

immediately take the action necessary to confirm that there has been depredation by a mountain lion as reported. The confirmation process shall be completed as quickly as possible, but in no event more than 48 hours after receiving the report. If satisfied that there has been depredation by a mountain lion as reported, the department shall promptly issue a permit to take the depredating mountain lion.

FGC§4804. Issuance of permits; Conditions

In order to ensure that only the depredating mountain lion will be taken, the department shall issue the permit pursuant to Section 4803 with the following conditions attached:

- (a) The permit shall expire 10 days after issuance.
- (b) The permit shall authorize the holder to begin pursuit not more than one mile from the depredation site.
- (c) The permit shall limit the pursuit of the depredating mountain lion to within a 10-mile radius from the location of the reported damage or destruction.

FGC§4805. Authorization for pursuit after and taking of depredation mountain lion

Whenever immediate authorization will materially assist in the pursuit of the particular mountain lion believed to be responsible for the depredation reported pursuant to Section 4802, the department or the animal damage control officer may orally authorize the pursuit and taking of the depredating mountain lion, and the department shall issue a written permit for the period previously authorized as soon as practicable after the oral authorization.

FGC§4806. Report of capture, injuring, or killing of mountain lion

Any person issued a permit pursuant to Section 4803 or 4805 shall report, by telephone within 24 hours, the capturing, injuring, or killing of any mountain lion to an office of the department or, if telephoning is not practicable, in writing within five days after the capturing, injuring, or killing of the mountain lion. At the time of making the report of the capturing, injuring, or killing, the holder of the permit shall make arrangements to turn over the mountain lion or the entire carcass of the mountain lion which has been recovered to a representative of the department and shall do so in a timely manner.

FGC§4807. Immediate taking of mountain lion encountered while injuring or killing livestock or domestic animals; Report

(a) Any mountain lion that is encountered while in the act of pursuing, inflicting injury to, or killing livestock, or domestic animals, may be taken immediately by the owner of the property or the owner's employee or agent. The taking shall be reported within 72 hours to the department. The department shall investigate the depredation, and, if the mountain lion was captured, injured, or killed, the mountain lion or the entire carcass of the mountain lion which has been recovered shall be turned over to the department. Upon satisfactorily completing the investigation and receiving the mountain lion or the carcass, if recovered, the department shall issue a permit confirming that the requirements of this section have been met with respect to the particular mountain lion taken under these circumstances.

(b) The department shall undertake a complete necropsy on any returned mountain lion carcass and report the findings to the commission. The commission shall compile the reported findings and prepare an annual written report that shall be submitted to the Legislature not later than the January 15 next following the year in which the mountain lion was taken.

FGC§4808. "Agent"

As used in this chapter, "agent" means the agent or employee of the owner of the damaged or destroyed property, any county or city predator control officer, any employee of the Animal Damage Control Section of the United States Department of Agriculture, any departmental personnel, or any authorized or permitted houndsman registered with the department as possessing the requisite experience and having no prior conviction of any provision of this code or regulation adopted pursuant to this code. A plea of nolo contendere is a conviction for purposes of this section.

FGC§4809. Manner of taking

Mountain lions authorized to be taken pursuant to this chapter shall be taken by the most effective means available to take the mountain lion causing the damage or destruction, except that no mountain lion shall be taken by means of poison, leg-hold or metal-jawed traps, and snares.

Relevant California Code of Regulations Sections:

Title 14. Natural Resources

Division 1. Fish and Game Commission-Department of Fish and Game

Subdivision 2. Game, Furbearers, Nongame, and Depredators

Chapter 4. Depredation

T14CCR§400. Deer Depredation Hunts

- (a) A deer depredation hunt shall not be allowed where the number of deer involved numbers less than 25.
- (b) Before applying for a depredation hunt the landowner or tenant shall consult with representatives of the department to determine the existence or threat of depredation. All applications shall be in writing, filed with the commission on forms supplied by the department, and shall recite on their face that the applicant grants to the holders of hunting permits free and unrestricted access to, and the use of his lands for the purpose of said hunt.
- (c) Two or more landowners, or tenants, whose lands adjoin one another may apply jointly for a deer depredation hunt.
- (d) Before a deer depredation hunt is allowed, the landowner or tenant concerned shall sign a statement holding the Department of Fish and Game, their agents, officers, and employees, free and harmless from all claims that may arise from permittees shooting over said area, and from all claims on account of any act or omission on the part of said state, department, or their agents, officers or employees when engaged solely in the discharge of their official duties and functions.
- (e) Deer depredation hunts shall be confined to the lands owned or controlled by the applicant.
- (f) Hunting permits shall be issued on a first-come, first-served basis by employees of the department only, at a time and place to be designated in the order authorizing the hunt.
- (g) Applicants for hunting permits shall be 16 years of age or over.
- (h) Hunting permits shall be valid only for the area and the period of time designated on the permit.
- (i) Shooting time shall be one hour before sunrise to one hour after sunset.
- (j) Permits shall not be transferable.
- (k) Permittees shall check in at a designated checking station each day before hunting and shall check out at such station each day after hunting is finished.
- (l) Permit tag shall be attached to the antlers of antlered deer or to the ear of antlerless deer immediately after killing.
- (m) The commission shall designate the methods that may be used for each hunt. In addition to regular methods of take, these may also include 12 gauge shotguns shooting buck shot of size No. 2 or larger, and bows and arrows.
- (n) Deer meat held more than 15 days after close of the hunt shall be stamped in accordance with Section 3081 of the Fish and Game Code.
- (o) Employees of the department shall not be eligible to purchase hunting permits.
- (p) The department may refuse to issue a permit to anyone, may revoke any permit, and may eject the holder from the area for any reason when it appears

that the safety or welfare of the area, or that of other permittees, is endangered. Decision of the authorized employee of the department in this respect shall be final.

(q) Prior to the acceptance or issuance of a hunting permit all permittees shall consent in writing to the terms and conditions of these rules and regulations **T14CCR§401. Issuance of Permit to Take Animals Causing Damage**

(a) Application. A person who is a property owner or tenant may apply to the department for a permit to take elk, bear, bobcat, beaver, wild pigs, deer, wild turkeys, or gray squirrels that are damaging or destroying, or immediately threatening to damage or destroy, land or property. A bobcat in the act of injuring or killing livestock may be taken immediately provided the property owner or tenant applies for a permit from the department the next working day following the take.

(b) Permit Period.

(1) Permits issued pursuant to this section for beaver, wild pigs, or gray squirrels shall be valid for a period not to exceed one year.

(2) Permits issued pursuant to this section for bobcat, elk, bear, wild turkey, or deer shall be valid for a period not to exceed 60 consecutive days.

(3) Permits issued pursuant to this section authorizing the use of dogs for bear or bobcat shall authorize no more than three dogs and shall be valid for a period not to exceed 20 consecutive days.

(4) Permits may be renewed if damage or threatened damage to land or property continues to exist.

(c) Required Information and Conditions of Permit.

(1) The department shall collect the following information before issuing a depredation permit:

(A) The name, mailing address, and contact information of the property owner, including telephone, facsimile, and email. If the owner is a business entity, contact information for the person acting on behalf of the business.

(B) The name, mailing address, and contact information of the tenant (if applicable), including telephone, facsimile, and email.

(C) The name, mailing address, and contact information of any dog handlers or agents as described in subdivision (e), including telephone, facsimile, and email.

(D) The county and address of the location of the damage caused by depredation, or the nearest landmark or cross streets.

(E) A full description of the land or property damaged, destroyed, or immediately threatened, and the date the damage or threat occurred.

(F) The species suspected of damaging, destroying, or threatening land or property, and the method of identifying the species.

(G) A description of all non-lethal or less-lethal measures undertaken to prevent damage caused by animals prior to requesting the permit.

(H) A description of corrective actions that will be implemented to prevent future occurrence of the damage.

(I) The proposed method of take.

(J) Whether dogs will be used to pursue or take the animal, and if so, why dogs are needed, and the number of dogs to be used.

(2) The department may add terms and conditions to the permit necessary to protect wildlife and ensure public safety. To be valid, the permit shall contain a statement signed by the applicant that he/she has read, understands, and agrees to be bound by all the terms of the permit.

(d) Methods of Take.

(1) Animals taken pursuant to a permit may be taken in any legal manner except as herein provided and in accordance with the provisions of Section 465.5 of these regulations. Permits to take deer shall include conditions that comply with Fish and Game Code section 4181.5. Permits to take bear and bobcat with dogs shall include conditions that comply with Fish and Game Code Section 3960.2. No steel-jawed leghold traps may be used to take mammals, and no iron-jawed or any type of metal-jawed traps may be used to take squirrels or bears. No poison may be used. The department may specify the caliber and type of firearm and ammunition, archery equipment or crossbow to be used. The department may require that a permittee take animals alive by the use of live traps.

(2) The permittee and/or agent shall ensure that all animals are killed in a humane manner instantly and prevent any injured animal from escaping.

(e) Government Employees and Designated Agents.

(1) An employee of a federal, State, or local government agency or local district with responsibilities including but not limited to animal control, animal damage control, irrigation, flood, or natural resource reclamation, while acting in his/her official capacity may take depredating animals on the property designated in a permit issued pursuant to this section.

(2) The permittee may designate up to three other persons, including any dog handler who will be utilized in any pursuit, as his/her agents to take animals under the terms of the permit. A designated agent shall be any person who is acting under the direction and control of the permittee and who is 21 years of age or older. The designated agent(s) shall be named on the permit. The permittee may substitute designated agents with prior written approval of the department.

(f) Persons Prohibited from Taking Animals. No person shall take animals pursuant to the permit if he/she has been convicted of a violation related to the take or possession of game or furbearing mammals in the past 24 months or if he/she is on probation and may not hunt or possess a firearm as part of the terms of probation. A landowner who is on probation and may not hunt or possess a firearm as part of the terms of probation shall designate a qualified agent to take animals under a permit.

(g) Reports Required.

(1) Holders of permits authorizing take of wild pigs shall provide a report listing the date and sex of each wild pig taken. A report shall be submitted whether or not any animals were taken. The reporting period shall be by calendar month. The permittee or designated agent shall complete and submit the report to the department on or before the 15th day of the following month. Reports shall be submitted to the address provided by the department.

(2) Holders of permits authorizing the use of dogs to take bear or bobcat shall comply with the requirements of Fish & Game Code section 3960.2 and shall submit a report to the department within 30 days of permit issuance. Reports shall be submitted to the address provided by the department. Reports shall include the following information:

(A) Date of kill and the sex of any bear or bobcat that was killed.

(B) Details regarding all pursuits, including any information about a pursued bear or bobcat, even if the animal was not killed.

(C) An explanation of why any pursued bear or bobcat was not killed, and whether such bear or bobcat was harmed.

(h) Tagging Animals. All animals taken pursuant to a permit, except wild pigs, shall be immediately tagged with tags provided by the department. Wild pigs

shall be tagged prior to being transported from the property designated in the permit. Tags for animals except wild pigs shall be completed at the time the animal is taken. Tags for wild pigs shall be completed before the wild pigs are removed from the property. Tags shall clearly show the permittee's name, address, date and location the animal was taken and shall include the signature of the person taking the animal. The report portion of each tag shall be mailed to the department without delay. No tags are required for squirrels or beavers.

(i) Utilization of Carcass. Animals taken pursuant to this permit must be disposed of as required in the permit. No animals, except wild pigs, may be utilized by the permittee or designated agent. The permittee or designated agent may leave the carcass of any wild pig where it was taken for reasons of high air temperatures, disease, parasites, or conditions which preclude use of the carcass. A person who makes every reasonable attempt to utilize the carcass of any wild pig as required in this subsection shall be deemed to be in compliance with Section 4304 of the Fish and Game Code.

(1) After any taking of bear, the permittee or agent shall comply with Section 367.5 of these regulations, except the skull shall not be returned to the permittee or agent.

(j) Suspension and Revocation of Permits.

(1) Permits may be suspended temporarily by the director for a breach or violation of the permit by the holders thereof, their agents, servants, employees or any person acting under their direction and control. The commission shall be notified of any such suspension and subsequently may revoke or reinstate the permit, or fix the period of its suspension, after written notice to the permittee and the permittee has been afforded an opportunity to be heard.

(2) Any person who has had his/her permit revoked or suspended by the commission shall be required, upon application for a new or subsequent permit, to appear before the commission and demonstrate to its satisfaction that the use of such a permit will be consistent with depredation control, with these regulations, and with the laws under which they are promulgated.

(k) It is unlawful for a permittee or agent to violate any of the terms or conditions of a permit issued pursuant to this section.

(l) The permit does not invalidate any city, county, or state firearm regulation.

T14CCR§402. Issuance of Permits to Kill Mountain Lion Causing Damage

(a) Revocable permits may be issued by the department after receiving a report, from any owner or tenant or agent for them, of property being damaged or destroyed by mountain lion. The department shall conduct and complete an investigation within 48 hours of receiving such a report. Any mountain lion that is encountered in the act of inflicting injury to, molesting or killing livestock or domestic animals may be taken immediately if the taking is reported within 72 hours to the department and the carcass is made available to the department.

Whenever immediate action will assist in the pursuit of the particular mountain lion believed to be responsible for damage to livestock or domestic animals, the department may orally authorize the pursuit and take of a mountain lion. The department shall investigate such incidents and, upon a finding that the requirements of this regulation have been met, issue a free permit for depredation purposes, and carcass tag to the person taking such mountain lion.

(b) Permittee may take mountain lion in the manner specified in the permit, except that no mountain lion shall be taken by means of poison, leg-hold or metal-jawed traps and snares.

(c) Both males and females may be taken during the period of the permit irrespective of hours or seasons.

- (d) The privilege granted in the permit may not be transferred, and only entitles the permittee or the employee or agent of the permittee to take mountain lion. Such person must be 21 years of age or over and eligible to purchase a California hunting license.
- (e) Any person issued a permit pursuant to this section shall report by telephone within 24 hours the capturing, injuring or killing of any mountain lion to an office of the department or, if telephoning is not practical, in writing within five days after capturing, injuring or killing of the mountain lion. Any mountain lion killed under the permit must be tagged with the special tag furnished with the permit; both tags must be completely filled out and the duplicate mailed to the Department of Fish and Game, Sacramento, within 5 days after taking any mountain lion.
- (f) The entire carcass shall be transported within 5 days to a location agreed upon between the issuing officer and the permittee, but in no case will a permittee be required to deliver a carcass beyond the limits of his property unless he is willing to do so. The carcasses of mountain lions taken pursuant to this regulation shall become the property of the state.
- (g) Animals shall be taken in a humane manner so as to prevent any undue suffering to the animals.
- (h) The permittee shall take every reasonable precaution to prevent the carcass from spoiling until disposed of in the manner agreed upon under subsection (f) of these regulations.
- (i) The permit does not invalidate any city, county, or state firearm regulation.
- (j) Permits shall be issued for a period of 10 days. Permits may be renewed only after a finding by the department that further damage has occurred or will occur unless such permits are renewed. The permittee may not begin pursuit of a lion more than one mile nor continue pursuit beyond a 10-mile radius from the location of the reported damage.

Chapter 5. Furbearing Mammals

T14§CCR465. General Provisions for Taking Furbearers

- (a) Furbearing mammals may be taken only with a firearm, bow and arrow, or with the use of dogs, or traps in accordance with the provisions of Section 465.5 of these regulations and Section 3003.1 of the Fish and Game Code. The take or attempted take of any furbearing mammal with a firearm shall be in accordance with the use of nonlead projectiles and ammunition pursuant to Section 250.1.
- (b) Pursuant to Fish and Game Code Section 2003, it is unlawful to offer any prize or other inducement as a reward for the taking of furbearers in an individual contest, tournament, or derby.

T14CCR§465.5. Use of Traps

- (a) Traps Defined. Traps are defined to include padded-jaw leg-hold, steel-jawed leg-hold, and conibear traps, snares, dead-falls, cage traps and other devices designed to confine, hold, grasp, grip, clamp or crush animals' bodies or body parts.
- (b) Affected Mammals Defined. For purposes of this section, furbearing mammals, game mammals, nongame mammals, and protected mammals are those mammals so defined by statute on January 1, 1997, in sections 3950, 4000, 4150 and 4700 of the Fish and Game Code.

(c) Prohibition on Trapping for the Purposes of Recreation or Commerce in Fur. It is unlawful for any person to trap for the purposes of recreation or commerce in fur any furbearing mammal or nongame mammal with any body-gripping trap. A body-gripping trap is one that grips the mammal's body or body part, including, but not limited to, steel-jawed leg-hold traps, padded-jaw leg-hold traps, conibear traps, and snares. Cage and box traps, nets, suitcase-type live beaver traps, and common rat and mouse traps shall not be considered body-gripping traps and may be used to trap for the purposes of recreation or commerce in fur any furbearing or nongame mammal.

(d) Prohibition on Exchange of Raw Fur. It is unlawful for any person to buy, sell, barter, or otherwise exchange for profit, or to offer to buy, sell, barter, or otherwise exchange for profit, the raw fur, as defined by Section 4005 of the Fish and Game Code, of any furbearing mammal or nongame mammal that was trapped in this state, with a body-gripping trap as described in subsection (c) above.

(e) Prohibition on Use of Steel-jawed Leg-hold Traps by Individuals. It is unlawful for any person to use or authorize the use of any steel-jawed leg-hold trap, padded or otherwise, to capture any game mammal, furbearing mammal, nongame mammal, protected mammal, or any dog or cat.

(1) Exception for Extraordinary Case to Protect Human Health or Safety. The prohibition in subsection (e) does not apply to federal, state, county, or municipal government employees or their duly authorized agents in the extraordinary case where the otherwise prohibited padded-jaw leg-hold trap is the only method available to protect human health or safety.

(A) Leg-hold Trap Requirements. Leg-hold traps used to implement subsection (e)(1) must be padded, commercially manufactured, and equipped as provided in subsections (A)1. through (A)5. below.

1. Anchor Chains. Anchor chains must be attached to the center of the padded trap, rather than the side.

2. Chain Swivels. Anchor chains must have a double swivel mechanism attached as follows: One swivel is required where the chain attaches to the center of the trap. The second swivel may be located at any point along the chain, but it must be functional at all times.

3. Shock Absorbing Device. A shock absorbing device such as a spring must be in the anchor chain.

4. Tension Device. Padded leg-hold traps must be equipped with a commercially manufactured pan tension adjusting device.

5. Trap Pads. Trap pads must be replaced with new pads when worn and maintained in good condition.

(f) Use of Non-Body-Gripping Traps for Purposes of Recreation or Commerce in Fur. Any person who utilizes non-body-gripping traps for the take of furbearing mammals and nongame mammals for purposes of recreation or commerce in fur must comply with the provisions of subsections (g)(1) through (3) below.

(1) Trap Number Requirement. Any person who traps furbearing mammals or nongame mammals shall obtain a trap number issued by and registered with the department. All traps, before being put into use, shall bear only the current registered trap number or numbers of the person using, or in possession of those traps. This number shall be stamped clearly on the trap or on a metal tag attached to the chain of the trap or to any part of the trap.

(g) Use of Conibear Traps, Snares, Cage and Box Traps, Nets, Suitcase-type Live Beaver Traps and Common Rat and Mouse Traps for Purposes Unrelated to Recreation or Commerce in Fur. Conibear traps, snares, cage and box traps,

nets, suitcase-type live beaver traps and common rat and mouse traps may be used by individuals to take authorized mammals for purposes unrelated to recreation or commerce in fur, including, but not limited to, the protection of property, in accordance with subsections (1) through (5) below. Except for common rat and mouse traps, all traps used pursuant to this subsection must be numbered as required by subsection (f)(1) above. The prohibitions of subsections (c) and (d) above shall apply to any furbearing or nongame mammal taken by a conibear trap or snare pursuant to this subsection (g).

(1) Immediate Dispatch or Release. All furbearing and nongame mammals that are legal to trap must be immediately killed or released. Unless released, trapped animals shall be killed by shooting where local ordinances, landowners, and safety permit. This regulation does not prohibit employees of federal, state, or local government from using chemical euthanasia to dispatch trapped animals.

(2) Trap Visitation Requirement. All traps shall be visited at least once daily by the owner of the traps or his/her designee. Such designee shall carry on his/her person written authorization, as owner's representative, to check traps. In the event that an unforeseen medical emergency prevents the owner of the traps from visiting traps another person may, with written authorization from the owner, check traps as required. The designee and the person who issues the authorization to check traps shall comply with all provisions of Section 465.5. Each time traps are checked all trapped animals shall be removed.

(3) Trap Placement Requirement. Traps may not be set within 150 yards of any structure used as a permanent or temporary residence, unless such traps are set by a person controlling such property or by a person who has and is carrying with him written consent of the landowner to so place the trap or traps.

(4) Placement of Conibear Traps. Traps of the conibear-type with a jaw opening larger than 8" x 8" may be used only in sets where the trap is wholly or partially submerged in water or is:

(A) Within 100 feet of permanent water.

(B) Within 100 feet of seasonally flooded marshes, pastures, agricultural lands or floodways when standing or running water is present.

(C) Within the riparian vegetation zone, characterized by, but not limited to, willow, cottonwood, sycamore, salt cedar, cattail, bulrush and rushes, when found within the area defined in section 463(a) where the take of beaver is permitted.

(5) Zones Prohibited to the Use of Conibear-type Traps and Snares. Conibear-type traps and snares, except those totally submerged, and deadfall traps are prohibited in the following zones.

(A) Zone 1: Beginning at Interstate 5 and Highway 89, east on Highway 89 to Harris Springs Road near Bartle, north on Harris Springs Road (primary U.S. Forest Service Road 15) to Powder Hill Road (primary U.S. Forest Service Road 49), northeast on Powder Hill Road to Road 42N56, east on Road 42N56 to the Siskiyou/Modoc county line, north on the Siskiyou/Modoc county line to the boundary of the Lava Beds National Monument, north along the eastern boundary of the Lava Beds National Monument, then west then south along the western boundary of the Lava Beds National Monument to Road 46N21, west along Road 46N21 over Gold Digger Pass to the western boundary of the Modoc National Forest, south along the western boundary of the Modoc National Forest to the boundary of the Shasta National Forest, west along the northern boundary of the Shasta National Forest to Highway 97, southwest on Highway 97 to Interstate 5, northwest on Interstate 5 to Old Highway 99, northwest on

Old Highway 99 to Stewart Springs Road, southwest on Stewart Springs Road to the Yreka Ditch, west along the Yreka Ditch to the Gazelle/Callahan Road, southwest on the Gazelle/Callahan Road to Highway 3, south on Highway 3 to Ramshorn Road, northeast on Ramshorn Road to Castle Creek Road, east on Castle Creek Road to Interstate 5, north on Interstate 5 to the point of beginning.

(B) Zone 2: Beginning in Tehama County at the intersection of Highway 36 and the western boundary of the Lassen National Forest, south along the western boundary of the Lassen National Forest to the boundary of the Plumas National Forest, south along the western boundary of the Plumas National Forest to the boundary of the Tahoe National Forest, south along the western boundary of the Tahoe National Forest to the boundary of the El Dorado National Forest, south along the western boundary of the El Dorado National Forest to the boundary of the Stanislaus National Forest, south along the western boundary of the Stanislaus National Forest to the boundary of the Sierra National Forest, south along the western boundary of the Sierra National Forest to the boundary of the Sequoia National Forest, south along the western boundary of the Sequoia National Forest to Highway 245, southwest on Highway 245 to Road 168, southwest on Road 168 to County Road J40, west on County Road J40 to Henderson Road, northwest on Henderson Road to Lincoln Avenue, west on Lincoln Avenue to Highway 145, north on Highway 145 to Avenue 7, west on Avenue 7 to Road 21, north on Road 21 to Avenue 12, west on Avenue 12 to Road 16, north on Road 16 to Avenue 18 1/2, west on Avenue 18 1/2 to Road 9, north on Road 9 to Highway 152, west on Highway 152 to Highway 59, north on Highway 59 to Highway 99, northwest on Highway 99 to Highway 140, west on Highway 140 to Highway 33, north on Highway 33 to Interstate 5, north on Interstate 5 to County Road J4, west on County Road J4 to County Road J2, north on County Road J2 to Highway 4, west on Highway 4 to Lone Tree Way, west on Lone Tree Way to James Donlon Boulevard, west on James Donlon Boulevard to Somersville Road, south on Somersville Road to Nortonville Road, north on Nortonville Road to Kirker Pass Road, southwest on Kirker Pass Road to Clayton Road, southeast on Clayton Road to Mitchell Canyon Road, south on Mitchell Canyon Road to the boundary of Mount Diablo State Park, south along the western boundary of Mount Diablo State Park to Mt. Diablo Scenic Boulevard, south on Mt. Diablo Scenic Boulevard to Blackhawk Road, southeast on Blackhawk Road to Camino Tassajara, west on Camino Tassajara to Dougherty Road, south on Dougherty Road to Interstate 580, west on Interstate 580 to Interstate 680, south on Interstate 680 to Highway 84, northeast on Highway 84 to Holmes Street, south on Holmes Street to Wetmore Road, east on Wetmore Road to Arroyo Road, south on Arroyo Road to Del Valle Regional Park, southeast along the western boundary of Del Valle Regional Park to Arroyo Del Valle Creek, southeast on Arroyo Del Valle Creek to the Alameda/Santa Clara county line, east on the Alameda/Santa Clara county line to San Antonio Valley Road, south on San Antonio Valley Road to Del Puerto Canyon Road, east on Del Puerto Canyon Road to Santa Clara/Stanslaus county line, south along the Santa Clara/Stanslaus county line to the Santa Clara/Merced county line, south along the Santa Clara/Merced county line to the San Benito/Merced county line, south along the San Benito/Merced county line to Little Panoche Road, south on Little Panoche Road to Panoche Road, east on Panoche Road to New Idria Road, south along New Idria Road to Clear Creek Road, southwest on Clear Creek Road to Coalinga Road, southeast on Coalinga Road to Coalinga-Mineral Springs Road, south on Coalinga-Mineral Springs Road to Highway 198, east on Highway 198

to Parkfield Grade, south on Parkfield Grade to Vineyard Canyon Road, west on Vineyard Canyon Road to Highway 101, north on Highway 101 to Bradley Road, north on Bradley Road to Sargents Road, north on Sargents Road to Pancho Rico Road, west on Pancho Rico Road to Cattleman's Road, north on Cattleman's Road to Highway 198, west on Highway 198 to Highway 101, north on Highway 101 to County Road G13, northeast on County Road G13 to Highway 25, north on Highway 25 to Browns Valley Road, north on Browns Valley Road to Santa Anita Road, northwest on Santa Anita Road to Santa Ana Valley Road, north on Santa Ana Valley Road to Fairview Road, north on Fairview Road to Highway 156, north on Highway 156 to Highway 152, southwest on Highway 152 to County Road G7, southwest on County Road G7 to Highway 25, west on Highway 25 to Highway 101, south on Highway 101 to the San Benito/Monterey county line, south on the San Benito/Monterey county line to Highway 146, west on Highway 146 to Highway 101, south on Highway 101 to Paraiso Springs Road, south on Paraiso Springs Road to County Road G17, south on County Road G17 to County Road 16, northeast on County Road 16 to Central Avenue, southeast on Central Avenue to Highway 101, south on Highway 101 to County Road G14, south on County Road G14 to Milpitas Road, west on Milpitas Road to the boundary of Fort Hunter Liggett, south along the western boundary of Fort Hunter Liggett to the Nacimiento River, southeast along the Nacimiento River to Nacimiento Reservoir, southeast along the western boundary of Nacimiento Reservoir to Chimney Rock Road, south on Chimney Rock Road to Klau Mine Road, south on Klau Mine Road to Adelaida Road, east on Adelaida Road to Vineyard Drive, southeast on Vineyard Drive to Highway 101, south on Highway 101 to Highway 41, east on Highway 41 to Highway 229, south on Highway 229 to Creston O'Donovan Road, southeast on Creston O'Donovan Road to Highway 58, east on Highway 58 to the boundary of the Los Padres National Forest, south and east along the eastern boundary of the Los Padres National Forest to Highway 33, south on Highway 33 to Quatal Canyon Road, east on Quatal Canyon Road to Cerro Noroeste Road, east on Cerro Noroeste Road to Cuddy Valley Road, east on Cuddy Valley Road to Interstate 5, north on Interstate 5 to Wheeler Ridge Road, east on Wheeler Ridge Road to Laval Road, east on Laval Road to Rancho Road, north on Rancho Road to Sycamore Road, east on Sycamore Road to Tejon Highway, north on Tejon Highway to Highway 223, northeast on Highway 223 to Highway 58, east on Highway 58 to Caliente Bodfish Road, north on Caliente Bodfish Road to Highway 155, northeast then west on Highway 155 to the eastern boundary of the Sequoia National Forest, north and east along the southern boundary of the Sequoia National Forest to the Dome Land Wilderness, north along the eastern boundary of the Dome Land Wilderness to the boundary of the Inyo National Forest, north along the eastern boundary of the Inyo National Forest west of Highway 395 to the intersection of Inyo National Forest and Highway 395 near Sherwin Summit in Mono County, north on Highway 395 to the California/Nevada state line, north on the California/Nevada state line to Highway 395 in Sierra County, north on Highway 395 to Long Valley Road, south on Long Valley Road to the boundary of the Toiyabe National Forest, west along the Toiyabe National Forest boundary to the Tahoe National Forest boundary, west then south then west then north along the Tahoe National Forest boundary to the Plumas National Forest boundary, north then east then north along the eastern boundary of the Plumas National Forest to the Lassen National Forest boundary, north along the eastern boundary of the Lassen National Forest to the northern boundary of the Lassen National Forest, west along the northern boundary of the Lassen National Forest

to the western boundary of the Lassen National Forest, south along the western boundary of the Lassen National Forest to the point of beginning.

(h) Statutory Penalty for Violation of Provisions. Violation of Section 3003.1 or 3003.2 of the Fish and Game Code, or any rule or regulation, including this Section 465.5, adopted pursuant thereto, is punishable by a fine of not less than three hundred dollars (\$300) or more than two thousand dollars (\$2,000), or by imprisonment in the county jail for not more than one year, or by both that fine and imprisonment.

Except as otherwise provided in Sections 478 and 485 and subsections (a) through (d) below, nongame birds and mammals may not be taken.

Chapter 6. Nongame Animals

T14CCR§472. General Provisions

Except as otherwise provided in Sections 478 and 485 and subsections (a) through (d) below, nongame birds and mammals may not be taken.

(a) The following nongame birds and mammals may be taken at any time of the year and in any number except as prohibited in Chapter 6: English sparrow, starling, coyote, weasels, skunks, opossum, moles and rodents (excluding tree and flying squirrels, and those listed as furbearers, endangered or threatened species).

(b) Fallow, sambar, sika, and axis deer may be taken only concurrently with the general deer season.

(c) Aoudad, mouflon, tahr, and feral goats may be taken all year.

(d) American crows (*Corvus brachyrhynchos*)

(1) May be taken only under the provisions of Section 485 and by landowners or tenants, or by persons authorized in writing by such landowners or tenants, when American crows are committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance. Persons authorized by landowners or tenants to take American crows shall keep such written authorization in their possession when taking, transporting or possessing American crows. American crows may be taken only on the lands where depredations are occurring or where they constitute a health hazard or nuisance. If required by Federal regulations, landowners or tenants shall obtain a Federal migratory bird depredation permit before taking any American crows or authorizing any other person to take them.

(2) American crows may be taken under the provisions of this subsection only by firearm, bow and arrow, falconry or by toxicants by the Department of Food and Agriculture for the specific purpose of taking depredating crows. Toxicants can be used for taking crows only under the supervision of employees or officers of the Department of Food and Agriculture or federal or county pest control officers or employees acting in their official capacities and possessing a qualified applicator certificate issued pursuant to sections 14151-14155 of the Food and Agriculture Code. Such toxicants must be applied according to their label requirements developed pursuant to sections 6151-6301, Title 3, California Code of Regulations.

(e) Pursuant to Fish and Game Code Section 2003, it is unlawful to offer any prize or other inducement as a reward for the taking of nongame mammals in an individual contest, tournament, or derby.

T14CCR§475. Methods of Take for Nongame Birds and Nongame Mammals

Nongame birds and nongame mammals may be taken in any manner except as follows:

(a) Poison may not be used.

- (b) Recorded or electrically amplified bird or mammal calls or sounds or recorded or electrically amplified imitations of bird or mammal calls or sounds may not be used to take any nongame bird or nongame mammal except coyotes, bobcats, American crows and starlings.
- (c) Fallow deer, sambar deer, axis deer, sika deer, aoudad, mouflon, tahr and feral goats may be taken only with the equipment and ammunition specified in Section 353 of these regulations.
- (d) Traps may be used to take nongame birds and nongame mammal only in accordance with the provisions of Section 465.5 of these regulations and sections 3003.1 and 4004 of the Fish and Game Code.
- (e) No feed, bait or other material capable of attracting a nongame mammal may be placed or used in conjunction with dogs for the purpose of taking any nongame mammals. Nothing in this section shall prohibit an individual operating in accordance with the provisions of Section 465.5 from using a dog to follow a trap drag and taking the nongame mammal caught in that trap.
- (f) The take or attempted take of any nongame bird or nongame mammal with a firearm shall be in accordance with the use of nonlead projectiles and ammunition pursuant to Section 250.1 of these regulations.

Chapter 7. Migratory Game Birds

T14CCR§503. Crop Damage and Nuisance Canada Geese.

In accordance with the provisions of Section 355 of the Fish and Game Code and pursuant to the Migratory Bird Treaty Act, the Fish and Game Commission does hereby approve the following federal orders and permits:

- (a) all orders and permits by the federal government authorizing the herding or take of migratory game birds to alleviate crop depredation.
- (b) the Airport Control Order (50 CFR 21.49) except trapping and relocation of Canada geese from airports may only occur under the terms and conditions of a permit issued by the Department.
 - (1) Requests for permits to trap and relocate Canada geese from airports shall be submitted to the department at 1812 Ninth Street, Sacramento, CA 95814 in writing and shall include the following information:
 - (A) Name and address of applicant
 - (B) Location (airport) and number of geese to be trapped and relocated
 - (C) Location of, and proof of permission to use, release site
 - (c) the Nest and Egg Control Order (50 CFR 21.50) may occur under the terms and conditions of a permit issued by the Department (note: Registration is required by the U.S. Fish and Wildlife Service at: <https://epermits.fws.gov/eRCGR/geSI.aspx>).
 - (1) Requests for permits to destroy nests and eggs of Canada geese from the counties not listed in subsection (c)(2) shall be submitted to the Department at 1812 Ninth Street, Sacramento, CA 95814 in writing and shall include the following information:
 - (A) Name and address of applicant
 - (B) Location and number of nests and/or eggs to be destroyed
 - (2) Exception: Nests and eggs of Canada geese may be destroyed without a permit issued by the department only in the following counties: Sonoma, Napa, Solano, Marin, Contra Costa, Alameda, San Francisco, San Mateo, Santa Clara, Santa Cruz, San Benito, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange and San Diego counties.
- (d) the Public Health Order (50 CFR 21.52).

Subdivision 3. General Regulations

Chapter 1. Collecting Permits**T14CCR§656 Permits to Take Beaver or Bear in a Refuge.**

The department may issue a free permit to take beaver or bear within a refuge under the following conditions:

- (a) Applications to take beaver or bear shall be filed with the department and shall show:
 - (1) Name and address of applicant.
 - (2) Name of refuge involved.
 - (3) The approximate number of animals to be taken.
 - (4) Such other pertinent data as the department may require.
- (b) All permits shall be for a stated period of time not to exceed six months.
- (c) No permit shall be issued unless the department is satisfied that damage is presently occurring or is immediately threatened.
- (d) During the first two weeks of January of each year, each permittee shall submit to the department report of specimens taken during the preceding calendar year and no new permit shall be issued until such a report has been received.
- (e) The commission may revoke a permit for violation of the terms of the permit.
- (f) Any applicant convicted of violating these regulations or the terms and conditions of his permit must appear before the Fish and Game Commission before his permit may be reinstated or a new permit issued to him.

WORKGROUP STAFF SUMMARY FOR FEBRUARY 21, 2017

4. RECREATIONAL TAKE**Today's Item****Information** **Decision**

- (A) Receive an informational presentation by DFW on recreational take of predators.
- (B) Discuss potential changes to recreational take regulations to propose for revision.

Summary of Previous/Future Actions (N/A)**Background**

In Nov 2016, the Workgroup discussed possible approaches to evaluating predator-related regulations and decided to initially focus on major discussion topics rather than specific regulations; the Workgroup selected depredation and recreational take as the first two topics to address. The Workgroup also requested DFW provide background information on the topics to help inform discussions.

In addition, FGC referred a petition for regulation change to the Workgroup in May 2016 for further evaluation. Petition #2015-008 (Exhibit 1) requests a regulation change to repeal hunting of American badger and gray fox.

Today, DFW will present information on trends in recreational take and a summary of hunting and trapping seasons and limits for the eight species of furbearing and nongame mammals that are the primary focus of the Workgroup. A summary of the seasons and limits for the eight species is provided in Exhibit 2. DFW will also provide an overview of current efforts to assess predator communities in the state, including discussion of available methods for estimating density, distribution and co-occurrence of predators at the regional and community levels. Following the presentation, the Workgroup will discuss issues of concern related to recreational take and potential changes to the regulations for recommendation to WRC.

Significant Public Comments (N/A)**Recommendation**

Provide direction to staff on next steps.

Exhibits

1. [Petition #2015-008](#)
2. [DFW table of seasons and limits](#)

Workgroup Decision/Recommendation (N/A)



2015-008

Tracking Number: (Click here to enter text.)

To request a change to regulations under the authority of the California Fish and Game Commission (Commission), you are required to submit this completed form to: California Fish and Game Commission, 1416 Ninth Street, Suite 1320, Sacramento, CA 95814 or via email to FGC@fgc.ca.gov. Note: This form is not intended for listing petitions for threatened or endangered species (see Section 670.1 of Title 14).

Incomplete forms will not be accepted. A petition is incomplete if it is not submitted on this form or fails to contain necessary information in each of the required categories listed on this form (Section I). A petition will be rejected if it does not pertain to issues under the Commission's authority. A petition may be denied if any petition requesting a functionally equivalent regulation change was considered within the previous 12 months and no information or data is being submitted beyond what was previously submitted. If you need help with this form, please contact Commission staff at (916) 653-4899 or FGC@fgc.ca.gov.

SECTION I: Required Information.

Please be succinct. Responses for Section I should not exceed five pages

- 1. **Person or organization requesting the change (Required)**
Name of primary contact person: Paula Lane Action Network (PLAN), Susan Kirks, Badger Ecologist

- 2. **Rulemaking Authority (Required)** - Reference to the statutory or constitutional authority of the Commission to take the action requested: Mammal Hunting 2015-2016 Regulations

- 3. **Overview (Required)** - Summarize the proposed changes to regulations: Repeal allowed hunting of American Badger and Gray Fox. American Badger is a Species of Concern in California since 1987 with diminishing populations and significant fragmentation of and loss of habitat.

- 4. **Rationale (Required)** - Describe the problem and the reason for the proposed change: Special Status Animals should not be allowed to be hunted in California. In particular, the American Badger is a CA Species of Concern. Population is diminishing and habitat areas have increasingly diminished and fragmentation prevents habitat access as well as movement for mating to sustain biodiversity. The American Badger also creates benefits for other wildlife in coastal and inland ecosystems. Hunting of this fur-bearing mammal (as well as Gray Fox) should be permanently repealed. Please see attached summary.

SECTION II: Optional Information

- 5. **Date of Petition: November 28, 2015**

- 6. **Category of Proposed Change**
 Sport Fishing



- Commercial Fishing
- Hunting
- Other, please specify: [Click here to enter text.](#)

7. **The proposal is to:** (*To determine section number(s), see current year regulation booklet or <https://govt.westlaw.com/calregs>*)
- Amend Title 14 Section(s): [Click here to enter text.](#)
 - Add New Title 14 Section(s): [Click here to enter text.](#)
 - Repeal Title 14 Section(s): Mammal Hunting Regulations, Subdivision 2 Game, Furbearers, Nongame and Depredators (Detail Listing). Chapter 5 Furbearing Mammals. §461. Badger and Gray Fox. (a) Badger may be taken as follows: (1) Season and Area: November 16 through the last day of February, statewide. (2) Bag and Possession Limit: No limit. (b) Gray fox may be taken as follows: (1) Season and Area: November 24 through the last day of February, statewide. (2) Bag and Possession Limit: No limit. (3) Dogs may be permitted to pursue gray fox in the course of breaking, training, or practicing dogs in accordance with the provisions of Section 265 of these regulations. *Repealer and new section filed 5-13-81; designated effective 5-23-81.*
8. **If the proposal is related to a previously submitted petition that was rejected, specify the tracking number of the previously submitted petition** [Click here to enter text.](#)
Or Not applicable.
9. **Effective date:** If applicable, identify the desired effective date of the regulation. If the proposed change requires immediate implementation, explain the nature of the emergency: Request expedient review and implementation of repeal for hunting Badger and Gray Fox immediately.
10. **Supporting documentation:** Identify and attach to the petition any information supporting the proposal including data, reports and other documents: See attached summary.
11. **Economic or Fiscal Impacts:** Identify any known impacts of the proposed regulation change on revenues to the California Department of Fish and Wildlife, individuals, businesses, jobs, other state agencies, local agencies, schools, or housing: None.
12. **Forms:** If applicable, list any forms to be created, amended or repealed:
[Click here to enter text.](#)

SECTION 3: FGC Staff Only

Date received: [Click here to enter text.](#)

FGC staff action:

- Accept - complete
 - Reject - incomplete
 - Reject - outside scope of FGC authority
- Tracking Number

Date petitioner was notified of receipt of petition and pending action: _____

Meeting date for FGC consideration: _____

RECEIVED
 CALIFORNIA
 FISH AND GAME
 COMMISSION
 2015 DEC -2 AM 9:03



FGC action:

- Denied by FGC
- Denied - same as petition _____
Tracking Number
- Granted for consideration of regulation change

Request to Repeal Hunting of American Badger and Gray Fox

The American Badger (*Taxidea taxus*) has been a designated Special Status Animal, a CA Species of Concern, since 1987, for over 28 years. The CA Department of Fish and Wildlife defines Species of Concern as:

“A Species of Special Concern (SSC) is a species, subspecies, or distinct population of an animal* native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:

- is extirpated from the State or, in the case of birds, in its primary seasonal or breeding role;
- is listed as Federally-, but not State-, threatened or endangered; meets the State definition of threatened or endangered but has not formally been listed;
- is experiencing, or formerly experienced, serious (nonscyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status;
- has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status.”

The 3rd and 4th points of this description directly relate to American Badger (*Taxidea taxus*) in California.

A Special Status animal, a CA Species of Concern, should not be on the CA Department of Fish and Wildlife’s permitted Hunting list. We respectfully request the Department repeal this regulation at your earliest convenience.

Discussion

The conservation nonprofit organization, Paula Lane Action Network (PLAN) in Sonoma County, formed in 2000 and incorporated in 2004, has for 15 years dedicated resources and time to observe and document American Badger in the San Francisco Bay area, protect identified longstanding American Badger habitat, and establish outreach in California and outside California, to better understand this reclusive mammal. The conservation effort includes documenting all available habitat, species sightings, and relating seasonal behaviors to this work. By seasonal behaviors, we mean, for example, observing burrowing and foraging patterns June through August for evidence of increased activity related to dispersal of juvenile badgers. Or from February through Summer, observing Badger activity on properties to identify and confirm preferred territories of adult female Badgers. In fact, one of the most salient factors in the potential preservation of the species in California and possibly elsewhere, is identifying preferred adult female Badger territories and ensuring non-encroachment and protection of those areas. Coupled with this is the protection of wildlife movement areas to ensure the ability of traversal by male adult Badgers and movement of all Badgers through preferred wildlife corridors, to help sustain biodiversity. Added to this is the pressing need for prey and water availability during the current drought, which has been observed to negatively impact American Badger and other wildlife species, making competition for both resources heightened.

The nonprofit, Paula Lane Action Network, has a Naturalist and Badger ecologist who has visited every available identified property and habitat, with repeat visits over seasonal time periods, in the San Francisco Bay area during these 15 years, to receive reports, discuss sightings and any questions with property owners or residents, and verify reports received of habitat and/or species sightings. The naturalist and badger ecologist has also fielded questions and responded to inquiries in California and outside California. A significant field-study-based body of knowledge about American Badger has resulted from this level of attention to the species.

In the greater San Francisco Bay Area, there are estimated to be a population of 15 adult badgers and possibly 5 remaining living juvenile Badgers from the 2015 birthing season. In Sonoma and Marin Counties, in Summer 2015, two adult Badgers were documented as killed by motor vehicle strikes and 2 juvenile Badgers were also documented as killed by motor vehicle strikes. Death by vehicle strike, especially in Summer months, from 2011 to present, as reported to PLAN and confirmed, is consistent, 2-4 Badgers annually.

American Badger relies on grassland, including agricultural areas, for habitat and foraging. Badgers succumb to mortality from ranchers who believe a badger burrow or foraged out gopher mounds on a property will result in livestock stepping in holes and breaking legs, thus a loss of potential income source for the rancher. American Badger poses no threat to ranchers or farmers. Preferred prey of American Badger of gopher, vole, mouse, and ground squirrel follow a pattern of underground prey tunnels aerating soil in grassland areas, but also partaking of available grasses and vegetation. American Badger is a natural manager of gopher, vole, mouse and ground squirrel in grassland and adjacent areas. American Badger burrow creation occurs from foraged out prey holes. The burrow is usually in a hillside and the hole itself is created on a diagonal angle with a large area of displaced soil outside the burrow opening. Unless a herd of animals is panicked and fleeing a perceived threat, thus increasing the likelihood for an accident of any kind, the possibility of a domestic large animal stepping into and then down into a Badger Burrow opening is extremely low. Direct observation of horses galloping on a hillside among 15 active Badger burrows contributes to this clarification of what is a non-threat to livestock. Foraged out gopher mounds or vole holes are also similar in size to any general small or medium hole in a grassland area and livestock have not in 15 years of multiple observations been observed to inadvertently step into such a hole. In addition, a Marin County rancher who raises cattle and sheep on a 300+ acre ranch has over time observed his bull to intentionally step into a foraged out prey hole and kick up dirt from the loosened soil onto its body to alleviate itching, and then move along its way. Direct observation over an extended period of time allows this factual clarification to offset the cultural myth of rancher and farmer dislike of American Badger on a grassland property. While American Badger generally will remain within its home range, often from necessity due to obstructed movement areas and fragmented habitat, and return to preferred areas for prey foraging, the adult female Badger selects and remains in her territory, and male adult Badgers traverse through established female Badger territories. On farms and ranches comprised of grassland, a permanent Badger in residence is unusual and any concern about a Badger burrow created on a private property could be followed by filling in the hole with dirt after an adult Badger has foraged, obtained prey, also managing the gopher, vole, mouse or ground squirrel population, and has moved on to another area in the Badger's home range. The average length of time for an adult Badger to remain in an area, foraging, is generally a week to ten days, based on direct observation.

Sonoma and Marin Counties are recorded to have a small sustaining Badger population in the coastal area and, to the degree badgers can move and range, further inland in the Occidental, Petaluma and Sonoma Valley areas in grassland with gopher/vole/mouse prey base. Petaluma in southern Sonoma County, comprised of fairly expansive grassland, has a documented American Badger presence of longstanding, over 100 years (Habitat Survey, 2003, Fitts). Nicasio in Marin County also has documented American Badger activity, with two additional reports of Badger activity in southern/mid Marin and one report in northern Marin County. In Napa County, where grassland habitat does exist, but the vineyard properties abound, there appears to be one adult female Badger and possibly one or two adult male Badgers. The East San Francisco Bay area included reports as of 2015 of one adult female Badger in the Dublin area in Summer with one to two juvenile Badgers dispersing and living, seeking water and prey, in Summer 2015. Thus, at least one adult male Badger has also been in residence in the East Bay Hills. The available land to sustain a Badger population in the East Bay is questionable.

South of the San Francisco Bay Area in Santa Clara County and Santa Cruz County are reports of one to three adult Badgers sustaining, with an unknown variant of the number of female adult Badgers in this population as of 2015.

The Central Valley area, particularly Sacramento agricultural land, has a reported small badger population via reports and questions posed to the nonprofit PLAN. The southern California area of Monterey has had documented a population of 7 adult Badgers in the mid-2000s. The current population in the Monterey area is unknown.

In Mendocino County's coastal area, reports of one juvenile badger and one adult Badger were been received in 2014 and 2015.

Negative impacts contributing to diminution in American Badger population and ability to survive include:

-First and foremost, habitat loss and habitat fragmentation. As a Species of Concern in California, habitat and assured movement areas for badger are not protected. Mitigations for development and other impacts relate to direct harm to the species and our past experience reflects the Department's lack of understanding of species needs and behaviors when regulators become involved in reviewing and approving mitigations related to loss of habitat from development or other causes requiring consideration for mitigation. Accrual of observations and data by PLAN over 15 years reflect significant loss of habitat and prey bases and a clear need to ensure habitat areas, preferred adult female Badger habitat, and the ability for American badger to range or move be identified and actively preserved.

-Additional significant negative impacts to the remaining American Badger in California include drought. Less prey available and dried-up Summer and Autumn water sources result in competition for both.

-Motor vehicle strikes killing adult and juvenile badgers especially during critical Summer months for dispersal of young.

Dr. Jessie Quinn's research and subsequent dissertation in the late 2000s documented a movement range in the Monterey area for a population of 10 badgers of approximately 10 miles. In the San Francisco Bay area, the movement range for American Badger is directly observed over 15 years for the documented small badger populations to be only 4 to 6 miles on the Sonoma Coast, 4 miles on the Marin Coast (with development in between coastal areas preventing contiguous corridor movement) and approximately 8 miles coast-inland-coast, but *only if* conditions allowing movement, not being killed by ranchers who own the agricultural lands, and sufficient prey and water are available. A more realistic inland movement area for American Badger in Sonoma County is 6 miles and in Marin County is 5 miles.

Because there do not appear to be other dedicated broad-scale efforts to discern factual information about this Species of Concern and the observation of diminished and fragmented habitat along with mortality rates, even if the American Badger were not listed as a Special Status animal, the species should be removed from the Department's Hunting list. As a Species of Concern, the American Badger should not have ever been on the Hunting list (this includes trapping as a method for killing). Of note, in addition, is the allowed Hunting season is during mating season and early birthing season for the American Badger.

It is likely the level of knowledge about American Badger is in-depth in the San Francisco Bay Area because of the nonprofit organization's (PLAN) dedicated observation and research over 15 years. This observation and research continue. While educational outreach also continues, including dispelling cultural myths and understanding the significant benefit of the remaining Badger population to coastal and inland ecosystems, serious concerns exist related to continued fragmented and diminishing habitat and negative impacts to the species described above. Without a Threatened status designation, unquestionably, the habitat areas for American Badger will continue to be negatively impacted and diminish. This, coupled with drought and intentional killing, are of severe concern.

Gray Fox

Gray Fox is also listed in the described regulation under question. Grey Fox is a native mammal to California and, while data collection and observations of the conservation nonprofit, PLAN, relate specifically to American Badger, Gray Fox is requested to also be removed from the Hunting list of the CA Department of Fish and Wildlife as a native mammal who relies on similar movement areas, similar prey, similar habitat areas as American Badger, with negative impacts from diminishing habitat and drought-related challenges.

How many Badgers remain in California? The exact quantity is unknown. In the entire San Francisco Bay Area grassland habitat areas, we estimate under 30 Badgers. Sustaining biodiversity is challenging because of fragmented habitat areas and obstructed movement corridors. The mortality rate for vehicle strike deaths annually appears to average between 2 and 4 badgers, adult and juvenile. This has been consistently observed over 12 years. Identifying preferred female adult Badger territory areas is critical to support sustenance of Badgers that remain. However, without open movement areas, sufficient prey and water, male adult Badgers are challenged to enter a female adult Badger's territory and successfully mate. Although some publicly protected lands such as a national park (Pt. Reyes National Seashore) or public open space grassland area are preserved with no possibility for development, the necessity of connection to agricultural lands and open grassland to these areas, and prevention of obstruction of wildlife corridors as well as further loss of prey base areas, make the critical nature of preserving wildlife corridors and habitat for American Badger more urgent.

It is imperative to take every action in an attempt to allow the small American Badger population of adults and juveniles in California to sustain. Unquestionably, the American Badger's official status should be Threatened.

The purpose of this request is to repeal the allowed hunting of American Badger and also of Grey Fox in California as soon as possible.

Benefits to other species from American Badger presence in grassland habitat include for Burrowing Owl (also a CA Species of Concern), California Tiger Salamander, California Red-Legged Frog, and other unlisted species such as Striped Skunk and Gray Fox. The American Badger provides immense benefits to coastal and inland ecosystems.

Submitted for Paula Lane Action Network (P.L.A.N.), I

Tax ID#:

Susan Kirks, Naturalist and Badger Ecologist

Summary of Seasons and Limits for Eight Furbearing and Nongame Species

	Hunting limit	Hunting season	Zone	Trapping limit	Trapping season	Zone
Badger	no limit	Nov.16-last day in Feb.	statewide	no limit	Nov.16-last day in Feb.	statewide
Bobcat	5/year	Oct.15-Feb 28	statewide	no take allowed	no take allowed	no take allowed
Coyote	no limit	year-round	statewide	no limit	year-round	statewide
Gray fox	no limit	Nov.16-last day in Feb.	statewide	no limit	Nov.16-last day in Feb.	statewide
Mink	no limit	Nov.16-March 31	statewide	no limit	Nov.16-March 31	statewide
Raccoon	no limit	July 1-March 31	Imperial County and those portions of Riverside and San Bernardino counties lying south and east of the following line: Beginning at the intersection of Highway 186 with the north boundary of Imperial County; north along Highway 86 to the intersection with Interstate 10; east along Interstate 10 to its intersection with the Cottonwood Springs Road in Section 9, T6S, R11E, S.B.B.M.; north along the Cottonwood Springs Road and the Mecca Dale Road to Amboy; east along Highway 66 to the intersection with Highway 95; north along Highway 95 to the California-Nevada state line.	no limit	July 1-March 31	Imperial County and those portions of Riverside and San Bernardino counties lying south and east of the following line: Beginning at the intersection of Highway 186 with the north boundary of Imperial County; north along Highway 86 to the intersection with Interstate 10; east along Interstate 10 to its intersection with the Cottonwood Springs Road in Section 9, T6S, R11E, S.B.B.M.; north along the Cottonwood Springs Road and the Mecca Dale Road to Amboy; east along Highway 66 to the intersection with Highway 95; north along Highway 95 to the California-Nevada state line.
	no limit	Nov. 16-March 31	balance of the state	no limit	November 16-March 31	balance of the state
Weasel (short&long tailed)	no limit	year-round	statewide	no limit	year-round	statewide

APPENDIX E



LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

**BIOLOGICAL TECHNICAL REPORT
MENDOCINO COUNTY WS-CA IWDM PROGRAM PROJECT
MENDOCINO COUNTY, CALIFORNIA**

Prepared by:

LIVE OAK ASSOCIATES, INC.

Prepared for:

RANEY PLANNING AND MANAGEMENT, INC.

March 12, 2019

PN 2228-01

Oakhurst: P.O. Box 2697 • 39930 Sierra Way, Suite B • Oakhurst, CA 93644 • Phone: (559) 642-4880 • Fax: (559) 642-4883
San Jose: 6840 Via Del Oro, Suite 220 • San Jose, CA 95119 • Phone: (408) 224-8300 • Fax: (408) 224-2411
Truckee: P.O. Box 8810 • Truckee, CA 96161 • Phone: (530) 214-8947

www.loainc.com

EXECUTIVE SUMMARY

Live Oak Associates, Inc. conducted a biological study of the County of Mendocino (“County”) Wildlife Services California (WS-CA) Integrated Wildlife Damage Management (IWDM) Program Project (“project”) and two project alternatives, the Non-Lethal Program Alternative and Non-Lethal Program Variation, and evaluated potential impacts to biological resources associated with the proposed project and alternatives.

The proposed project is the approval of the IWDM Program, which aims to minimize wildlife damage to property and natural resources and wildlife-related threats to public health and safety. The Program would be implemented through a Cooperative Service Agreement with WS-CA, a division of the U.S. Department of Agriculture (USDA) Animal Plant Health Inspection Service. Activities likely to be authorized under the Program include both technical assistance and direct control assistance; the latter could include use of both non-lethal and lethal methods to address wildlife-related conflicts. The Non-Lethal Program Alternative and Non-Lethal Program Variation would be implemented by an entity other than WS-CA, and would entail use of non-lethal methods only; however, under the Non-Lethal Program Variation, wildlife take would be permitted to address serious public health or safety concerns.

Located along the Pacific Ocean in northwestern California, Mendocino County encompasses a diversity of landscapes and biotic habitats, including 37 of the 59 habitat classifications identified statewide by the California Wildlife Habitat Relationships (CWHR) system. The County supports numerous special status species, including up to 22 federally- and/or state-listed plants, 91 plants considered rare by the California Native Plant Society, 36 federally- and/or state-listed animals, and 46 animals designated as species of special concern and/or fully protected by the California Department of Fish and Wildlife (CDFW). The County also contains designated critical habitat for federally-listed species, sensitive natural communities mapped by CDFW, federally-protected wetlands and waters, and important wildlife movement corridors.

WS-CA has been operating in Mendocino County since 1986, responding to requests for assistance from property owners and resource managers related to a wide variety of wildlife species. Lethal control occurs most frequently for the black bear, bobcat, cougar, coyote, feral swine, gray fox, raccoon, striped skunk, and Virginia opossum. Most of these species have large populations in Mendocino County and elsewhere; however, the cougar has a minimum population size of 55 individuals in the County based on densities observed by Allen et al. (2015) on the Mendocino National Forest.

The proposed IWDM Program and alternatives are not expected to result in substantial adverse effects on most biological resources, including special status plant and animal species, sensitive natural communities including riparian habitat, federally-protected wetlands and waters, wildlife movement and established wildlife movement corridors, and native wildlife nursery sites. The proposed Program and alternatives appear to be consistent with applicable Habitat Conservation Plans and local policies and ordinances including the general plans of Mendocino County and the Cities of Ukiah, Willits, Fort Bragg, and Point Arena.

One wildlife species, the cougar, has the potential to be adversely affected by the proposed IWDM Program's contribution to cumulative effects in the County. Cumulative take of this species by WS-CA, other entities under the authority of depredation permits issued by CDFW, and poachers is expected to exceed the 20-30 percent annual adult harvest rate that most cougar populations can sustain, and there is evidence to suggest cougars in the County and elsewhere in the southern North Coast subpopulation defined by Ernest et al. (2003) may already be impaired. It is recommended that the proposed Program utilize only non-lethal methods for cougar damage management other than to address serious public safety concerns. If it is not feasible to implement this recommendation, an alternative recommendation is to adopt a tiered approach to managing cougar conflicts, in which lethal methods would be utilized only after non-lethal strategies have failed to stop repeated depredation by the same cougar in the same specific area.

TABLE OF CONTENTS

EXECUTIVE SUMMARY I

1.0 INTRODUCTION 1

 1.1 PROJECT PURPOSE AND NEED 1

 1.2 PROJECT DESCRIPTION 3

 1.2.1 Mendocino County WS-CA IWDM Program Project 3

 1.2.2 Non-Lethal Program Alternative 8

 1.2.3 Non-Lethal Program Variation 11

 1.3 REPORT OBJECTIVES 12

 1.4 STUDY METHODOLOGY 12

2.0 ENVIRONMENTAL SETTING 14

 2.1 REGIONAL AND LOCAL SETTING 14

 2.2 LAND USE 16

 2.3 BIOTIC HABITATS 16

 2.3.1 Montane Hardwood 18

 2.3.2 Redwood 20

 2.3.3 Montane Hardwood-Conifer 21

 2.3.4 Annual Grassland 22

 2.3.5 Douglas-Fir 23

 2.4 SPECIAL STATUS PLANTS AND ANIMALS 24

 2.4.1 Federal- and State-Listed Plant Species 25

 2.4.2 Other Special Status Plants 28

 2.4.3 Federal- and State-Listed Animal Species 30

 2.4.4 Other Special Status Animals 34

 2.5 DESIGNATED CRITICAL HABITAT 37

 2.6 JURISDICTIONAL WATERS 40

 2.7 SENSITIVE NATURAL COMMUNITIES 40

 2.8 WILDLIFE MOVEMENT CORRIDORS 43

 2.9 IWDM PROGRAM SERVICES IN MENDOCINO COUNTY 44

 2.9.1 Geographic Extent of Services 45

 2.9.2 Description of Services 45

 2.9.3 Affected Wildlife Species 46

3.0 EFFECTS ANALYSIS AND RECOMMENDATIONS 69

3.1 POTENTIAL IMPACTS TO SPECIAL STATUS SPECIES.....	69
3.1.1 Mendocino County WS-CA IWDM Program Project.....	70
3.1.2 Non-Lethal Program Alternative and Non-Lethal Program Variation	81
3.2 POTENTIAL IMPACTS TO RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITIES.....	84
3.2.1 Mendocino County WS-CA IWDM Program Project.....	85
3.2.2 Non-Lethal Program Alternative and Non-Lethal Program Variation	86
3.3 POTENTIAL IMPACTS TO STATE AND FEDERALLY PROTECTED WETLANDS AND WATERS	87
3.4 POTENTIAL IMPACTS ON THE MOVEMENT OF NATIVE FISH AND WILDLIFE SPECIES AND ESTABLISHED WILDLIFE MOVEMENT CORRIDORS	87
3.5 POTENTIAL IMPACTS TO NATIVE WILDLIFE NURSERY SITES	89
3.6 CONSISTENCY WITH LOCAL POLICIES AND ORDINANCES	91
3.7 CONSISTENCY WITH ADOPTED HABITAT CONSERVATION PLANS AND NATURAL COMMUNITY CONSERVATION PLANS	92
3.8 POTENTIAL IMPACTS TO TARGET WILDLIFE	93
3.8.1 Black Bear.....	93
3.8.2 Bobcat	95
3.8.3 Cougar.....	96
3.8.4 Coyote.....	102
3.8.5 Feral Swine	103
3.8.6 Gray Fox	104
3.8.7 Raccoon	106
3.8.8 Striped Skunk.....	107
3.8.9 Virginia Opossum.....	108
LITERATURE REFERENCED	110

LIST OF APPENDICES

APPENDIX A: REGULATORY FRAMEWORK

APPENDIX B: MENDOCINO COUNTY WS-CA TARGET INTENTIONAL TAKE (1997-2017)

APPENDIX C: MENDOCINO COUNTY WS-CA TARGET UNINTENTIONAL TAKE (2008-2017)

APPENDIX D: MENDOCINO COUNTY WS-CA NON-TARGET UNINTENTIONAL TAKE (2007-2017)

APPENDIX E: BLACK BEAR POPULATION AND TAKE ESTIMATES

APPENDIX F: BOBCAT POPULATION AND TAKE ESTIMATES

APPENDIX G: COUGAR POPULATION AND TAKE ESTIMATES

APPENDIX H: COYOTE POPULATION AND TAKE ESTIMATES

APPENDIX I: FERAL SWINE POPULATION AND TAKE ESTIMATES

APPENDIX J: GRAY FOX POPULATION AND TAKE ESTIMATES

APPENDIX K: RACCOON POPULATION AND TAKE ESTIMATES

APPENDIX L: STRIPED SKUNK POPULATION AND TAKE ESTIMATES

APPENDIX M: VIRGINIA OPOSSUM POPULATION AND TAKE ESTIMATES

APPENDIX N: CALIFORNIA WS-CA INTENTIONAL AND UNINTENTIONAL TAKE OF THE PRIMARY SPECIES (1997-2017)

APPENDIX O: COMMERCIAL TRAPPING AND SPORT HUNTING TAKE OF THE PRIMARY SPECIES IN MENDOCINO COUNTY AND CALIFORNIA (FISCAL YEARS 1996-1997 THROUGH 2016-2017 AND CALENDAR YEARS 1997-2017)

1.0 INTRODUCTION

The technical report that follows describes the biotic resources of Mendocino County (“County”), the site of the proposed Mendocino County Wildlife Services California (WS-CA) Integrated Wildlife Damage Management (IWDM) Program Project (“project”), and evaluates possible impacts to sensitive biological resources that could result from implementation of the proposed project and two alternatives. Mendocino County is located along California’s North Coast. It is bordered by the Pacific Ocean to the west; Humboldt and Trinity Counties to the north; Tehama, Glenn, and Lake Counties to the east; and Sonoma County to the south (Figure 1).

1.1 PROJECT PURPOSE AND NEED


As human populations expand, wildlife are often displaced and their habitats altered to accommodate anthropogenic uses. This may lead to wildlife-human interactions that are deleterious to human interests, including property damage, agricultural losses, vehicle collisions, and disease transmission. Conflicts between humans and wildlife are common in Mendocino County, and have traditionally resulted in substantial economic loss each year. Wildlife most often associated with property loss and damage in the County include the American black bear (*Ursus americanus*), cougar (*Puma concolor*), coyote (*Canis latrans*), and feral swine (*Sus scrofa*). Table 1-1 below depicts annual damage (in dollars) caused by these and other wildlife species in the County between 1997 and 2007, as tracked by WS-CA.

For decades, wildlife conflicts in the County were addressed through animal damage control programs operated, overseen, and/or funded by the County of Mendocino in partnership with various agencies including WS-CA, a division of the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS). The County’s last Work Plan with WS-CA expired in 2015. Now, the County proposes to approve the Mendocino County WS-CA IWDM Program and associated Cooperative Service Agreement (CSA) and Work Plan with WS-CA, and oversee WS-CA’s implementation of the Program. These actions are collectively referred to as the “proposed project.” The County is also considering two alternatives at an equal level to the proposed project to meet the central project objective of minimizing wildlife damage to property



Legend

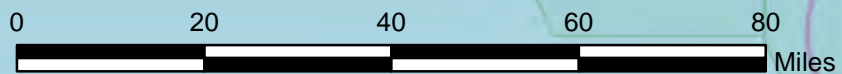
- Mendocino County WS-CA IWDM Boundary
- California County Boundary and Name



Live Oak Associates, Inc.

Vicinity Map
**Mendocino County WS-CA
 IWDM Program Project**

Date	Project #	Figure #
1/23/2019	2228-01	1



**Table 1-1
Mendocino County Wildlife Damage Summary**

Year	Agriculture Non- Livestock	Human Health	Agriculture Livestock	Natural Resource	Property	Sum of Damages Loss
2007	\$16,365.00	\$0.00	\$40,340.00	\$500.00	\$29,805.00	\$87,010.00
2008	\$22,950.00	\$1,225.00	\$24,070.00	\$1,200.00	\$51,365.00	\$100,810.00
2009	\$40,150.00	\$36,500.00	\$91,745.00	\$3,300.00	\$54,690.00	\$226,385.00
2010	\$425,775.00	\$1,000.00	\$25,500.00	\$7,050.00	\$94,550.00	\$553,875.00
2011	\$579,500.00	\$0.00	\$29,375.00	\$0.00	\$45,455.00	\$654,330.00
2012	\$66,913.46	\$2,000.00	\$29,030.30	\$4,294.86	\$47,280.00	\$149,518.62
2013	\$104,472.39	\$1,000.00	\$27,113.30	\$9,987.15	\$29,255.00	\$171,827.84
2014	\$187,488.82	\$0.00	\$82,678.41	\$3,647.43	\$33,363.00	\$307,177.66
2015	\$100,299.84	\$2,000.00	\$30,439.46	\$3,294.86	\$29,395.00	\$165,429.16
2016	\$25,542.44	\$0.00	\$48,907.94	\$0.00	\$27,095.00	\$101,545.38
2017	\$32,806.71	\$0.00	\$27,011.76	\$0.00	\$37,985.00	\$97,803.47
Total	\$1,602,263.66	\$43,725.00	\$456,211.17	\$33,274.30	\$480,238.00	\$2,615,712.13

Source: WS-CA, 2018.

and natural resources and wildlife-related threats to human health and safety. These alternatives are referred to throughout the report as the Non-Lethal Program Alternative and Non-Lethal Program Variation.

1.2 PROJECT DESCRIPTION

The proposed project and alternatives are described in greater detail below.

1.2.1 Mendocino County WS-CA IWDM Program Project

The proposed project is approval of the IWDM Program to protect agricultural and livestock commodities, human health and safety, natural resources, and property in the County from wildlife damage. The Program would be initially implemented pursuant to a five-year CSA with WS-CA, to include annual work and financial plans as required by the CSA. Similar to previous agreements with WS-CA, the CSA would be a cost-share agreement under which the County would fund a portion of the services, typically around two-thirds of the total cost. The CSA and annual work

plans would require the approval of the Mendocino County Board of Supervisors. Yearly adjustments to the work plan would primarily be a function of personnel and equipment costs.

Activities performed under the IWDM Program would be implemented by WS-CA field specialists in accordance with the regulations, standards, and guidelines of the IWDM Program, including the WS Policy Manual, Directives, and standard operating procedures. The County would not be involved in any of the wildlife damage management activities, but would provide oversight of WS-CA's implementation of the IWDM Program.

Although the CSA to be adopted under the proposed project would fund the IWDM Program for a period of only five years, the proposed project would adopt and establish the IWDM Program for ongoing implementation in the County. Any future discretionary actions by the County necessary to implement the Program would need to be evaluated for consistency with the IWDM Program as currently proposed.

If approved, the IWDM Program would be essentially identical to what was in place until 2015. All services provided by WS-CA under the IWDM Program would be based on requests for assistance received from property owners, resource managers, and/or agency officials including the California Department of Fish and Wildlife (CDFW) and local law enforcement. When responding to such requests, WS-CA would conduct an initial investigation to establish the nature, history, and extent of the problem, species responsible for the damage, and methods available to resolve the problem. In selecting wildlife damage management techniques, WS-CA would consider the species responsible and the frequency, extent, and magnitude of the damage. In addition, consideration would be given to the status of target and potential non-target species, local environmental conditions, relative costs of applying management techniques, environmental impacts, and social and legal concerns. When practical and effective, preference would be given to non-lethal methods. Before the selected techniques are implemented, an Agreement for Control would be signed by WS-CA and the property owner or manager, or a WS-CA work plan would be presented to the property owner or manager for review.

WS-CA would provide two main types of assistance under the IWDM Program, technical assistance and direct control assistance. Technical assistance would entail providing advice,

recommendations, information, equipment, literature, instructions, and materials to the requesting parties for their independent use in managing wildlife damage problems. It may also involve collecting samples for wildlife diseases that may affect agriculture and public safety. Direct control assistance would entail directly providing wildlife management interventions, both lethal and non-lethal. These broad categories of service are described in more detail below.

Technical Assistance

During technical assistance, WS-CA would provide information or instruction on methods to reduce wildlife damage, which the property owner or resource manager would then have the option of implementing themselves. Technical assistance may be provided via telephone, email, office appointment, presentation, site visit, or other means. On-site technical assistance has traditionally been uncommon in Mendocino County; between 2007 and 2017, only 23 of 2,312 technical assistance incidents occurred on the subject property. Technical assistance may address a wide range of wildlife species. In addition to predators like the coyote and cougar to which livestock depredation is typically attributed, WS-CA has routinely provided technical assistance in Mendocino County related to bats, black-tailed deer (*Odocoileus hemionus columbianus*), raccoons (*Procyon lotor*), Virginia opossums (*Didelphis virginiana*), feral swine, and other species.

Devices or techniques recommended during technical assistance would generally be geared toward non-lethal control of wildlife. These devices and techniques may include, but would not be limited to:

- Use of livestock guardian animals such as dogs, donkeys, or llamas
- Use of livestock fencing, either conventional net-wire or electric
- Use of fladry, or a series of cloth or plastic flags installed as a visual barrier around a valued resource
- Predator-wise animal husbandry practices including use of nighttime enclosures, use of lambing sheds and other seasonal enclosures, synchronization of lambing/calving with annual periods of lower predation risk, introduction of cattle into sheep herds, and increased vigilance

- Devices and techniques aimed at dispersing animals from the area to be protected, including use of propane exploders, pyrotechnics, light mechanisms such as Foxlights, and light/siren combinations such as E-Shepherd collars and Critter Gitters
- Use of chemical repellents that prevent consumption of food items or use of an area
- Modification of human behavior; for example, discontinued feeding of wildlife, use of wildlife-proof trash cans, and proper storage of pet food
- Habitat management to discourage depredation of a valued resource

Under the IWDM Program, implementation of non-lethal methods advanced by WS-CA during technical assistance would be the sole responsibility of the property owner or resource manager. County funds would not be available to landowners for the implementation of non-lethal methods on private property, and it is not possible to foresee whether and to what degree landowners would implement non-lethal methods. Landowner actions performed independently, without assistance or material support from the County or WS-CA, will not be considered further in this document.

In some instances, however, WS-CA may loan out equipment for the owner or manager's independent use. Such equipment may include cage traps, culvert traps, and electric fladry. Landowner use of loaned equipment is considered a form of direct control assistance as it would occur in consultation with WS-CA, essentially functioning as an extension of WS-CA's services (see discussion below under Direct Control Assistance). It is considered a Program-related activity, and is fully analyzed in Section 3.0 of this document.

Another type of technical assistance to be provided by WS-CA under the IWDM Program is monitoring of zoonotic diseases including rabies, plague, Lyme disease, and West Nile virus. This may include collecting samples and conducting disease surveillance for wildlife diseases with the potential to infect pets, stock, and other wildlife and compromise public health and safety.

Direct Control Assistance

Direct control assistance refers to field activities that would be conducted or supervised by WS-CA personnel. In general, direct control assistance would be provided when it was determined that a problem could not reasonably be resolved by technical assistance or that the professional skills of WS-CA employees were required for effective problem resolution. Direct control assistance would

typically be initiated when the wildlife damage involved several ownerships, sensitive species, application of restricted-use pesticides, or complex management problems requiring the direct supervision of a professional wildlife manager or biologist.

Direct control assistance would encompass both lethal and non-lethal methods. Non-lethal methods may include installation and/or operation of any of the exclusion, repellent, or deterrent devices listed above for technical assistance, either by WS-CA or by landowners in consultation with WS-CA, using equipment loaned by WS-CA (see above discussion under Technical Assistance). Non-lethal methods also encompass various hazing tactics used by WS-CA including discharge of firearms.

WS-CA field specialists may also capture or immobilize wildlife using non-lethal methods; however, the outcome of these actions would usually be lethal control, as CDFW does not permit wildlife relocation except under rare circumstances, and only as individually authorized (see California Code of Regulations, Title 14, Section 465.5(g)(1)). Live capture may be conducted using cage or corral traps, snares, nets, or trained dogs. In some instances, live captures may be performed by landowners in consultation with WS-CA, using equipment loaned by WS-CA. This is considered a type of direct control assistance since it would occur in consultation with WS-CA, essentially functioning as an extension of WS-CA's services. Euthanasia of animals captured by landowners, if required, would be performed by WS-CA.

Chemical immobilization agents that may be used include Telazol, Xylazine, and Yohimbine, with the possible addition of unspecified agents on a one-time or limited basis, and only when approved by an attending/consulting veterinarian and the WS-CA State Director or designee. Chemical immobilization agents would be administered by deep muscular or intramuscular injection.

Lethal methods to be utilized as part of direct control assistance under the IWDM Program include the following:

- Use of trap devices and snares, including body-grip or “conibear” traps, snap traps, glue boards, spring-powered harpoon traps targeting moles (*Scapanus* sp.), and scissor-like traps targeting moles and pocket gophers (*Thomomys* sp.)

- Shooting target animals with hand guns, rifles, shotguns, and pneumatic pellet rifles, often in conjunction with calling or spotlighting
- Chemically euthanizing captured animals with carbon dioxide or euthanasia solution according to American Veterinary Medical Association (AVMA) guidance
- Physically euthanizing captured animals using captive bolt, cervical dislocation, decapitation, thoracic compression, exsanguination, stunning, or pithing according to AVMA guidance; exsanguination, stunning, and pithing would be used as adjuncts to other forms of euthanasia

All forms of direct control assistance are considered Program-related activities, and are fully analyzed in Section 3.0 of this document.

Adaptive Management

Adaptive management has been, and would continue to be, integral to Mendocino County's IWDM Program. A premise of adaptive management is that because wildlife managers do not have full knowledge of wildlife management issues, they must apply enough rigor to management activities to ensure that they learn and improve through experience. A management program must be sufficiently flexible over time to adapt to what is learned as the program unfolds and managers gain experience.

Essential components of adaptive management include, but are not limited to, situational analysis, definition of goals and objectives, identification and selection of alternatives, management interventions, monitoring, and adjustment to approaches and management. Monitoring is a critical step to better understanding current management systems and their effects. Monitoring is not an end in itself; rather, results of monitoring inform necessary adjustments to management approaches if desired goals are not met.

1.2.2 Non-Lethal Program Alternative

Under the Non-Lethal Program Alternative, the County of Mendocino would not enter into a CSA and work plan with WS-CA. It would instead contract with an outside governmental or non-governmental agency to provide assistance to property owners and resource managers aimed at

minimizing wildlife conflicts using non-lethal methods. Field technicians may perform the non-lethal techniques themselves, may demonstrate the techniques for the property owner's later independent use, and/or may lend equipment and materials for non-lethal wildlife management. This alternative is anticipated to include cost-sharing to help property owners purchase or sustain resources for wildlife damage reduction.

As with the proposed IWDM Program, the Non-Lethal Program Alternative would have an overarching goal of minimizing wildlife-human conflicts in Mendocino County. Additional objectives associated with the Non-Lethal Program Alternative would include:

1. Address animal damage management exclusively through non-lethal methods, incorporating the best available science, including peer-reviewed literature that addresses the performance and effectiveness of baseline preventative animal husbandry techniques supplemented with deterrents.
2. Create a system through which County personnel, conservation organizations, experts, and local conservation/conflict consultants that specialize in non-lethal wildlife damage management can provide educational resources to private resource owners about the variety of non-lethal methods that can be used to resolve conflicts, and technical assistance and financial resources to help resource owners resolve wildlife conflicts themselves using non-lethal methods.
3. Provide a transparent process for monitoring and documenting the short- and long-term effects and efficacy of non-lethal wildlife damage management activities on targeted and non-targeted species, their habitats, and the nearby environment.
4. Incorporate a process to accurately verify damage and identify species causing damage.

As under the WS-CA IWDM Program, assistance under the Non-Lethal Program Alternative would be provided only upon request from property owners, resource managers, and/or agency officials including CDFW and/or local law enforcement. Also similar to the WS-CA IWDM Program, two broad categories of service would be offered: technical assistance and direct control assistance. Technical assistance would entail providing advice, recommendations, information, equipment, literature, instructions, and materials to the requesting parties for their independent use

in managing wildlife damage problems. It may also include collecting samples and conducting disease surveillance for wildlife diseases with the potential to infect pets, stock, and other wildlife and compromise public health and safety. Direct control assistance would entail directly providing wildlife management interventions or supervising the property owner's provision of such interventions.

Under the Non-Lethal Program Alternative, technical assistance would only promote non-lethal approaches for managing wildlife, and direct control assistance would only utilize non-lethal methods. Devices and techniques that may be promoted or used under the Non-Lethal Program Alternative include, but are not limited to, the following:

- Use of livestock guardian animals such as dogs, donkeys, or llamas
- Use of livestock fencing, either conventional net-wire or electric
- Use of fladry, or a series of cloth or plastic flags installed as a visual barrier around a valued resource
- Predator-wise animal husbandry practices including use of nighttime enclosures, use of lambing sheds and other seasonal enclosures, synchronization of lambing/calving with annual periods of lower predation risk, introduction of cattle into sheep herds, and increased vigilance
- Devices and techniques aimed at dispersing animals from the area to be protected, including use of propane exploders, pyrotechnics, light mechanisms such as Foxlights, and light/siren combinations such as E-Shepherd collars and Critter Gitters
- Use of chemical repellents that prevent consumption of food items or use of an area
- Modification of human behavior; for example, discontinued feeding of wildlife, use of wildlife-proof trash cans, and proper storage of pet food
- Habitat management to discourage depredation of a valued resource

As with the WS-CA IWDM Program, adaptive management would be a crucial component of the Non-Lethal Program Alternative. Specific goals and objectives would be identified for each situation, and interventions selected to best address situational needs. Interventions and outcomes

would be documented and monitored over time, and services would be adjusted to reflect what is learned.

Because cost-sharing would be available to landowners for the purchase of resources promoted under the Non-Lethal Program Alternative, landowner use of these resources are considered Program-related activities, and are fully analyzed in Section 3.0 of this document.

1.2.3 Non-Lethal Program Variation

A variation of the above-described Non-Lethal Program Alternative is also under consideration. This variation would prioritize the use of non-lethal methods for wildlife damage management but allow for lethal control under very limited circumstances related to public health and safety. It is anticipated that lethal methods would be used only to address animal attacks on humans and disease threats from rabies and plague outbreaks. Although odors and noise nuisances from wildlife are considered an impact related to human health and safety, such factors would not be considered justification for the use of lethal methods under the Non-Lethal Program Variation.

As with the Non-Lethal Program Alternative, the Non-Lethal Program Variation would be implemented by an outside governmental or non-governmental agency, and would entail provision of technical assistance and direct control assistance to property owners and resource managers upon request. Non-lethal devices and techniques that could be promoted or used include, but are not limited to, those listed for the Non-Lethal Program Alternative. Lethal methods that could be used for critical public health and safety issues include those listed for direct control assistance under the IWDM Program.

As with the Non-Lethal Program Alternative, it is anticipated that cost-sharing would be available under the Non-Lethal Program Variation to purchase and sustain resources for wildlife damage reduction. Landowner use of such resources are considered Program-related activities, and are fully analyzed in Section 3.0 of this document. As with the IWDM Program and Non-Lethal Program Alternative, adaptive management would be a crucial component of the Non-Lethal Program Variation.

1.3 REPORT OBJECTIVES

The objective of this report is to evaluate the potential physical environmental impacts of the proposed IWDM Program and alternatives on the County's biological resources and make professional recommendations, as necessary, to reduce the magnitude of any substantial adverse effects on these resources that may occur. Specifically, the report will:

- Characterize the County's existing biological resources, including the known or potential presence of special status species and other sensitive resources.
- Summarize relevant state and federal natural resource protection laws.
- Identify and discuss potential impacts to biological resources associated with the proposed project and equal-level alternatives.
- Recommend measures, as necessary, that would eliminate or reduce the magnitude of potential adverse effects to biological resources.

1.4 STUDY METHODOLOGY

Live Oak Associates, Inc. (LOA) evaluated the potential impacts to biological resources associated with the proposed project and alternatives by comparing expected environmental conditions after project/alternative implementation to conditions at the environmental baseline period. Because levels of take occurring under the previous IWDM Program fluctuated over time, it was necessary to define the environmental baseline period as a range of dates. The period 1997 to 2017 was chosen because these were the years that WS-CA take data was available for Mendocino County, and because a 21-year span of time was considered sufficient to account for annual variations in wildlife take by WS-CA.

A variety of sources and methods were used to characterize the County's biological resources and evaluate impacts to these resources possibly resulting from implementation of the proposed project and alternatives. The County's biotic habitat types were inventoried and mapped using California Wildlife Habitat Relationships (CWHR) classifications available through the U.S. Forest Service's CALVEG database (USFS 2018); the CWHR system uses remote sensing technology, field measurement techniques, and staff expertise to categorize all land cover in California into 59 habitat types for use with a predictive model for terrestrial wildlife occurrence. Lists and

descriptions of the flora and fauna associated with the County's CWHR habitat types were obtained using CDFW's CWHR database (CDFW 2014a).

A list of special status plant and animal species with documented occurrences in Mendocino County was obtained using the California Natural Diversity Database (CNDDDB) Rarefind 5 program (CDFW 2018a), and a list of federally threatened and endangered plant and animal species with the potential to occur within the County was obtained using the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system (USFWS 2018a). Additional information on the County's flora was obtained using the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2018) and *The Calflora Database* (Calflora 2018). County-wide population estimates for the wildlife species most often targeted by the County's IWDM Program were calculated using the population models of the California Department of Fish and Game (CDFG)'s *Furbearing and Nongame Mammal Hunting and Trapping* (2004), and by a variety of other sources (CDFW 2018b, Bunnell and Tait 1985, Mountain Lion Foundation 2018, and Sweitzer et al. 2000). Target species take data were obtained from WS-CA (USDA 2018a) and USDA (USDA 2018b). A variety of literature sources were used to characterize the ecology and life history requirements of the County's special status species and the IWDM Program's target wildlife species.

2.0 ENVIRONMENTAL SETTING

2.1 REGIONAL AND LOCAL SETTING


Mendocino County is located along California's North Coast, midway between the Oregon border and the San Francisco Bay. It is characterized by rugged topography associated with the North Coast Ranges, two parallel bands of mountains that traverse the County in a northwest to southeast direction (Figure 2). The inner and outer North Coast Ranges are separated by a long valley that is drained by the Eel River in the north and the Russian River in the south. The west slope of the outer North Coast Range is drained by a series of short rivers including the Mattole, Gualala, and Navarro Rivers. The east slope of the inner North Coast Range drains into the Central Valley. Elevations in Mendocino County range from sea level to approximately 6,950 feet at Anthony Peak, located along the County's northeastern boundary.

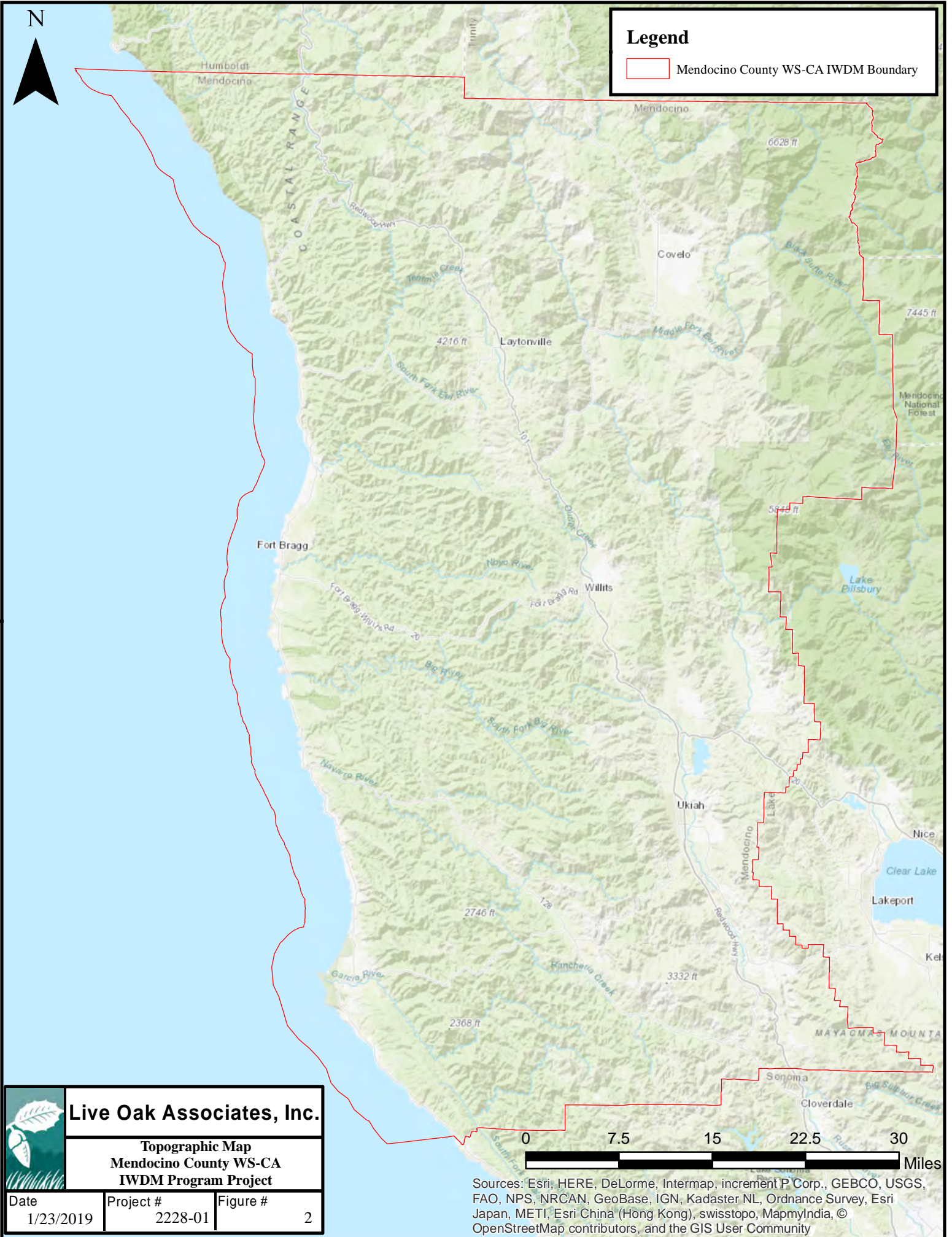
Because of the variable topography of Mendocino County and its proximity to the Pacific Ocean, a wide range of conditions and diverse habitat types are present. Closest to the coast, coastal scrub, grassland, and closed cone pine-cypress vegetation communities dot the landscape. Heading uphill and east from the coast are vast redwood, Douglas fir, and montane hardwood forests. The east side of the county is characterized by a mosaic of agriculture, blue oak woodland, montane chaparral and many other vegetation communities.

The County's climate is generally mild, with local variations driven by elevation and distance from the ocean. Closest to the coast, temperatures are steady and cool, while inland areas experience fluctuations between 20 and 110 degrees Fahrenheit. In the higher elevations, temperatures can dip as low as 10 degrees, and most wintertime precipitation falls as snow. Average annual precipitation in the County is between 36 and 42 inches.



Legend

 Mendocino County WS-CA IWDMM Boundary



Live Oak Associates, Inc.

**Topographic Map
Mendocino County WS-CA
IWDMM Program Project**

Date	Project #	Figure #
1/23/2019	2228-01	2



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

2.2 LAND USE

Mendocino County comprises approximately 2,246,000 acres (3,510 square miles) of land in federal (16.1%); state, city, and County (4.5%); and private (79.4%) ownership (Table 2-1).

Ownership Agency	Acres	Percentage of Total
<i>Federal</i>	<i>360,597</i>	<i>16.1</i>
U.S. Forest Service	174,000	7.7
Bureau of Land Management	120,730	5.4
Native American	22,297	1.0
Other	43,570	1.9
<i>State, County, and Cities</i>	<i>102,000</i>	<i>4.5</i>
Incorporated Cities	7,394	0.3
State Parks	30,336	1.4
County Parks	567	0.1
Other	48,497	2.7
<i>Private</i>	<i>1,783,403</i>	<i>79.4</i>
Agricultural Preserves	497,143	22.1
Timber Production Zones	854,383	38.0
Other	431,877	19.2
Total All Land	2,246,000	100.0
<i>Source: County of Mendocino General Plan (2009).</i>		

Mendocino County consists primarily of rural lands in timber and agricultural production. As of 2016, irrigated pasture, pasture (grassland, coast bench), and range field crops comprised approximately 721,500 acres of the County (Grewal 2018).

2.3 BIOTIC HABITATS

Thirty-seven of California's 59 CWHR habitat classifications are represented in Mendocino County's land area (USFS 2018). These classifications and their areal extent within the County are depicted below in Table 2-2 and in Figure 3; note that some classifications in the figure were grouped. Montane hardwood (26.7%), redwood (18.0%), montane hardwood-conifer (17.5%), annual grassland (10.6%), and Douglas-fir (9.0%) are the predominant habitat types, comprising over 80 percent of the County (USFS 2018).

**Table 2-2
Habitat Types, Acreages, and Percentages of Mendocino County**

CWHR Habitat Type	Classification Group for Figure 3	Acres	Percentage of County
Montane Hardwood	Montane Hardwood	600,270	26.7%
Redwood	Redwood	404,001	18.0%
Montane Hardwood-Conifer	Montane Hardwood-Conifer	392,118	17.5%
Annual Grassland	Grassland	238,006	10.6%
Douglas-Fir	Douglas Fir	201,860	9.0%
Sierran Mixed Conifer	Conifer	87,406	3.9%
Mixed Chaparral	Chaparral	76,002	3.4%
Chamise-Redshank Chaparral	Chaparral	32,724	1.5%
Closed-Cone Pine-Cypress	Closed-Cone Pine-Cypress	32,648	1.5%
Cropland	Agricultural	30,801	1.4%
Pasture	Agricultural	24,919	1.1%
Barren	Urban/Barren	18,755	0.8%
White Fir	Conifer	13,161	0.6%
Ponderosa Pine	Ponderosa Pine	12,500	0.6%
Coastal Scrub	Coastal Scrub	11,454	0.5%
Montane Chaparral	Chaparral	10,556	0.5%
Blue Oak Woodland	Oak Woodland	9,751	0.4%
Blue Oak-Foothill Pine	Oak Woodland	7,824	0.3%
Urban	Urban/Barren	6,950	0.3%
Perennial Grassland	Grassland	5,810	0.3%
Coastal Oak Woodland	Oak Woodland	5,588	0.2%
Montane Riparian	Riparian	5,462	0.2%
Klamath Mixed Conifer	Klamath Mixed Conifer	4,171	0.2%
Valley Oak Woodland	Oak Woodland	3,859	0.2%
Lacustrine	Aquatic	2,753	0.1%
Riverine	Aquatic	2,166	0.1%
Jeffrey Pine	Klamath Mixed Conifer	1,489	0.1%
Red Fir	Conifer	1,283	0.1%
Vineyard	Agricultural	555	0.0%
Valley Foothill Riparian	Riparian	328	0.0%
Wet Meadow	Grassland	327	0.0%
Marine	Aquatic	207	0.0%
Alpine-Dwarf Shrub	Other	185	0.0%
Eucalyptus	Other	59	0.0%

Table 2-2 (cont'd)			
CWHR Habitat Type	Classification Group for Figure 3	Acres	Percentage of County
Saline Emergent Wetland	Aquatic	38	0.0%
Subalpine Conifer	Conifer	19	0.0%
Deciduous Orchard	Agricultural	13	0.0%
Total all Land and Habitats		2,246,020 (3,509 square miles)	100.0%
<i>Source: USFS CALVEG database (USFS 2018)</i>			

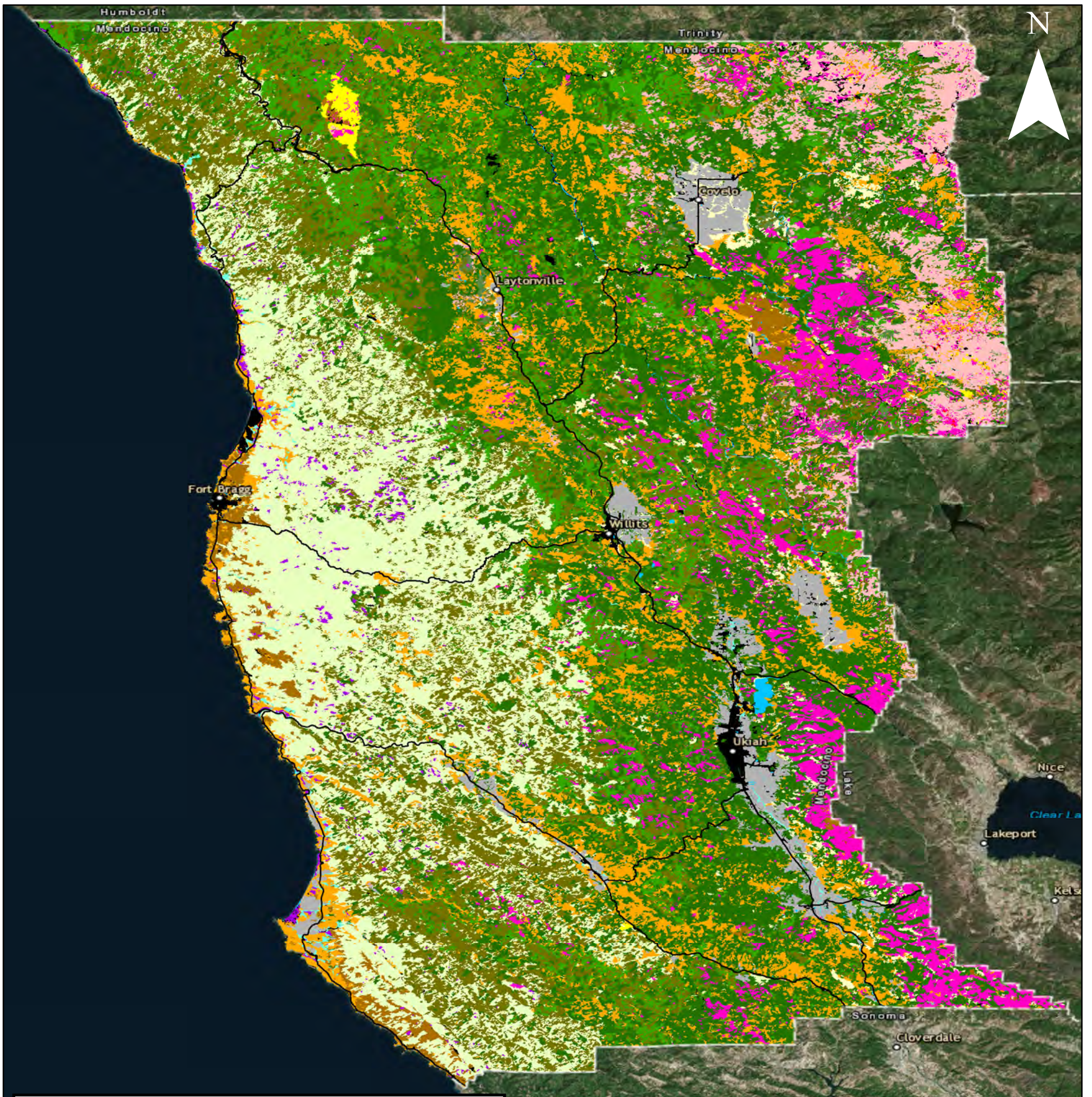
As follows is a description of the five predominant habitat types in Mendocino County, and the flora and fauna associated with each.

2.3.1 Montane Hardwood

Montane hardwood predominates in the County’s inland hills at elevations between 1,000 and 2,000 feet, and is the most prevalent habitat overall at 26.7% of the County’s land cover (USFS 2018). It is characterized by canyon live oak (*Quercus chrysolepis*) throughout its range; associated trees include the coast live oak (*Quercus agrifolia*) at lower elevations and the black oak (*Quercus kelloggii*) at higher elevations. The understory is generally sparse, consisting of scattered manzanita (*Arctostaphylos* sp.), poison oak (*Toxicodendron diversilobum*), and various forbs.

Montane hardwood habitat favors wildlife dependent on its acorn crop. These include animals that disseminate acorns, like the Steller’s jay (*Cyanocitta stelleri*), acorn woodpecker (*Melanerpes formicivorus*), and western gray squirrel (*Sciurus griseus*), as well as animals that utilize acorns as a primary food source, like the wild turkey (*Meleagris gallopavo*), dusky-footed woodrat (*Neotoma fuscipes*), American black bear. Montane hardwood also readily supports Columbian black-tailed deer and feral swine, both of which use acorns and other forage in this habitat type.

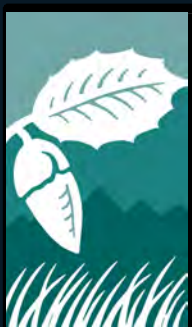
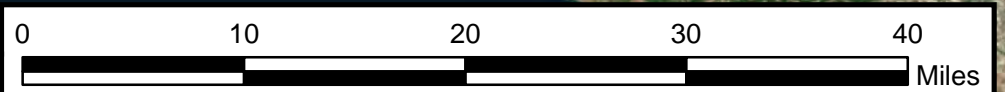
Reptiles associated with montane hardwood in Mendocino County include the rubber boa (*Charina bottae*) and northern alligator lizard (*Elgaria coerulea*). The red-bellied newt (*Taricha rivularis*), an amphibian designated a California Species of Special Concern by CDFW, can be



Mendocino County Habitat Categories and Acreages

- Montane Hardwood (600,270 acres)
- Redwood (404,001 acres)
- Montane-Hardwood Conifer (392,118 acres)
- Grassland (244,144 acres)
- Douglas Fir (201,860 acres)
- Chaparral (119,283 acres)
- Conifer (101,869 acres)
- Agricultural (52,288 acres)
- Closed-cone Pine-cypress (32,648 acres)
- Oak Woodland (27,022 acres)
- Urban/Barren (25,704 acres)
- Ponderosa Pine (12,500 acres)
- Coastal Scrub (11,454 acres)
- Riparian (5,791 acres)
- Klamath Mixed Conifer (5,660 acres)
- Aquatic (5,164 acres)
- Other (245 acres)

Data Source: CWHR (CDFW 2014)



Live Oak Associates, Inc.

**Habitats Map
Mendocino County WS-CA
IWDM Program Project**

Date	Project #	Figure #
1/24/2019	2228-01	3

found along streams in the County's montane hardwood forests. Common mammalian predators in montane hardwood of Mendocino County include the bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), and coyote, while avian predators include the red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), and great-horned owl (*Bubo virginianus*). A variety of songbirds utilize the County's montane hardwood forests for nesting and foraging; these include the ash-throated flycatcher (*Myiarchus cinerascens*), oak titmouse (*Baeolophus inornatus*), white-breasted nuthatch (*Sitta carolinensis*), lesser goldfinch (*Spinus psaltria*), and many others.

2.3.2 Redwood

Redwood is the dominant habitat type along the County's coastline, extending inland 10 to 20 miles in most areas. It is characterized by second-growth coast redwood (*Sequoia sempervirens*) and associated conifers such as Douglas-fir (*Pseudotsuga menziesii*) and, closest to the ocean, Sitka spruce (*Picea sitchensis*). Important understory species include the sword fern (*Polystichum munitum*), coast rhododendron (*Rhododendron macrophyllum*), salmonberry (*Rubus spectabilis*), and western thimbleberry (*Rubus parviflorus*).

Redwood habitat in Mendocino County is considered highly suitable for 82 wildlife species, and is used in some form by nearly 200 wildlife species (CDFW 2014a). Reptiles associated with this habitat include the northern alligator lizard and coast gartersnake (*Thamnophis elegans terrestris*). Amphibians include ten species of salamander, three of which, the red-bellied newt, southern torrent salamander (*Rhyacotriton variegatus*), and California giant salamander (*Dicamptodon ensatus*), are California Species of Special Concern. The Sierran treefrog (*Pseudacris sierra*) and Pacific tailed frog (*Ascaphus truei*) also occur in the County's redwood habitat; the latter is a California Species of Special Concern.

Birds of prey found in this habitat include the sharp-shinned hawk (*Accipiter striatus*), northern spotted owl (*Strix occidentalis caurina*), and western screech owl (*Megascops kennicottii*); the northern spotted owl is listed as threatened under both the federal and state Endangered Species Acts. The marbled murrelet (*Brachyramphus marmoratus*), listed as threatened and endangered under the federal and state Endangered Species Acts, respectively, prefers to nest in old-growth

redwood forests, and commutes to the sea each day to forage. Numerous songbirds including the Pacific slope flycatcher (*Empidonax difficilis*), Pacific wren (*Troglodytes pacificus*), brown creeper (*Certhia americana*), golden-crowned kinglet (*Regulus satrapa*), and Swainson's thrush (*Catharus ustulatus*) use the County's redwood habitats for both nesting and foraging.

Small mammals associated with the County's redwood habitat include the redwood chipmunk (*Tamias ochrogenys*), northern flying squirrel (*Glaucomys sabrinus*), and bushy-tailed woodrat (*Neotoma cinerea*). Two ungulates, the black-tailed deer and elk (*Cervus canadensis*), are known to use this habitat. Mammalian carnivores known from redwood habitat of Mendocino County include the western spotted skunk (*Spilogale gracilis*), black bear, cougar, and fisher (*Pekania pennanti*); the latter is listed as state threatened.

2.3.3 Montane Hardwood-Conifer

Montane hardwood-conifer habitat has patchy distribution across the County, ranging from sea level to approximately 5,500 in the upper reaches of the Mendocino National Forest near the County's northeastern corner. This habitat type is characterized by both hardwoods and conifers, where conifers form the upper canopy and hardwoods the mid-canopy layer. It may also manifest as a mosaic of small, pure stands of conifers interspersed with small stands of broad-leaved trees. Although early successional stages of this habitat type may support dense ground and shrub cover, mature montane hardwood-conifer forest has relatively little understory. In Mendocino County, montane hardwood-conifer is dominated by Oregon white-oak (*Quercus garryana*), California black-oak, Pacific madrone (*Arbutus menziesii*), Douglas-fir, and white fir (*Abies concolor*).

Reptiles associated with montane hardwood-conifer in Mendocino County include the western fence lizard (*Sceloporus occidentalis*), northern alligator lizard, and rubber boa. Several species of amphibian may be found beneath detritus on the forest floor, such as the northwestern salamander (*Ambystoma gracile*) and rough-skinned newt (*Taricha granulosa*). The red-bellied newt, southern torrent salamander, and Pacific tailed frog may be found in and around streams in these forests. Raptors associated with the County's montane hardwood-conifer habitat include the forest-adapted sharp-shinned hawk and Cooper's hawk, red-tailed hawk, great-horned owl, and spotted owl. Other avian species commonly found in this habitat include the mountain quail (*Oreortyx pictus*),

band-tailed pigeon (*Patagioenas fasciata*), wild turkey, northern flicker (*Colaptes auratus*), and a diversity of songbirds.

Small mammals associated with the County's montane hardwood-conifer include the western gray squirrel, Douglas squirrel (*Tamiasciurus douglasii*), California ground squirrel (*Otospermophilus beecheyi*), and deer mouse (*Peromyscus maniculatus*). The black-tailed deer is common in this habitat. Mammalian carnivores found in the County's montane hardwood-conifer forests include the raccoon, ringtail (*Bassariscus astutus*), gray fox, bobcat, black bear, and fisher.

2.3.4 Annual Grassland

Annual grassland habitat in Mendocino County occurs both along the coastal bluffs and in the interior, east of the outer Mendocino Range. The coastal grasslands are dominated by plants adapted to poor, rocky soils and salt winds. Although grazing pressure in the coastal grasslands has promoted the invasion of non-native annuals, many native perennial grasses and forbs can still be found here; for example, red fescue (*Festuca rubra*), California poppy (*Eschscholzia californica*), and Henderson's angelica (*Angelica hendersonii*). In the County's interior grasslands, as elsewhere in California, non-native annuals have become naturalized and now represent the climax successional community. Grasses and forbs commonly found in the interior grasslands include soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), wild oats (*Avena* sp.), and broadleaf filaree (*Erodium botrys*).

The County's annual grassland habitats are of high value for native wildlife. Reptiles and amphibians known to occur in these habitats include the Pacific gophersnake (*Pituophis catenifer catenifer*), common gartersnake (*Thamnophis sirtalis*), and Sierran treefrog. A variety of avian species forage in the County's grasslands; these include resident birds such as the mourning dove (*Zenaidura macroura*) and western meadowlark (*Sturnella neglecta*), winter migrants such as the savannah sparrow (*Passerella sandwichensis*), American pipit (*Anthus rubescens*), and Say's phoebe (*Sayornis saya*), and summer migrants such as the western kingbird (*Tyrannus verticalis*). Some birds are known to nest on the ground in grassland habitats; among these, the mourning dove, western meadowlark, and horned lark (*Eremophila alpestris*). Small mammals expected to occur in the County's annual grassland habitat include California voles (*Microtus californicus*),

Botta's pocket gophers (*Thomomys bottae*), California ground squirrels, and black-tailed hares (*Lepus californicus*).

The presence of reptiles, amphibians, birds, and small mammals attracts foraging raptors and mammalian predators to the County's grassland habitats. Red-tailed hawks, northern harriers (*Circus cyaneus*), and white-tailed kites (*Elanus leucurus*) are regular visitors; the northern harrier is a California Species of Special Concern and the white-tailed kite is California Fully Protected. Harriers may use the County's grassland habitats for nesting as well as foraging; this ground nester is known to breed along the coast near Fort Bragg and at MacKerricher and Manchester state beaches (Shuford and Gardali 2008). Mammalian predators occurring in the County's grassland habitats include striped skunks (*Mephitis mephitis*) and coyotes.

2.3.5 Douglas-Fir

Douglas-fir forest is distributed throughout Mendocino County from sea level to approximately 4,000 feet, on sites too dry to support redwood and sites too low to support true fir forest types. This habitat type is characterized by an upper overstory of Douglas-fir and lower overstory of broad-leaved trees including Pacific madrone and tanoak (*Notholithocarpus densiflorus*). Drier sites may also support canyon live oak, ponderosa pine (*Pinus ponderosa*), and sugar pine (*Pinus lambertiana*). The shrub component varies by elevation and site conditions, but often includes Oregon grape (*Berberis aquifolium*), vine maple (*Acer circinatum*), dwarf rose (*Rosa gymnocarpa*), and snowbush (*Ceanothus cordulatus*).

Reptiles associated with Douglas-fir forests in Mendocino County include the western fence lizard, northern alligator lizard, rubber boa, coast gartersnake, and northern Pacific rattlesnake (*Crotalus oreganus oreganus*). Amphibians expected to occur in this habitat include the Oregon ensatina (*Ensatina eschscholtzii oregonensis*), northwestern salamander, coastal giant salamander (*Dicamptodon tenebrosus*), and speckled black salamander (*Aneides flavipunctatus flavipunctatus*). These and several other salamander species can be found along streams and under rocks and logs on the forest floor. The Pacific tailed frog, a California Species of Special Concern, may also be found in and around streams in the County's Douglas-fir forests.

Resident birds of the County's Douglas-fir forests include the pileated woodpecker (*Dryocopus pileatus*), chestnut-backed chickadee (*Poecile rufescens*), golden-crowned kinglet, and varied thrush (*Ixoreus naevius*). A diversity of migratory songbirds nest in these forests; these include but are not limited to the olive-sided flycatcher (*Contopus cooperi*), western wood-pewee (*Contopus sordidulus*), hermit warbler (*Setophaga occidentalis*), Wilson's warbler (*Cardellina pusilla*), and western tanager (*Piranga ludoviciana*). Birds of prey associated with the County's Douglas-fir forests include the sharp-shinned hawk, northern spotted owl, northern goshawk (*Accipiter gentilis*) and, where forests border large bodies of water, the osprey (*Pandion haliaetus*); the latter favors tall Douglas-fir trees for the construction of its platform nests. The northern goshawk is a California Species of Special Concern.

Small mammals found in the County's Douglas-fir forests include the Douglas squirrel, northern flying squirrel, deer mouse, and both the dusky-footed and bushy-tailed woodrat. Black-tailed deer are common in these forests. Mammalian carnivores associated with the County's Douglas-fir forests include the gray fox, coyote, black bear, striped and spotted skunks, cougar, and fisher.

2.4 SPECIAL STATUS PLANTS AND ANIMALS

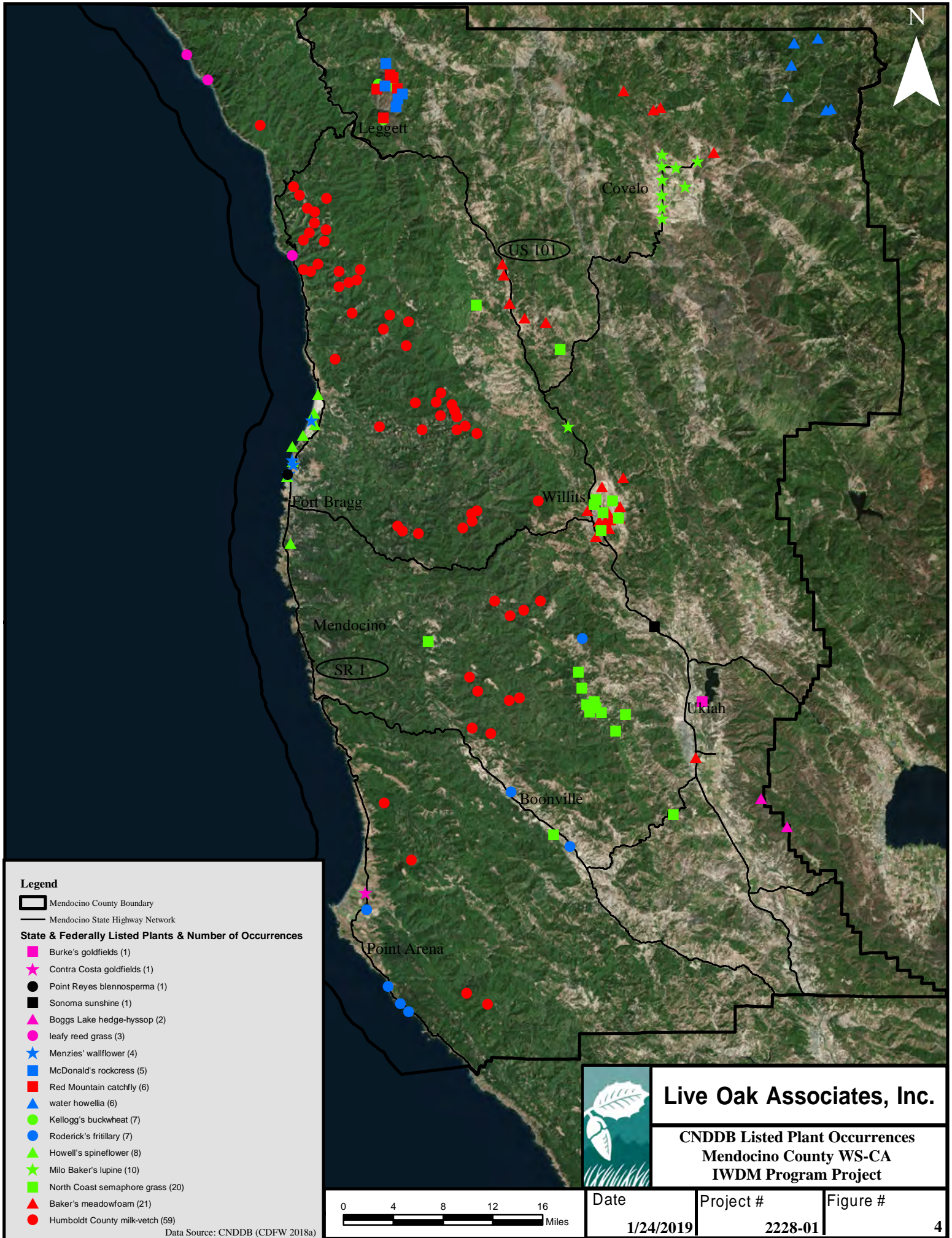
A number of plant and animal species in California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. State and federal laws have provided CDFW and USFWS with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally listed as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as "species of special concern" by CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2018). Collectively, these plants and animals are referred to as "special status species." For more information on regulatory protections for special status species, please refer to Appendix A.

2.4.1 Federal- and State-Listed Plant Species

Twenty-two plant species listed as threatened or endangered under the federal Endangered Species Act and/or threatened, endangered, or rare under the state Endangered Species Act have been documented in Mendocino County (CDFW 2018a) or have some potential to occur here per the USFWS (USFWS 2018). These species are listed below in Table 2-3. In many cases, plant species with federal and/or state Endangered Species Act protection have also been assigned a rare plant rank by the California Native Plant Society (CNPS). This is noted in the table where applicable. CNDDDB occurrences of listed plant species in Mendocino County are presented in Figure 4.

Table 2-3 Federal- and State-Listed Plant Species Potentially Occurring in Mendocino County				
Common Name	Scientific Name	Federal Listing	State Listing	CNPS Rank
McDonald's Rockcress	<i>Arabis mcdonaldiana</i>	FE	CE	1B.1
Marsh Sandwort	<i>Arenaria paludicola</i>	FE	CE	1B.1
Humboldt County Milk-Vetch	<i>Astragalus agnicidus</i>		CE	1B.1
Sonoma Sunshine	<i>Blennosperma bakeri</i>	FE	CE	1B.1
Point Reyes Blennosperma	<i>Blennosperma nanum var. robustum</i>		Rare	1B.2
Leafy Reed Grass	<i>Calamagrostis foliosa</i>		Rare	4.2
Howell's Spineflower	<i>Chorizanthe howellii</i>	FE	CT	1B.2
Kellogg's Buckwheat	<i>Eriogonum kelloggii</i>		CE	1B.2
Menzies' Wallflower	<i>Erysimum menziesii</i>	FE	CE	1B.1
Roderick's Fritillary	<i>Fritillaria roderickii</i>		CE	1B.1
Boggs Lake Hedge-Hyssop	<i>Gratiola heterosepala</i>		CE	1B.2
Water Howellia	<i>Howellia aquatis</i>	FT		2B.2
Burke's Goldfields	<i>Lasthenia burkei</i>	FE	CE	1B.1
Contra Costa Goldfields	<i>Lasthenia conjugens</i>	FE		1B.1
Baker's Meadowfoam	<i>Limnanthes bakeri</i>		Rare	1B.1
Milo Baker's Lupine	<i>Lupinus milo-bakeri</i>		CT	1B.1
Few-Flowered Navarretia	<i>Navarretia leucocephala ssp. pauciflora</i>	FE	CT	1B.1
Slender Orcutt Grass	<i>Orcuttia tenuis</i>	FT	CE	1B.1
North Coast Semaphore Grass	<i>Pleuropogon hooverianus</i>		CT	1B.1
Red Mountain Catchfly	<i>Silene campanulata spp. campanulata</i>		CE	4.2
Showy Indian Clover	<i>Trifolium amoenum</i>	FE		1B.1

Table 2-3 (cont'd)				
Common Name	Scientific Name	Federal Listing	State Listing	CNPS Rank
Monterey Clover	<i>Trifolium trichocalyx</i>	FE	CE	1B.1
<i>Source: California Natural Diversity Data Base (CDFW 2018a)</i>				
<u>Status Codes</u>				
FE = Federal Endangered, FT = Federal Threatened				
CE = California Endangered, CT = California Threatened, Rare = not presently threatened with extinction, but occurs in such small numbers throughout its range that it may become endangered if its present environment worsens				
1B.1 - seriously threatened in California and elsewhere, 1B.2 - moderately threatened in California and elsewhere				
2B.2 - moderately threatened in California but more common elsewhere, 4.2 - of limited distribution				



Legend

- Mendocino County Boundary
- Mendocino State Highway Network

State & Federally Listed Plants & Number of Occurrences

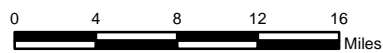
- Burke's goldfields (1)
- Contra Costa goldfields (1)
- Point Reyes blennosperma (1)
- Sonoma sunshine (1)
- Boggs Lake hedge-hyssop (2)
- leafy reed grass (3)
- Menzies' wallflower (4)
- McDonald's rockcress (5)
- Red Mountain catchfly (6)
- water howellia (6)
- Kellogg's buckwheat (7)
- Roderick's fritillary (7)
- Howell's spineflower (8)
- Milo Baker's lupine (10)
- North Coast semaphore grass (20)
- Baker's meadowfoam (21)
- Humboldt County milk-vetch (59)

Data Source: CNDDB (CDFW 2018a)



Live Oak Associates, Inc.

**CNDDB Listed Plant Occurrences
Mendocino County WS-CA
IWDM Program Project**



Date	Project #	Figure #
1/24/2019	2228-01	4

2.4.2 Other Special Status Plants

Ninety-one plant species identified by the CNPS as being rare, threatened, or endangered in California, but not listed under the federal and/or state Endangered Species Acts, have been documented in Mendocino County (CDFW 2018a). These species are listed below in Table 2-4. Due to the sheer number and observations of these species, a map depicting the recorded observations of these species in Mendocino County has not been prepared.

Common Name	Scientific Name	CNPS Rank
Pink Sand-Verbena	<i>Abronia umbrellata</i> var. <i>breviflora</i>	1B.1
Blasdale's Bent-Grass	<i>Agrostis blasdalei</i>	1B.2
Grass Alisma	<i>Alisma gramineum</i>	2B.2
Franciscan Onion	<i>Allium peninsulare</i> var. <i>franciscanum</i>	1B.2
Scabrid Alpine Tarplant	<i>Anisocarpus scabridus</i>	1B.3
Konocti Manzanita	<i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	1B.3
Pygmy Manzanita	<i>Arctostaphylos nummularia</i> ssp. <i>mendocinoensis</i>	1B.2
Raiche's Manzanita	<i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i>	1B.1
Rattlesnake Fern	<i>Botrypus virginianus</i>	2B.2
Watershield	<i>Brasenia schreberi</i>	2B.3
Thurber's Reed Grass	<i>Calamagrostis crassiglumis</i>	2B.1
Three-Fingered Morning-Glory	<i>Calystegia collina</i> ssp. <i>tridactylosa</i>	1B.2
Coastal Bluff Morning-Glory	<i>Calystegia purpurata</i> ssp. <i>saxicola</i>	1B.2
Swamp Harebell	<i>Campanula californica</i>	1B.2
Seaside Bittercress	<i>Cardamine angulata</i>	2B.1
California Sedge	<i>Carex californica</i>	2B.3
Bristly Sedge	<i>Carex comosa</i>	2B.1
Lagoon Sedge	<i>Carex lenticularis</i> var. <i>limnophila</i>	2B.2
Lyngbye's Sedge	<i>Carex lyngbyei</i>	2B.2
Deceiving Sedge	<i>Carex saliniformis</i>	1B.2
Green Yellow Sedge	<i>Carex viridula</i> ssp. <i>viridula</i>	2B.3
Humboldt Bay Owl's-Clover	<i>Castilleja ambigua</i> var. <i>humboldtiensis</i>	1B.2
Oregon Coast Paintbrush	<i>Castilleja litoralis</i>	2B.2
Mendocino Coast Paintbrush	<i>Castilleja mendocinensis</i>	1B.2
Rincon Ridge Ceanothus	<i>Ceanothus confuses</i>	1B.1
Vine Hill Ceanothus	<i>Ceanothus foliosus</i> var. <i>vineatus</i>	1B.1
Whitney's Farewell-to-Spring	<i>Clarkia amoena</i> ssp. <i>whitneyi</i>	1B.1
Round-Headed Chinese-Houses	<i>Collinsia corymbosa</i>	1B.2
Bunchberry	<i>Cornus canadensis</i>	2B.2

Table 2-4 (cont'd)		
Common Name	Scientific Name	CNPS Rank
Serpentine Cryptantha	<i>Cryptantha dissita</i>	1B.2
Deep-Scarred Cryptantha	<i>Cryptantha excavata</i>	1B.1
Jepson's Dodder	<i>Cuscuta jepsonii</i>	1B.2
Mendocino Dodder	<i>Cuscuta pacifica</i> var. <i>papillata</i>	1B.2
Koch's Cord Moss	<i>Entosthodon kochii</i>	1B.3
Snow Mountain Willowherb	<i>Epilobium nivium</i>	1B.2
Oregon Fireweed	<i>Epilobium oreganum</i>	1B.2
Supple Daisy	<i>Erigeron supplex</i>	1B.2
Bluff Wallflower	<i>Erysimum concinnum</i>	1B.2
Coast Fawn Lily	<i>Erythronium revolutum</i>	2B.2
Minute Pocket Moss	<i>Fissidens pauperculus</i>	1B.2
Mendocino Gentian	<i>Gentiana setigera</i>	1B.2
Pacific Gilia	<i>Gilia capitata</i> ssp. <i>pacifica</i>	1B.2
Dark-Eyed Gilia	<i>Gilia millefoliata</i>	1B.2
American Manna Grass	<i>Glyceria grandis</i>	2B.3
Toren's Grimmia	<i>Grimmia torenii</i>	1B.3
Guggolz's Harmonia	<i>Harmonia guggolziorum</i>	1B.1
Congested-Headed Hayfield Tarplant	<i>Hemizonia congesta</i> ssp. <i>congesta</i>	1B.2
Short-Leaved Evax	<i>Hesperevax sparsiflora</i> var. <i>brevifolia</i>	1B.2
Pygmy Cypress	<i>Hesperocyparis pygmaea</i>	1B.2
Glandular Western Flax	<i>Hesperolinon adenophyllum</i>	1B.2
Bolander's Horkelia	<i>Horkelia bolanderi</i>	1B.2
Point Reyes Horkelia	<i>Horkelia marinensis</i>	1B.2
Thin-Lobed Horkelia	<i>Horkelia tenuiloba</i>	1B.2
Island Tube Lichen	<i>Hypogymnia schizidiata</i>	1B.3
Rau's Jaffueliobryum Moss	<i>Jaffueliobryum raui</i>	2B.3
Hair-Leaved Rush	<i>Juncus supiniformis</i>	2B.2
Small Groundcone	<i>Kopsiopsis hookeri</i>	2B.3
Baker's Goldfields	<i>Lasthenia californica</i> ssp. <i>bakeri</i>	1B.2
Perennial Goldfields	<i>Lasthenia californica</i> ssp. <i>macrantha</i>	1B.2
Marsh Pea	<i>Lathyrus palustris</i>	2B.2
Colusa Layia	<i>Layia septentrionalis</i>	1B.2
Stebbin's Lewisia	<i>Lewisia stebbinsii</i>	1B.2
Coast Lily	<i>Lilium maritimum</i>	1B.1
Anthony Peak Lupine	<i>Lupinus antoninus</i>	1B.2
Northern Microseris	<i>Microseris borealis</i>	2B.1
Marsh Microseris	<i>Microseris paludosa</i>	1B.2
Baker's Navarretia	<i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	1B.1
Wolf's Evening-Primrose	<i>Oenothera wolfii</i>	1B.1
Northern Adder's-Tongue	<i>Ophioglossum pusillum</i>	2B.2
Seacoast Ragwort	<i>Packera bolanderi</i> var. <i>bolanderi</i>	2B.2

Table 2-4 (cont'd)		
Common Name	Scientific Name	CNPS Rank
North Coast Phacelia	<i>Phacelia insularis var. continentis</i>	1B.2
Bolander's Beach Pine	<i>Pinus contorta ssp. bolanderi</i>	1B.2
White-Flowered Rein Orchid	<i>Piperia candida</i>	1B.2
Nuttall's Ribbon-Leaved Pondweed	<i>Potamogeton epihydrus</i>	2B.2
Dwarf Alkali Grass	<i>Puccinellia pumila</i>	2B.2
Angel's Hair Lichen	<i>Ramalina thrausta</i>	2B.1
White Beaked-Rush	<i>Rhynchospora alba</i>	2B.2
Great Burnet	<i>Sanguisorba officinalis</i>	2B.2
Red Mountain Stonecrop	<i>Sedum laxum ssp. eastwoodiae</i>	1B.2
Point Reyes Checkerbloom	<i>Sidalcea calycosa ssp. rhizomata</i>	1B.2
Siskiyou Checkerbloom	<i>Sidalcea malviflora ssp. patula</i>	1B.2
Purple-Stemmed Checkerbloom	<i>Sidalcea malviflora ssp. purpurea</i>	1B.2
Marsh Checkerbloom	<i>Sidalcea oregana ssp. hydrophila</i>	1B.2
Hoffman's Bristly Jewelflower	<i>Streptanthus glandulosus ssp. hoffmanii</i>	1B.3
Robust False Lupine	<i>Thermopsis robusta</i>	1B.2
Beaked Tracyina	<i>Tracyina rostrata</i>	1B.2
Cylindrical Trichodon	<i>Trichodon cylindricus</i>	2B.2
Santa Cruz Clover	<i>Trifolium buckwestiorum</i>	1B.1
Coastal Triquetrella	<i>Triquetrella californica</i>	1B.2
Oval-Leaved Viburnum	<i>Viburnum ellipticum</i>	2B.3
Alpine Marsh Violet	<i>Viola palustris</i>	2B.2
<i>Source: California Natural Diversity Data Base (CDFW 2018a)</i>		
<u>Status Codes</u>		
1B.1 – seriously threatened in California and elsewhere, 1B.2 – moderately threatened in California and elsewhere, 1B.3 – somewhat threatened in California and elsewhere, 2B.1 – seriously threatened in California but more common elsewhere, 2B.2 - moderately threatened in California but more common elsewhere, 2B.3 – somewhat threatened in California but more common elsewhere		
<i>Note: This table does not include CNPS-ranked plants that are also listed under the federal and/or state Endangered Species Acts. It also does not include plant species with a CNPS rank of 1A or 2A, as these species are considered to have been extirpated from California.</i>		

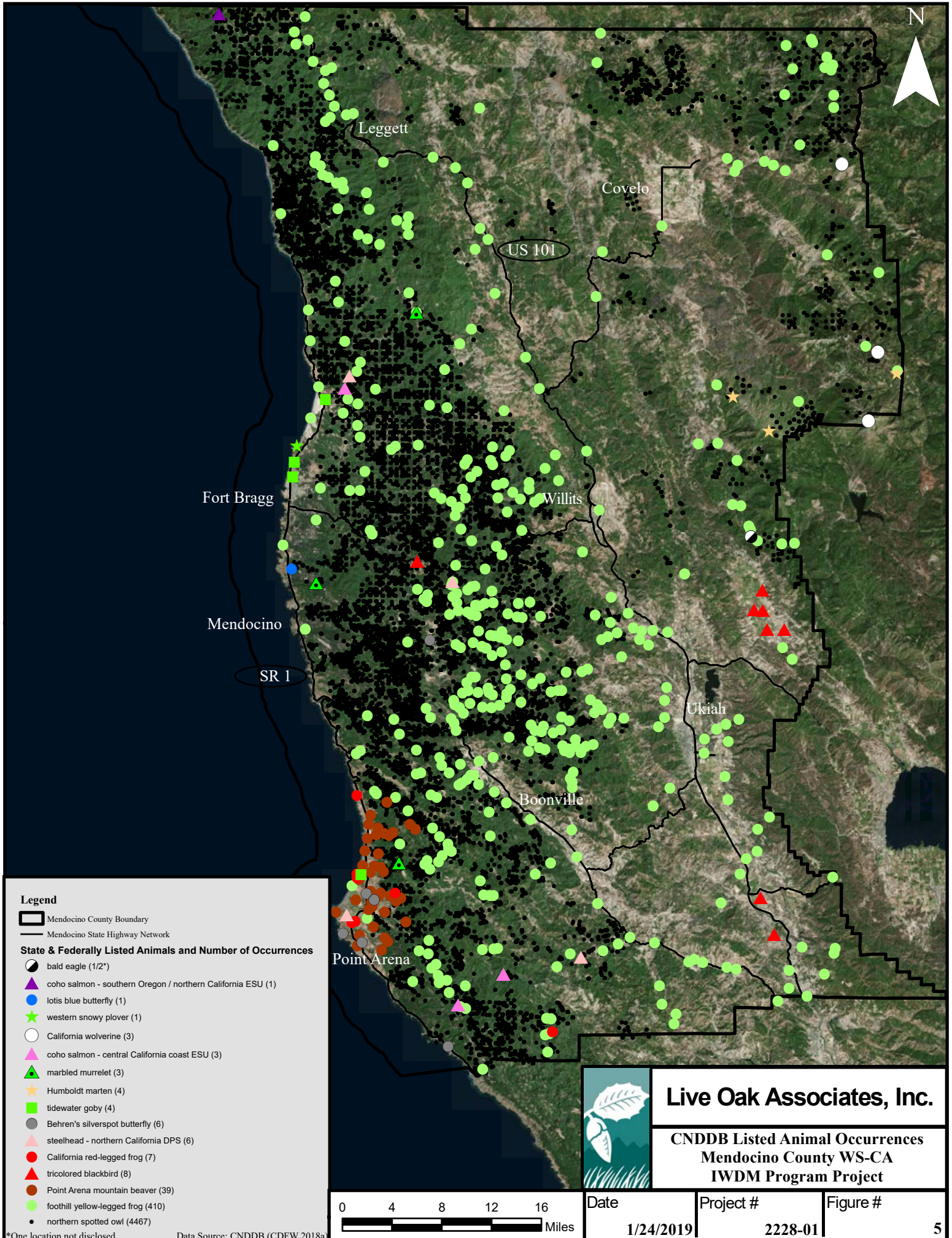
2.4.3 Federal- and State-Listed Animal Species

Thirty-six animal species listed as threatened, endangered, proposed, or candidate under the federal and/or state Endangered Species Acts have been documented in Mendocino County (CDFW 2018, eBird 2018) or have some potential to occur here per the USFWS (2018) and/or National Marine Fisheries Service (NMFS) (2018). These species are listed below in Table 2-5. In many cases, animal species with federal and/or state Endangered Species Act protection are also designated by

CDFW as species of special concern or fully protected. This is noted in the table where applicable. CNDDDB occurrences of listed animal species in Mendocino County are depicted in Figure 5.

Table 2-5 Federal- and State-Listed Animal Species Potentially Occurring in Mendocino County				
Common Name	Scientific Name	Federal Listing	State Listing	CDFW Status
<i>Invertebrates</i>				
Behren's Checkerspot Butterfly	<i>Speyeria zerene behrensii</i>	FE		
Lotis Blue Butterfly	<i>Plebejus idas lotis</i>	FE		
California Freshwater Shrimp	<i>Syncaris pacifica</i>	FE		
Conservancy Fairy Shrimp	<i>Branchinecta conservatio</i>	FE		
<i>Fish</i>				
Tidewater Goby	<i>Eucyclogobius newberryi</i>	FE		SSC
Delta Smelt	<i>Hypomesus transpacificus</i>	FT	CE	
Chinook Salmon – California Coastal ESU	<i>Oncorhynchus tshawytscha</i>	FT		
Coho Salmon – Central California Coast ESU	<i>Oncorhynchus kisutch</i> (pop. 4)	FE	CE	
Coho Salmon – Southern Oregon / Northern California Coast ESU	<i>Oncorhynchus kisutch</i> (pop. 2)	FT	CT	
Steelhead – Northern California DPS	<i>Oncorhynchus mykiss irideus</i> (pop. 16)	FT		SSC
Green Sturgeon – Southern DPS	<i>Acipenser medirostris</i>	FT		SSC
<i>Amphibians</i>				
Foothill Yellow-Legged Frog	<i>Rana boylei</i>		CCT	SSC
California Red-Legged Frog	<i>Rana draytonii</i>	FT		SSC
<i>Reptiles</i>				
Green Sea Turtle	<i>Chelonia mydas</i>	FT		
Olive Ridley Sea Turtle	<i>Lepidochelys olivacea</i>	FT		
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	FE		
<i>Birds</i>				
Yellow-Billed Cuckoo	<i>Coccyzus americanus</i>	FT	CE	
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	FT	CE	
Bald Eagle	<i>Haliaeetus leucocephalus</i>		CE	FP
Swainson's Hawk	<i>Buteo swainsoni</i>		CT	
Northern Spotted Owl	<i>Strix occidentalis caurina</i>	FT	CT	SSC
Short-Tailed Albatross	<i>Phoebastria albatrus</i>	FE		SSC

Table 2-5 (cont'd)				
Common Name	Scientific Name	Federal Listing	State Listing	CDFW Status
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	FT		SSC
Willow Flycatcher	<i>Empidonax traillii</i>		CE	
Bank Swallow	<i>Riparia riparia</i>		CT	
Tricolored Blackbird	<i>Agelaius tricolor</i>		CT	SSC
<i>Mammals</i>				
Blue Whale	<i>Balaenoptera musculus</i>	FE		
Fin Whale	<i>Balaenoptera physalus</i>	FE		
Humpback Whale	<i>Megaptera novaeangliae</i>	FE		
Southern Resident Killer Whale	<i>Orcinus orca</i>	FE		
North Pacific Right Whale	<i>Balaena glacialis</i>	FE		
Sei Whale	<i>Balaenoptera borealis</i>	FE		
Sperm Whale	<i>Physeter macrocephalus</i>	FE		
Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>	FT	FT	FP
Point Arena Mountain Beaver	<i>Aplodontia rufa nigra</i>	FE		SSC
Humboldt Marten	<i>Martes caurina humboldtensis</i>		CCE	SSC
California Wolverine	<i>Gulo gulo</i>	FPT	CT	FP
Sources: California Natural Diversity Data Base (CDFW 2018a), eBird (eBird 2018), USFWS Information for Planning and Consultation (IPaC) System (USFWS 2018), NMFS West Coast Region California Species List (NMFS 2018).				
<u>Status Codes</u>				
FE = Federal Endangered, FT = Federal Threatened, FPT = Federal Proposed Threatened				
CE = California Endangered, CT = California Threatened, CCE = California Candidate Endangered, CCT = California Candidate Threatened				
SSC = Species of Special Concern, FP = Fully Protected				

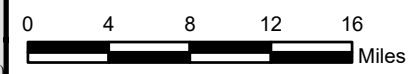


Legend

- Mendocino County Boundary
- Mendocino State Highway Network
- State & Federally Listed Animals and Number of Occurrences**
- bald eagle (1/2*)
- coho salmon - southern Oregon / northern California ESU (1)
- lotis blue butterfly (1)
- western snowy plover (1)
- California wolverine (3)
- coho salmon - central California coast ESU (3)
- marbled murrelet (3)
- Humboldt marten (4)
- tidewater goby (4)
- Behren's silverspot butterfly (6)
- steelhead - northern California DPS (6)
- California red-legged frog (7)
- tricolored blackbird (8)
- Point Arena mountain beaver (39)
- foothill yellow-legged frog (410)
- northern spotted owl (4467)

*One location not disclosed

Data Source: CNDDB (CDFW 2018a)



Live Oak Associates, Inc.

**CNDDB Listed Animal Occurrences
Mendocino County WS-CA
IWDM Program Project**

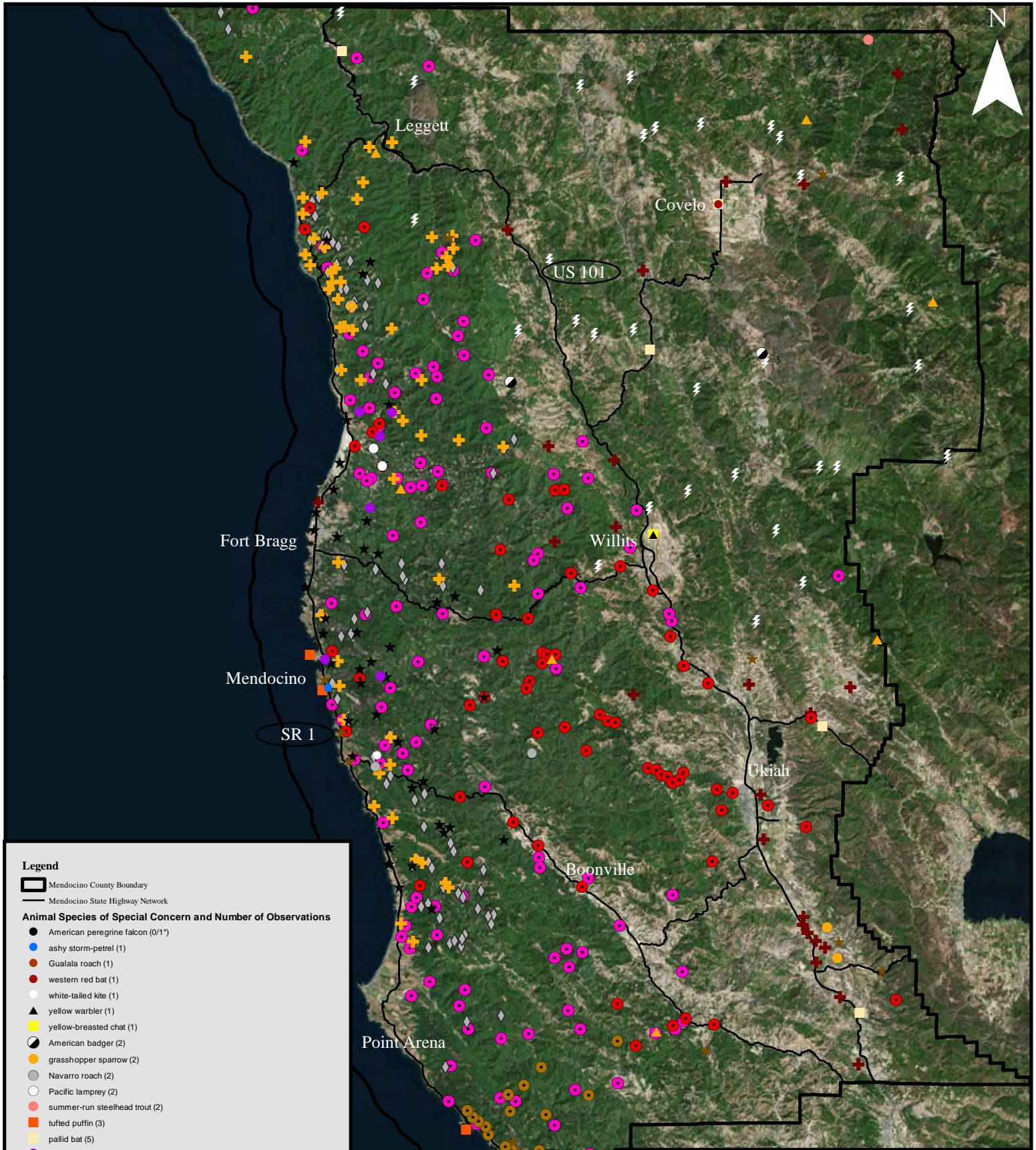
Date	Project #	Figure #
1/24/2019	2228-01	5

2.4.4 Other Special Status Animals

Forty-six animal species designated by CDFW as species of special concern (SSC) or fully protected (FP), but not listed under the federal and/or state Endangered Species Acts, have been documented in Mendocino County (CDFW 2018a, eBird 2018), or have some potential to occur here because the County is located within the species' range and suitable habitat is present. These species are listed below in Table 2-6. CNDDDB occurrences of SSC and FP animals in Mendocino County are depicted in Figure 6.

Table 2-6 Animals Designated as Species of Special Concern or Fully Protected That Potentially Occur in Mendocino County		
Common Name	Scientific Name	CDFW Status
<i>Fish</i>		
Pacific Lamprey	<i>Entosphenus tridentalius</i>	SSC
Navarro Roach	<i>Lavinia symmetricus navarroensis</i>	SSC
Gualala Roach	<i>Lavinia symmetricus parvipinnis</i>	SSC
Summer-Run Steelhead Trout	<i>Oncorhynchus mykiss irideus</i> (pop. 36)	SSC
<i>Amphibians</i>		
Red-Bellied Newt	<i>Taricha rivularis</i>	SSC
Southern Torrent Salamander	<i>Rhyacotriton variegatus</i>	SSC
California Giant Salamander	<i>Dicamptodon enatus</i>	SSC
Northern Red-Legged Frog	<i>Rana aurora</i>	SSC
Pacific Tailed Frog	<i>Ascaphus truei</i>	SSC
<i>Reptiles</i>		
Western Pond Turtle	<i>Emys marmorata</i>	SSC
<i>Birds</i>		
Brant	<i>Branta bernicla</i>	SSC
Redhead	<i>Aythya americana</i>	SSC
Harlequin Duck	<i>Histrionicus histrionicus</i>	SSC
Vaux's Swift	<i>Chaetura vauxi</i>	SSC
Black Swift	<i>Cypseloides niger</i>	SSC
Tufted Puffin	<i>Fratercula cirrhata</i>	SSC
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	SSC
Common Loon	<i>Gavia immer</i>	SSC
Ashy Storm-Petrel	<i>Oceanodroma homochroa</i>	SSC
American White Pelican	<i>Pelecanus erythrorhynchos</i>	SSC
California Brown Pelican	<i>Pelecanus occidentalis</i>	FP
Black Skimmer	<i>Rhynchops niger</i>	SSC
Golden Eagle	<i>Aquila chrysaetos</i>	FP

Table 2-6 (cont'd)		
Common Name	Scientific Name	CDFW Status
White-Tailed Kite	<i>Elanus leucurus</i>	FP
Northern Goshawk	<i>Accipiter gentilis</i>	SSC
Northern Harrier	<i>Circus cyaneus</i>	SSC
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	FP
Short-Eared Owl	<i>Asio flammeus</i>	SSC
Long-Eared Owl	<i>Asio otus</i>	SSC
Burrowing Owl	<i>Athene cunicularia</i>	SSC
Olive-Sided Flycatcher	<i>Contopus cooperi</i>	SSC
Loggerhead Shrike	<i>Lanius ludovicianus</i>	SSC
Purple Martin	<i>Progne subis</i>	SSC
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	SSC
Yellow-Breasted Chat	<i>Icteria virens</i>	SSC
Yellow-Headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	SSC
Yellow Warbler	<i>Setophaga petechia</i>	SSC
Mammals		
Ringtail	<i>Bassariscus astutus</i>	FP
Sonoma Tree Vole	<i>Arborimus pomo</i>	SSC
Western Mastiff Bat	<i>Eumops perotis californicus</i>	SSC
Pallid Bat	<i>Antrozous pallidus</i>	SSC
Townsend's Big-Eared Bat	<i>Corynorhinus townsendii</i>	SSC
Spotted Bat	<i>Euderma maculatum</i>	SSC
Western Red Bat	<i>Lasiurus blossevillii</i>	SSC
Fisher	<i>Pekania pennanti</i>	SSC
American Badger	<i>Taxidea taxus</i>	SSC
<i>Source: California Natural Diversity Data Base (CDFW 2018a), eBird (eBird 2018).</i>		
<i>Status Codes</i>		
SSC = Species of Special Concern, FP = Fully Protected		
<i>Note: This table does not include SSC and FP animals that are also listed under the federal and/or state Endangered Species Acts (i.e. Table 2-3, above).</i>		



Legend

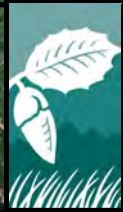
- Mendocino County Boundary
- Mendocino State Highway Network

Animal Species of Special Concern and Number of Observations

- American peregrine falcon (0/1*)
- ashy storm-petrel (1)
- Gualala roach (1)
- western red bat (1)
- white-tailed kite (1)
- yellow warbler (1)
- yellow-breasted chat (1)
- American badger (2)
- grasshopper sparrow (2)
- Navarro roach (2)
- Pacific lamprey (2)
- summer-run steelhead trout (2)
- tufted puffin (3)
- pallid bat (5)
- purple martin (6)
- northern goshawk (8)
- Townsend's big-eared bat (11/12*)
- California giant salamander (16)
- western pond turtle (26)
- fisher - West Coast DPS (31)
- northern red-legged frog (47)
- southern torrent salamander (57)
- red-bellied newt (65)
- Pacific tailed frog (87)
- Sonoma tree vole (113)

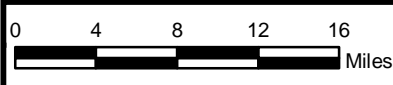
*One location not disclosed

Data Source: CNDDDB (CDFW 2018a)



Live Oak Associates, Inc.

**CNDDDB Animal Species of Special Concern
Mendocino County WS-CA
IWDM Program Project**



Date	Project #	Figure #
1/24/2019	2228-01	6

2.5 DESIGNATED CRITICAL HABITAT

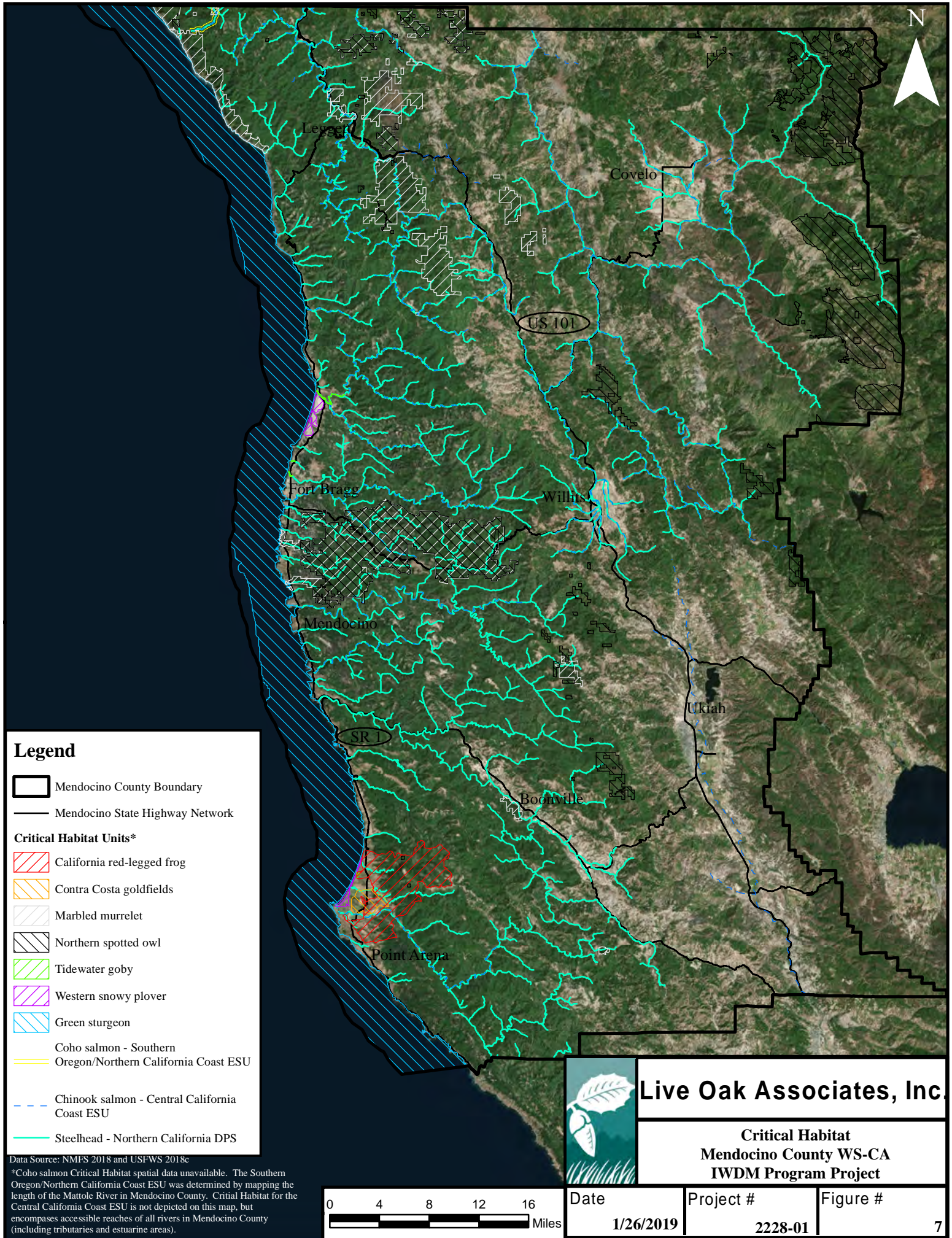
The USFWS and NMFS often designate areas of “critical habitat” for species listed as threatened or endangered. Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. For more information on critical habitat, please refer to Appendix A.

In Mendocino County, approximately 428,340 acres of critical habitat has been designated for the Contra Costa goldfields (*Lasthenia conjugens*), tidewater goby (*Eucyclogobius newberryi*), green sturgeon - Southern DPS (*Acipenser medirostris*), California red-legged frog (*Rana draytonii*), marbled murrelet, northern spotted owl, and western snowy plover (*Charadrius alexandrinus nivosus*). Approximately 1,552 stream-miles of critical habitat has been designated for the chinook salmon - Central California Coast ESU (*Oncorhynchus tshawytscha*), coho salmon - Central California Coast and Southern Oregon/Northern California Coast ESUs (*Oncorhynchus kisutch*), and steelhead - Northern California DPS (*Oncorhynchus mykiss irideus*).

Critical habitat for these ten species is distributed across the County, and in some cases overlaps. Table 2.7 below summarizes designated critical habitat in the County, and Figure 7 depicts the configuration and location of each unit of critical habitat.

Table 2-7 Designated Critical Habitat in Mendocino County			
Species	Extent of Critical Habitat		Habitat Type / Location
	Acres	Stream Miles	
Contra Costa Goldfields	2,637	-	Vernal pool habitat near Manchester
Green Sturgeon	224,489	-	Marine coastal zone (offshore)
Tidewater Goby	123	-	Coastal stream lagoons associated with Ten Mile River and Pudding and Virgin Creeks
California Red-Legged Frog	21,811	-	Streams, ponds, and associated uplands from Point Arena to Manchester Beach
Marbled Murrelet	101,659	-	Redwood forests across the County

Table 2-7 (cont'd)			
Species	Extent of Critical Habitat		Habitat Type / Location
	Acres	Stream Miles	
Northern Spotted Owl	133,892	-	Old-growth forests across the County
Western Snowy Plover	1,723	-	Manchester and Ten Mile Beaches
Chinook Salmon – Central California Coast ESU	-	634.2	Eel, Russian, Albion, Mattole, Garcia, Ten Mile, and Noyo Rivers and Wages Creek
Coho Salmon –Southern Oregon/Northern California Coast ESU	-	4	Mattole River
Coho Salmon – Central California Coast ESU	-	Not available	Spatial data unavailable; critical habitat encompasses accessible reaches of all rivers (including estuarine areas and tributaries) in Mendocino County
Steelhead – Northern California DPS	-	1,464.3	Numerous rivers and streams across the County
<i>Source: USFWS Threatened and Endangered Species Active Critical Habitat Report (USFWS 2018c).</i>			



Legend

- Mendocino County Boundary
- Mendocino State Highway Network
- Critical Habitat Units***
- California red-legged frog
- Contra Costa goldfields
- Marbled murrelet
- Northern spotted owl
- Tidewater goby
- Western snowy plover
- Green sturgeon
- Coho salmon - Southern Oregon/Northern California Coast ESU
- Chinook salmon - Central California Coast ESU
- Steelhead - Northern California DPS

Data Source: NMFS 2018 and USFWS 2018c
 *Coho salmon Critical Habitat spatial data unavailable. The Southern Oregon/Northern California Coast ESU was determined by mapping the length of the Mattole River in Mendocino County. Critical Habitat for the Central California Coast ESU is not depicted on this map, but encompasses accessible reaches of all rivers in Mendocino County (including tributaries and estuarine areas).

Live Oak Associates, Inc.

**Critical Habitat
Mendocino County WS-CA
IWDMP Program Project**

	Date	Project #	Figure #
Miles	1/26/2019	2228-01	7

2.6 JURISDICTIONAL WATERS

Jurisdictional waters are those rivers, streams, lakes, ponds, and wetlands that are subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or CDFW. For more information on the definition and regulation of jurisdictional waters, please refer to Appendix A.

According to the USFWS National Wetlands Inventory, Mendocino County contains over 8,000 miles of rivers and streams and approximately 17,000 acres of lakes, ponds, wetlands, and other water bodies (USFWS 1976-2002), all of which would fall under the jurisdiction of one or more of the regulatory agencies. The County also contains approximately 231,700 acres of the territorial seas, which are federally regulated. Figure 8 depicts rivers, streams, wetlands, and other water bodies in Mendocino County as mapped by the National Wetlands Inventory (USFWS 1976-2002).

2.7 SENSITIVE NATURAL COMMUNITIES



Mendocino County contains a wide range of natural communities, or unique assemblages of plants and animals. These communities have largely been classified and mapped by CDFW as part of its natural heritage program. This effort is ongoing; as of the writing of this report, CDFW has classified approximately half of the state of California (CDFW 2018c). Natural communities are assigned state and global ranks according to their rarity and the magnitude and trend of the threats they face. Any natural community with a state rank of 3 or lower (on a 1-5 scale) is considered “sensitive” (CDFW 2018d).

Thirteen sensitive natural communities, encompassing approximately 30,166 acres, have been mapped to date in Mendocino County (CDFW 2018a). These communities are identified below in Table 2-8, and depicted in Figure 9.

N



Legend

-  Mendocino County WS-CA IWDM Boundary
-  Wetlands and Other Water Bodies



Live Oak Associates, Inc.

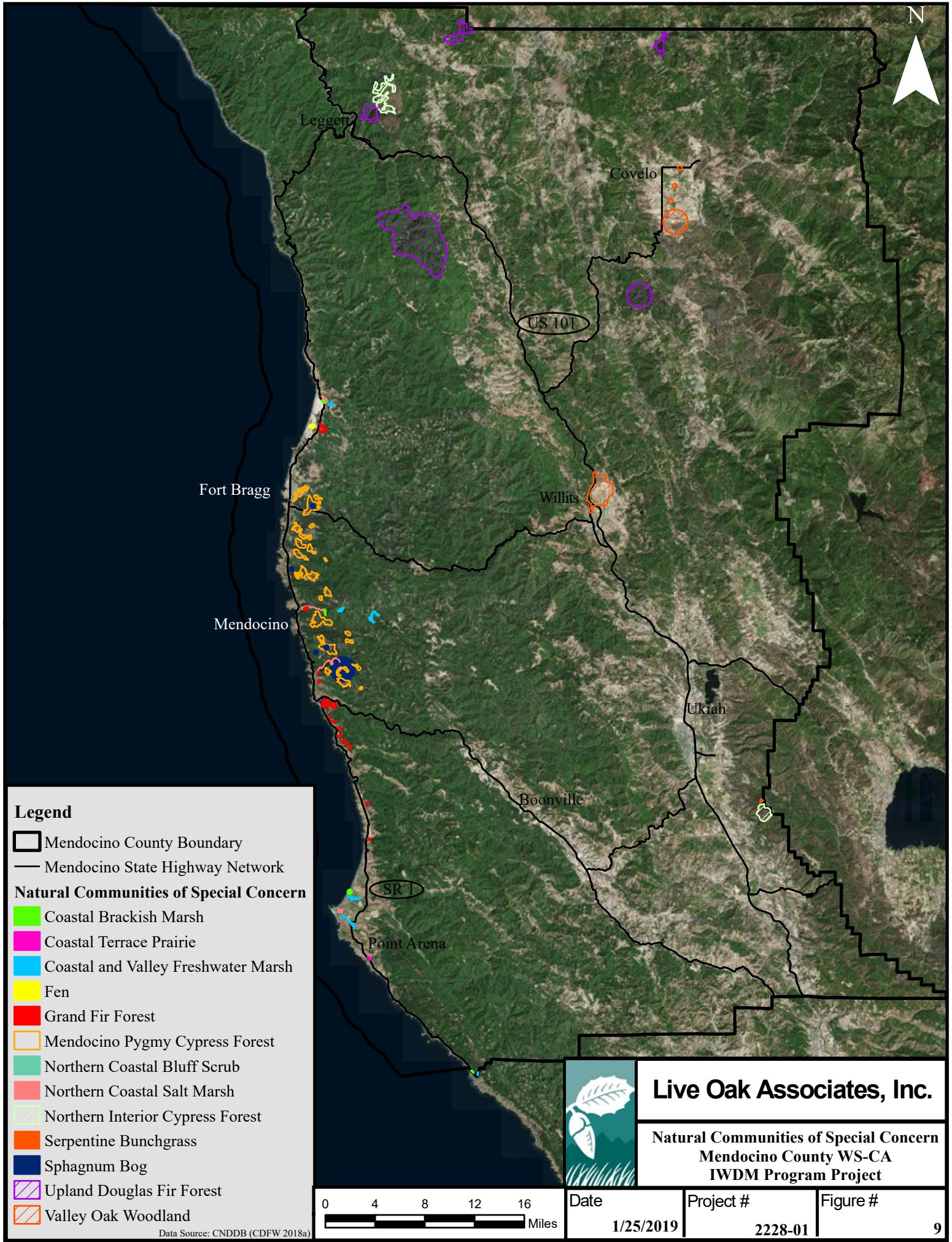
**Wetlands and Other Water Bodies Map
Mendocino County WS-CA
IWDM Program Project**

Date	Project #	Figure #
1/24/2019	2228-01	8



Data Source: USFWS National Wetlands Inventory

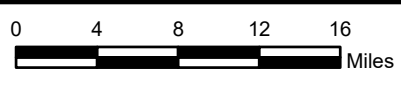
Sources: Esri, USGS, NOAA



Legend

-  Mendocino County Boundary
-  Mendocino State Highway Network
- Natural Communities of Special Concern**
-  Coastal Brackish Marsh
-  Coastal Terrace Prairie
-  Coastal and Valley Freshwater Marsh
-  Fen
-  Grand Fir Forest
-  Mendocino Pygmy Cypress Forest
-  Northern Coastal Bluff Scrub
-  Northern Coastal Salt Marsh
-  Northern Interior Cypress Forest
-  Serpentine Bunchgrass
-  Sphagnum Bog
-  Upland Douglas Fir Forest
-  Valley Oak Woodland

Data Source: CNDDB (CDFW 2018a)



Live Oak Associates, Inc.

**Natural Communities of Special Concern
Mendocino County WS-CA
IWDM Program Project**

Date	Project #	Figure #
1/25/2019	2228-01	9

Community	State Rank	Mapped Area (acres)
Coastal and Valley Freshwater Marsh	S2.1	334
Coastal Brackish Marsh	S2.1	174
Coastal Terrace Prairie	S2.1	18
Fen	S1.2	70
Grand Fir Forest	S1.1	509
Mendocino Pygmy Cypress Forest	S2.1	4,452
Northern Coastal Bluff Scrub	S2.2	5
Northern Coastal Salt Marsh	S3.2	459
Northern Interior Cypress Forest	S2.2	1,962
Serpentine Bunchgrass	S2.2	32
Sphagnum Bog	S1.2	2,257
Upland Douglas Fir Forest	S3.1	15,185
Valley Oak Woodland	S2.1	4,710
TOTAL		30,166
<i>Source: California Natural Diversity Data Base (CDFW 2018a)</i>		

In addition to the communities listed above, Mendocino County contains habitats that are sensitive by virtue of significant biodiversity or wildlife value and/or importance to special status species. These include the County’s wetland and riparian habitats and old-growth forests.

2.8 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. Movement corridors or landscape linkages that interconnect patches of suitable habitat in a less suitable matrix are particularly important for native wildlife, as they help promote gene flow and increase the potential for recolonization of habitat patches. Even poor-quality corridors can still provide some benefit to the species that use them (Beier 1996).

The degree to which wildlife use a corridor or linkage is highly dependent on the attributes of the species and landscape in question. For example, corridors may not be as critical for birds or bats as for small, slow-moving animals such as frogs or snakes, as the former are less affected by landscape barriers than the latter (Beier and Noss 1998). In addition, large carnivores that can move long distances in a single night are more capable of making use of poor quality or inhospitable terrain than species that move more slowly and are more vulnerable to predation, vehicle strikes, and other stressors (Beier 1996). Beier and Noss (1998) stress that, while the importance of landscape linkages is well demonstrated in the scientific literature, consideration of context and ecological scale are critical to the evaluation of linkages.

All of Mendocino County's rivers and major streams would be expected to function as wildlife movement corridors, facilitating passage by aquatic and terrestrial wildlife alike. These drainages enable salmon, steelhead, and other anadromous fish species to migrate to the ocean as juveniles and to return to their spawning grounds as adults. Elevational migrant birds like the ruby-crowned kinglet often follow rivers and streams when traveling between their Sierra breeding grounds and lowland winter ranges. Terrestrial mammals like deer and bears rely on riparian corridors for cover while moving between habitat patches, particularly when the surrounding landscape is developed or otherwise unsuitable.

Other features in Mendocino County likely to function as important wildlife movement corridors are large linkages of public or other protected lands. For example, the Big River wetlands in Mendocino Headlands State Park is a 7,400-acre wildlife corridor that links coastal and inland habitats, forming the largest connected piece of public land entirely within County boundaries. Swaths of contiguous forest adjacent to open habitats are also important; for example, on the Shasta-Trinity National Forest, Kelleyhouse (1975) found well-worn black bear trails where mixed conifer forest abutted open foraging habitats like wet meadows and manzanita scrub.

2.9 IWDM PROGRAM SERVICES IN MENDOCINO COUNTY

Wildlife damage control activities have been in effect in Mendocino County since at least 1919, when the County and the U.S. Biological Survey initiated the first cooperatively financed predator control program. The County of Mendocino adopted its own Predatory Animal Damage Control

program in 1943. In 1986, the County transferred this program to the care of WS-CA, which implements wildlife damage control programs in 35 of California's 58 counties. WS-CA's partnership with the County was formalized in 1989 with a Cooperative Service Agreement, which remained in effect, with three renewals, almost continuously until 2015. WS-CA has been providing wildlife services without any financial contribution from the County since 2015, and without any County oversight since 2016.

During the environmental baseline period of 1997 to 2017, WS-CA engaged in a variety of wildlife damage control activities in Mendocino County, both with (1997-2015) and without (2015-2017) financial support from the County. These activities and the wildlife species they targeted are described in detail in the following sections.

2.9.1 Geographic Extent of Services

WS-CA services occur throughout Mendocino County upon request from property owners and resource managers. Requests for assistance are concentrated in areas where wildlife damage to private property is most problematic, such as residential areas and lands in agricultural, livestock, and timber production. Due to the Privacy Act of 1974, WS-CA cannot share details regarding where wildlife damage and services occurred in Mendocino County, so the geographic extent of their program services cannot be calculated. For the purposes of establishing the baseline environmental setting, it is assumed that services occur County-wide but are most common on the 79.4% of the County that is in private ownership.

2.9.2 Description of Services

WS-CA services offered in Mendocino County during the baseline period of 1997 to 2017 included both technical and direct control assistance. Technical assistance entailed providing advice and recommendations to property owners and resource managers on how they could minimize wildlife conflicts on their own, and in some instances providing wildlife management equipment or materials, which owners/managers then utilize in consultation with WS-CA. Direct control assistance included both lethal and non-lethal interventions. Lethal methods included capturing the animal using calling devices, catch poles, dogs, hand-capture, foot/leg and neck snares, and

traps or targeting animals using bait stations, and using euthasol, firearms, or cyanide capsules to euthanize the animal; it should be noted that cyanide capsules were used only on tribal land, as they are prohibited elsewhere in California. Non-lethal methods involved employing scare devices, like mylar flags or spotlights, or chemical repellents to encourage animals to disperse or discontinue use of a valued resource.

2.9.3 Affected Wildlife Species

During the 1997-2017 baseline period, WS-CA services in Mendocino County addressed wildlife conflicts associated with a range of species. In some cases, WS-CA's services resulted in lethal control, or "take," of the species associated with the conflict ("target species"). Generally, such take was intentional, but unintentional take of both target and non-target species also periodically occurred. See Appendix B for a summary of target intentional take for years 1997-2017, Appendix C for a summary of target unintentional take for years 2008-2017, and Appendix D for a summary of non-target unintentional take for years 2007-2017 in Mendocino County (USDA 2018a).

Take during the baseline period was most frequent for mammalian species. The primary and most consistent species that were taken between 1997 and 2017 were the black bear, bobcat, cougar, coyote, feral swine, gray fox, raccoon, striped skunk, and Virginia opossum. Average numbers of individuals taken for each species annually varied, with coyote being the most (196), followed by striped skunk (61), raccoon (41), and feral swine (23). The remaining mammals that were taken had less than an average of 15 individuals taken each year. Lethal control during the baseline period was relatively infrequent for non-mammalian species. Rock pigeons (*Columba livia*) were occasionally taken, and European starlings (*Sturnus vulgaris*) and common ravens (*Corvus corax*) were each taken in a single year of the baseline period. For reptiles, two snakes were dispatched in two separate years. No fish or amphibian species were subject to take or any other form of direct control during the baseline period.

For a summary of all WS-CA take that occurred in Mendocino County during the baseline years, see Table 2-9, below. This table totals the average take for each species for each of the three categories of take and rounds this number up to the nearest one. This total establishes the baseline take for the project.

Table 2-9: Mendocino County WS-CA Total Species Take

Common Species Name (<i>Scientific name</i>)	Target Intentional Annual Average (1997-2017)¹	Target Unintentional Annual Average (2008-2017)²	Non-Target Unintentional Annual Average (2007-2017)³	Total Take Annual Average⁴
American Badger (<i>Taxidea taxus</i>)	0.57	0.00	0.18	1
Black Bear (<i>Ursus americanus</i>)	12.43	0.00	0.00	13
Black-tailed Deer (<i>Odocoileus hemionus</i>)	0.71	0.00	0.91	2
Bobcat (<i>Lynx rufus</i>)	5.33	0.00	0.00	6
California Ground Squirrel (<i>Otospermophilus beecheyi</i>)	0.95	0.00	0.00	1
Cats - Feral and Free-ranging (<i>Felis silvestris catus</i>)	0.14	0.00	0.00	1
Common Raven (<i>Corvus corax</i>)	0.19	0.00	0.00	1
Cougar (<i>Puma concolor</i>)	8.62	0.00	0.00	9
Coyote (<i>Canis latrans</i>)	196.14	0.00	0.00	197
Elk (<i>Cervus canadensis</i>)	0.10	0.00	0.09	1
European Starling (<i>Sturnus vulgaris</i>)	0.29	0.00	0.00	1
Feral Swine (<i>Sus scrofa</i>)	23.43	0.10	0.09	24
Gray Fox (<i>Urocyon cinereoargenteus</i>)	11.19	0.10	0.55	12
North American Porcupine (<i>Erethizon dorsatum</i>)	0.29	0.00	0.27	1
Raccoon (<i>Procyon lotor</i>)	41.33	0.50	0.45	43
Red Fox (<i>Vulpes vulpes</i>)	0.38	0.00	0.00	1
Rock Dove (<i>Columba livia</i>)	13.43	0.00	0.00	14
Striped Skunk (<i>Mephitis mephitis</i>)	61.29	0.40	0.09	62
Unknown Ground Squirrel	0.38	0.00	0.00	1
Unknown Snake (Poisonous and Non-Poisonous)	0.10	0.00	0.00	1
Virginia Opossum (<i>Didelphis virginiana</i>)	11.10	0.20	0.00	12
Western Gray Squirrel (<i>Sciurus griseus</i>)	0.19	0.00	0.00	1
Western Spotted Skunk (<i>Spilogale gracilis</i>)	1.05	0.00	0.00	2
Total	400.76	1.30	2.64	405
Notes: 1. See Appendix B 3. See Appendix D 2. See Appendix C 4. Total annual averages rounded up to the nearest 1 Source: USDA 2018a				

Although direct control assistance between 1997 and 2017 included both lethal and non-lethal methods, we are using lethal control as a metric to establish baseline impacts to biological resources because it is the best documented and most quantifiable outcome associated with WS-CA's services in Mendocino County. Accordingly, Table 2-9 presents baseline take of targeted wildlife species, but does not include individuals that were captured, dispersed, freed, relocated, or transferred of custody.

As shown in Appendices A-C, the number of each target species taken per year varied. This could be due to a number of factors including, but not limited to, changes in predator-prey populations due to drought, mast productivity, disease, and climate change; differences in the amount of food provided by humans from feeding, agriculture, trash deposition, and livestock operations; changes in human populations and their understanding and chosen methods of wildlife damage control; numbers and extent of wildfires and other natural disasters; and changes in available habitat types from human development and reduction of suitable habitat or restoration and increases in suitable habitat.

The following sections present species characteristics and baseline County-wide population estimates and take data for the nine primary species that were taken between 1997 and 2017. Low and high population estimates were calculated using a variety of sources, and should not be considered precise. Sources that were used to calculate population estimates were often based on information from other parts of California or locations outside of California. Furthermore, population estimates are based on an assumption that each species occurs at a consistent density across the CWHR habitats identified by CDFW (2014) as being of medium and/or high suitability for that species' reproduction, cover, and/or feeding (i.e. foraging). Finally, natural mortality or mortality (natural and human-caused) was included in the population estimate, which itself is an approximation.

2.9.3.1 Black Bear

Ecology of the Species

The black bear occurs across much of North America, inhabiting forested regions of at least 40 U.S. states and all but one Canadian province (Scheick and McCown 2014). It prefers extensive wooded areas with a variety of fruit- and nut-producing species. An omnivore, it has a largely plant-based diet emphasizing acorns, berries, and succulent vegetation, but also forages for ants and fish, scavenges for carrion, and may catch and consume newborn deer and elk.

The opportunistic black bear shifts its space use as the seasons progress to access preferred foods as they become available. Emerging from their dens in the springtime, bears feed on grasses and forbs in wet meadows and riparian areas. With their fat reserves depleted, they may also strip the bark from trees in conifer forests to access the sugar-rich cambium layer beneath (Taylor et al. 2014). Next, bears turn their attention to insects, foraging for ants and larvae in decaying logs and stumps in mixed conifer forest (Raine and Kansas 1990, Kelleyhouse 1975). As berry crops become available, bears move upslope to access huckleberry (*Vaccinium* sp.) or bearberry (*Arctostaphylos uva-ursi*) (Raine and Kansas 1990), or into scrub habitats to access manzanita (*Arctostaphylos* sp.) berries (Kellyhouse 1975). In the fall, bears frequent oak woodlands and mixed conifer forests, where they feed on acorns to fatten up for their return to their dens (Kellyhouse 1975).

The black bear is a top-level or “apex” predator, one of seven North American species typically given this classification; the others are the grizzly bear (*Ursus arctos horribilis*), polar bear (*Ursus maritimus*), gray wolf (*Canis lupus*), cougar, jaguar (*Panthera onca*), and wolverine (*Gulo gulo*) (Prugh et al. 2009). Black bears are the most dominant apex predator within their range in California, with the possible exception of areas where gray wolves are present. They are known to displace cougars from their kills (Elbroch and Kusler 2018) and, on the Mendocino National Forest, may be limiting cougar density (Allen et al. 2015). Black bears also exert considerable pressure on mid-level predators or “mesopredators” like the raccoon and skunk. For example, a study of trophic interactions in an intertidal community in British Columbia found that black bears displaced raccoons and American minks (*Neovison vison*) from high-quality foraging habitat (Suraci et al. 2017). In Idaho, black bears help to regulate elk populations through depredation on calves (White et al. 2010). Black bears also promote avoidance behavior in ungulates, thereby limiting ungulate impacts to plant biomass.

The black bear is generally wary of humans and avoids human-use areas. However, as both human and bear populations expand, black bears are increasingly encountering anthropogenic foods and, in some cases, becoming habituated. Habituated bears often change their behavior, readily occupying areas inhabited by humans, seeking out garbage, scraps, pet food, and other human food sources, and even approaching humans. Normally most active at dawn and dusk, habituated bears often shift their activity to nocturnal hours, using the cover of darkness to aid their scavenging. At extreme levels of habituation, bears may become active during the day.

Black bears may also forage in agricultural lands. They are drawn to corn, especially when it is in the milk stage, and can cause considerable damage in corn fields. Similarly, bears' predilection for honey can make them a nuisance for beekeepers; many bee boxes can be destroyed in a single visit by a bear. Bears can also pose a problem for timber production, as their post-hibernation tree-peeling behavior generally either kills the affected tree or decreases its log value (Taylor et al. 2014).

In Mendocino County, black bears are hunted from late summer/early fall until the end of the year or until the state limit has been reached.

Baseline Population Estimate and Take Data

The calculation of the black bear population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for black bear reproduction, cover, and/or feeding: alpine-dwarf shrub, annual grassland, blue oak-foothill pine, chamise-redshank chaparral, coastal scrub, Douglas-fir, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, red fir, redwood, riverine, Sierran mixed conifer, subalpine conifer, valley foothill riparian, vineyard, wet meadow, and white fir (CDFW 2014a). The total area of CWHR habitats in Mendocino County that are of medium to high suitability for the black bear is 3,335 square miles (Table 2-2). Black bear density in California has been estimated at 0.58 to 0.77 individuals per square mile (CDFW 2018b). Applying this density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality (CDFW 2018b, Bunnell and Tait 1985), we calculate that there are approximately 2,535 to 3,375 black bears in

the County (Appendix E), which may account for approximately 8.5 percent of the California low population estimate (CDFW 2018b).

WS-CA performed services in Mendocino County that resulted in black bear take each year from 1997 to 2017 (USDA 2018a, see Appendix B). No black bears were unintentionally taken by WS-CA during these years (USDA 2018a, see Appendices C and D). Annual take of black bears ranged from three to 26 individuals, and averaged 13 individuals per year across the baseline period (see Table 2.9 and Appendix E).

2.9.3.2 Bobcat

Ecology of the Species

The bobcat is common throughout North America, occurring in 47 of the 48 contiguous U.S. states, with populations by state generally reported to be increasing (Roberts and Crimmins 2010). An adaptable carnivore, it takes a variety of prey including lagomorphs, rodents, birds, reptiles, amphibians, invertebrates, and occasionally deer fawns. Although it evolved as a mesopredator subordinate to apex predators like the cougar, grizzly bear, and gray wolf, it has been promoted to apex predator in areas of the U.S. where larger predators have been extirpated, and has assumed a larger role in shaping ecosystem function (Conner et al. 2001, Prugh et al. 2009). In California, it is generally considered a mesopredator, owing to the continued presence of the black bear and cougar.

Like many mesopredators, the bobcat is a habitat generalist, adapting to a wide range of environments that support its prey. It may be found in virtually all of California's ecosystems, including high alpine zones, forests, deserts, scrublands, and even urban areas. Its optimal habitats, however, are chaparral and the brushy stages of low- to mid-elevation conifer, oak, riparian, and pinyon-juniper forests, as this is where its prey is most abundant (Zeiner et al. 1988-1990).

An elusive animal, bobcats pose virtually no threat to humans. The rare attacks that occur are usually attributed to rabies or other illness. Bobcats can, however, run afoul of farmers by depredating poultry, lambs, and young pigs. Bobcats are also occasionally known to kill domestic cats and small dogs.

In California, bobcats were historically trapped for their fur. However, in 2015, responding to passage of the Bobcat Protection Act, the California Fish and Game Commission enacted a statewide ban on recreational and commercial trapping of this species. Although bobcats may still be taken by licensed hunters possessing the appropriate tags, its pelts may not be possessed, sold, or exported. The only type of trapping that is permissible for this species in California is trapping performed under the authority of a depredation permit issued by CDFW.

Baseline Population Estimate and Take Data

The calculation of the bobcat population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for bobcat reproduction, cover, and/or feeding: alpine-dwarf shrub, annual grassland, blue oak woodland, chamise-redshank chaparral, closed-cone pine-cypress, coastal scrub, cropland, Douglas-fir, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, perennial grassland, Ponderosa pine, red fir, redwood, saline emergent wetland, Sierran mixed conifer, subalpine conifer, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir (CDFW 2014a). The total area of CWHR habitats in Mendocino County that are of medium to high suitability for bobcat is 3,410 square miles (Table 2-2). CDFW estimates that there are approximately 0.55 to 0.58 bobcats per square mile in California (CDFG 2004). Applying this density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality (CDFG 2004), we calculate that there are approximately 2,210 to 2,330 bobcats in the County, which may account for approximately 2.7 percent of the California low population estimate (Appendix F).

In Mendocino County, one to twelve bobcats were taken by WS-CA every year from 1997 to 2017, with an average of 6 individuals per year (USDA 2018a; see Table 2.9 and Appendix F). No bobcats were unintentionally taken by WS-CA during these years (USDA 2018a, see Appendices C and D).

2.9.3.3 Cougar

Ecology of the Species

The cougar is the most widely distributed carnivore in the western hemisphere, ranging from Canada to Patagonia. Largely due to conflicts with humans, however, it occupies only about one-third of its historic range (Pierce and Bleich 2003). The cougar once occurred throughout the United States, but today is found mainly west of the Rockies, with three small breeding populations in the Midwest and an endangered subspecies, the Florida panther (*Puma concolor coryi*), comprising 120 to 230 individuals in south Florida (LaRue et al. 2012, USFWS 2017). Predator eradication programs and overhunting led to the extinction of cougars in the eastern United States and eventual removal of the eastern subspecies (*Puma concolor cougar*) from the federal endangered species list (USFWS 2018b).

In California, the cougar is widespread but uncommon. It is most frequently associated with riparian areas and brushy stages of various other natural communities, but can be found in nearly any habitat. It is absent only from the Central Valley and xeric regions of the Mojave and Colorado Deserts that do not support its primary prey, the mule deer (*Odocoileus hemionus*) (Zeiner et al. 1988-1990). Although deer comprise most of its diet throughout the year, it also predaes on lagomorphs, rodents, porcupines, skunks, coyotes, and occasionally domestic stock animals (Zeiner et al. 1988-1990).

As an apex predator, the cougar plays a vital role in shaping the ecosystem in which it lives. Cougars regulate deer populations through predation, thereby preventing irruptions that can have catastrophic effects. In a study of cougar and ungulate populations in Zion National Park, Ripple and Beschta (2006) found that, when cougars were displaced, deer numbers surged. Despite park managers' efforts to control the deer population, the park's cottonwoods (*Populus* sp.) and other riparian vegetation became severely overbrowsed, leading to stream bank erosion and declines in numerous taxa including plants, fish, lizards, various amphibians, and butterflies. In addition to direct predation, cougars promote avoidance behavior in deer, which has the effect of preventing deer from grazing too long in one location.

Despite popular perception, the cougar is generally not a threat to humans. From 1986 to 2014, there were only three verified fatal cougar attacks in California, and an additional twelve verified cougar attacks occurred in which the victim survived (CDFW 2018e). Nationwide, there have been approximately 25 fatal attacks and 95 non-fatal attacks over the last century. Although the

frequency of cougar attacks in North America was much higher in the 1990s and early 2000s than in previous decades, the rate of attacks has since dropped and stabilized (Mattson et al. 2011).

Cougars are not a hunted species in California, but may be lawfully taken under the authority of a depredation permit issued by CDFW, generally for conflicts related to the loss of livestock and pets. Cougars are also frequently poached. In a study of cougar feeding and spatial ecology on the Mendocino National Forest, Allen et al. (2015) detected relatively few cougars despite an abundance of deer, and attributed the low numbers in part to illegal hunting.

Baseline Population Estimate and Take Data

The calculation of the cougar population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for cougar reproduction, cover, and/or feeding: alpine-dwarf shrub, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, Douglas-fir, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, Ponderosa pine, red fir, redwood, Sierran mixed conifer, subalpine conifer, valley foothill riparian, valley oak woodland, wet meadow, and white fir (CDFW 2014a). The total area of CWHR habitats in Mendocino County that are of medium to high suitability for cougar is 2,992 square miles (Table 2-2).

The Mountain Lion Foundation (2018) reports a typical cougar population density of 1.7 animals per 100 km² of habitat, based on peer-reviewed studies from around the United States. However, cougar densities may vary substantially depending on local conditions (Pierce and Bleich 2003). When evaluating a cougar population associated with a particular locality or region, it is generally preferable to use data obtained from that population. An exhaustive search of peer-reviewed literature revealed a single cougar population study in the North Coast region (Allen et al. 2015). That study reported a density of 0.68 cougars per 100 km² in a Mendocino National Forest study area in which every resident cougar was believed to be accounted for. Assuming that cougars occur at this density in medium to high suitability habitats throughout the County, the County's cougar population could be as low as 55 individuals. Using the average density of 1.7 cougars per 100 km² reported by the Mountain Lion Foundation (2018) for a high population estimate, up to 130

cougars could occur in the County. Based on these estimates, the County's cougar population would account for 2 to 4 percent of the California low population estimate (see Appendix G).

In Mendocino County, two to fifteen cougars were taken by WS-CA every year from 1997 to 2017, with an average of 9 individuals per year (USDA 2018a; see Table 2-9 and Appendix G). No cougars were unintentionally taken by WS-CA during these years (USDA 2018a, see Appendices C and D).

2.9.3.4 Coyote

Ecology of the Species

Historically restricted to arid regions of western North America, the coyote underwent a dramatic range expansion beginning around 1900, and now occurs across most of the continent. Its range has increased by an estimated 40 percent since the 1950s (Hody and Kays 2018). Factors thought to have influenced the coyote's range expansion include the extirpation of apex predators, conversion of once-forested areas to agricultural land more favorable to the coyote, and, in the eastern U.S., robust new genes acquired through hybridization with wolves and dogs (Berger and Gese 2007, Hody and Kays 2018, Thornton and Murray 2014).

Coyotes occurred in California well before European settlement, its range likely excluding only the most heavily forested regions along the coast (Hody and Kays 2018). Today, it occupies virtually every California habitat, and can even be found in cities. Its preferred environs, however, include open scrub, shrub, and herbaceous habitats. It is also often found in association with cropland (Zeiner et al. 1988-1990).

Coyotes are opportunistic omnivores, hunting for rodents, lagomorphs, frogs, snakes, insects, birds, and eggs, and also eating fruit, grass, and carrion. Coyotes are occasionally known to take deer fawns, and, in an anthropogenic landscape, may kill and consume lambs, calves, fowl, and domestic pets (Zeiner et al. 1988-1990).

The coyote's capacity for stock depredation has led to intensive population control efforts. In 1931, the federal government formally expressed its intent to eradicate the coyote and other predators

with the Animal Damage Control Act (Fox and Papouchis 2005), which resulted in the take of millions of coyotes by federal officials and citizens alike. The eradication campaign was discontinued in the 1970s, but all states in the continental U.S. allow coyotes to be hunted, and most impose no seasonal restrictions or daily bag limits. Although California prohibits the coyote killing contests commonly held in other states, coyotes may be taken at any time of the year and in any number. Coyotes are also commercially trapped in California.

The coyote has responded to population control efforts, in many cases, by becoming more plentiful. Some authors have suggested coyotes compensate for increased human-caused mortality through increased litter size and juvenile survival (Crabtree and Sheldon 1999) and increased pregnancy rates (Connolly and Longhurst 1975). However, Kilgo et al (2017) found only weak evidence for compensatory reproduction, and showed that juvenile population increase in an exploited coyote population in South Carolina was primarily due to juvenile immigration.

Historically a mesopredator controlled by wolves, bears, and cougars, the modern coyote functions as an apex predator in ecosystems where larger predators are absent (Prugh et al. 2009). As such, changes in coyote abundance can promote cascading effects throughout the food web. For example, in a review of previous studies, Mezquida et al. (2006) found that, where coyotes and greater sage-grouse (*Centrocercus urophasianus*) co-occur, coyotes are likely to indirectly aid sage-grouse by (1) suppressing American badgers (*Taxidea taxus*), red foxes (*Vulpes vulpes*) and common ravens, all of which are important sage-grouse nest predators, and (2) limiting the abundance of jackrabbits (*Lepus* sp.), which should lead to declines in local populations of golden eagles (*Aquila chrysaetos*), the main predator of adult sage-grouse, and increase the availability of forage for which jackrabbits and sage-grouse directly compete.

In California, coyotes appear to exert local control over non-native red fox populations. When coyotes temporarily disappeared from Mugu Lagoon in Ventura County in the late 1970s, red foxes moved into the area, and began preying so heavily on a population of California least terns (*Sterna antillarum browni*) that the endangered birds were not able to raise any young for several years. Coyotes returned to the area in the early 1980s; by 1985, they had nearly eliminated red foxes, and the terns were once again raising large numbers of young (Jurek 1992).

Baseline Population Estimate and Take Data

The calculation of the coyote population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for coyote reproduction, cover, and/or feeding: alpine-dwarf shrub, annual grassland, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, deciduous orchard, Douglas-fir, eucalyptus, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, red fir, redwood, saline emergent wetland, Sierran mixed conifer, subalpine conifer, urban, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir (CDFW 2014a). The total area of CWHR habitats in Mendocino County that are of medium to high suitability for coyote is 3,472 square miles (Table 2-2). CDFW estimates that there are between 1 and 5 coyotes per square mile in California (CDFG 2004). Applying this density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality (CDFG 2004), we calculate that there are between 6,500 and 32,500 coyotes in the County, which may account for 2.9 percent of the California low population estimate (Appendix H).

In Mendocino County, 127 to 272 coyotes were taken by WS-CA every year from 1997 to 2017, with an average of 197 individuals taken per year (USDA 2018; see Table 2.9 and Appendix H). No coyotes were unintentionally taken by WS-CA during these years (USDA 2018a, see Appendices C and D).

2.9.3.5 Feral Swine

Ecology of the Species

An invasive species that has been expanding its range across North America, the feral swine is descended from domestic pigs and, to a lesser degree, Eurasian and Russian wild hogs brought to the New World for sport hunting. Feral swine have been present in California since the 1700s, when domestic pigs (*Sus scrofa domesticus*) imported for livestock use began escaping into the wild. In the 1920s, a Monterey County landowner introduced European wild hogs (*Sus scrofa ssp.*)

to the state. California's modern feral swine is a hybrid between the domestic pig and European wild hog, and occurs in 56 of the state's 58 counties (CDFW 2018f). Continent-wide, the feral swine is present in at least 40 U.S. states and portions of Mexico and Canada (TWS 2014).

An extreme habitat generalist, feral swine occur in a wide range of environments including woodlands, grasslands, meadows, and chaparral (Zeiner et al. 1988-1990, TWS 2014). Their diet is composed mostly of plant matter such as acorns and other mast, roots, tubers, grasses, and forbs. They also consume a variety of invertebrate species, and will catch and eat reptiles, amphibians, birds, and mammals, particularly those that are young or less mobile. They may also forage in agricultural fields and orchards, consuming cereal crops, vegetables, fruits, nuts, and even cotton. Because the feral swine tends to maximize its intake of a preferred resource when it is first encountered in the environment, its diet can shift radically from day to day and season to season (USDA Cooperative Extension 2012).

The feral swine's success in North America can be attributed, in part, to its outsized reproductive capacity. Females can begin breeding as juveniles and are physiologically capable of producing two litters a year. Although most litters average 3 to 8 individuals, litter sizes of more than 10 are possible. Feral swine also experience a low natural mortality rate. The upshot of these attributes is that, in a single year, local populations of feral swine can triple in size (TWS 2014).

Like many invasive species, feral swine can severely degrade the ecosystems they inhabit. Siemann et al. (2009) found that riparian habitats used by feral swine had twice as much invasive Chinese tallow (*Triadica sebifera*) and half as many native oaks (*Quercus sp.*) and hickories (*Carya sp.*) as plots from which swine were experimentally excluded, with lower plant diversity overall. Feral swine have also been shown to increase soil nitrogen and concomitant nutrient runoff into streams and rivers, contribute fecal coliforms to stream systems to the potential detriment of aquatic life, eliminate habitat for ground-dwelling small mammals, disperse the seeds of invasive plants, and alter microbial communities in streams, with an increase in pathogens (Jay et al. 2007, Kaller and Kelso 2006, Lynes and Campbell 2000, Siemann et al. 2009).

Feral swine can also have profound effects on food webs. For example, the introduction of feral swine to the Channel Islands of California provided a new, ample food source enabling golden

eagles to recolonize the islands. The return of eagles caused a drastic decline in populations of the island fox (*Urocyon littoralis*), which in turn caused an increase in one of the fox's competitors, the island spotted skunk (*Spilogale gracilis amphiala*) (Roemer et al. 2002).

The feral swine is a popular big game species among hunters in the United States, second only to the white-tailed deer (TWS 2014). However, its increasing stronghold in the U.S. has led to an estimated \$1 billion worth of damage each year, including destruction of livestock fencing, predation on young livestock, crop depredation, and aggressive rooting behavior.

Baseline Population Estimate and Take Data

The calculation of the feral swine population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for feral swine reproduction, cover, and/or feeding: annual grassland, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, deciduous orchard, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir (CDFW 2014a). The total area of CWHR habitats in Mendocino County that are of medium to high suitability for feral swine is 2,346 square miles (Table 2-2). Sweitzer et al. (2000) estimated that there are between 1.81 and 9.84 feral pigs per square mile in California. Applying this density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality (Toigo et al. 2008, Texas A&M 2012), we calculate that between 18,890 and 102,640 feral swine occur in the County, which may account for 9 percent of the California low population estimate (Appendix I). According to CDFW (2018f), Mendocino is regularly one of the top five counties for feral swine hunting tag returns, which may imply that it has one of the highest populations of feral swine in the state.

In Mendocino County, a maximum of 91 feral swine were intentionally taken by WS-CA from 1997 to 2017, with an average of 24 individuals taken per year (USDA 2018a; see Table 2-9 and Appendix I). From 2007 through 2017, two feral swine were unintentionally taken (USDA 2018a, see Appendices C and D).

2.9.3.6 Gray Fox

Ecology of the Species

The gray fox occupies a large swath of the Americas encompassing southeastern Canada, all of the contiguous United States, except the northern Rockies and the Pacific Northwest, and the entirety of Latin America south through western Venezuela. It is one of only two members of its genus, the other being the island fox of California's Channel Islands. Throughout its range, the gray fox is most often associated with forest and woodland habitats, generally with a source of water nearby (Quinn 1990). It may also occur in shrublands, meadows, fallow fields, and agricultural lands. Where it co-occurs with the larger red fox, the gray fox prefers habitats with dense underbrush (Trapp and Hallberg 1975).

The gray fox primarily preys on lagomorphs and rodents, but as an omnivore, will also consume insects, carrion, fruits, nuts, grains, and some herbage (Zeiner et al. 1988-1990). It may occasionally depredate domestic poultry, although there is some indication these damages are overstated, and that the gray fox primarily benefits agriculture by controlling rodent and rabbit populations (Maser et al. 1981).

Adult gray foxes have few predators, but are occasionally taken by golden eagles, coyotes, and bobcats (Trapp and Hallberg 1975). Gray fox pups are more widely preyed upon, taken by golden eagles, bobcats, domestic dogs, great horned owls (*Bubo virginianus*), and large hawks (Maser et al. 1981, Zeiner et al. 1988-1990). The gray fox generally escapes its enemies by finding cover rather than running. It may also climb trees (Maser et al. 1981), a distinction it shares with only two other canids, the congeneric island fox and the raccoon dog (*Nyctereutes procyonoides*) of east Asia.

Gray foxes are known to carry rabies and may be impacted at the population level by this disease (Jennings et al. 1960); however, rabies in wild canids has had a relatively low observed incidence in California for the past 30 years (CDPH 2016). Rabid gray foxes in California tend to be infected with the skunk variant as opposed to the bat variant of the disease; this may be attributed to the fact that gray foxes and skunks occupy similar ecological niches (Zeiner et al. 1988-1990). A rabid

gray fox was recently identified outside Ukiah in Mendocino County (The Mendocino Voice 2018).

In California, the gray fox is classified as a fur-bearing mammal that can be hunted or trapped, without any bag or possession limits, during its regulated season.

Baseline Population Estimate and Take Data

The calculation of the gray fox population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for gray fox reproduction, cover, and/or feeding: annual grassland, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, Douglas-fir, eucalyptus, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, redwood, saline emergent wetland, Sierran mixed conifer, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir (CDFW 2014a). The total area of CWHR habitats in Mendocino County that are of medium to high suitability for gray fox is 3,459 square miles (Table 2-2). CDFW estimates that there are between 1 and 3.04 gray fox per square mile in California (CDFG 2004). Applying this density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality (CDFG 2004), we calculate that there are approximately 4,785 to 14,540 gray fox in the County, which may account for approximately 3 percent of the California low population estimate (Appendix J).

In Mendocino County 1 to 29 gray foxes were taken by WS-CA every year from 1997 to 2017, with an average of 12 individuals intentionally taken per year (USDA 2018; see Table 2-9 and Appendix J). Seven gray fox were unintentionally taken by WS-CA from 2007-2017 (USDA 2018a, see Appendices C and D).

2.9.3.7 Raccoon

Ecology of the Species

The native range of the raccoon extends from Canada to the tip of Latin America, excluding only desert regions and portions of the Rocky Mountains. A highly adaptable species, the raccoon has expanded its range in North America by an estimated 18 percent since the 18th century (Prugh et al. 2009), spreading from forested landscapes into a variety of ecosystems, including urban areas and cropland. It has also been introduced to other parts of the globe, and now has an extensive presence in Germany, Russia, and Japan.

Although the raccoon can be found in most of California's natural communities, its preferred habitats are riparian and wetland areas at low to mid-range elevations (Zeiner et al. 1988-1990). It has an omnivorous diet that varies by season, emphasizing animals in the spring and plant matter in the summer and fall. Its prey include crayfish, fish, arthropods, amphibians, a few small mammals, and birds; it also hunts for bird eggs. For plant matter, it takes grains, acorns, other nuts, and fruits (Zeiner et al. 1988-1990). In urban areas, it feeds on backyard fruits and vegetables, garbage, compost, pet food, and birdseed.

The raccoon is a mesopredator that is, itself, preyed upon by coyotes, bobcats, domestic dogs, great-horned owls, and large hawks (Zeiner et al. 1988-1990). It may also exert top-down pressure on smaller mesopredators. For example, control of raccoons in Florida to protect sea turtle eggs paradoxically resulted in increased egg predation because the ghost crab, another egg predator, had reduced predation by the raccoon (Barton 2003).

The raccoon's capacity to thrive in the human environment has led to conflict with humans. Damage often centers on the tendency of this species to den in buildings. Raccoons have been known to rip off shingles, fascia boards, and vents to access attic spaces; damage crawl space doors to attempt denning beneath homes; and enter uncapped chimneys. Once inside a building, raccoons can cause considerable damage at their latrine sites and by promoting infestation with ectoparasites (Baldwin 2014). Raccoons can also cause considerable damage in cropland, particularly in corn fields where they are known to partially eat many ears of corn at once.

Although raccoons account for 29.7 percent of confirmed rabies cases in wild animals nationwide, raccoon rabies is presently limited to the eastern U.S., with no confirmed cases in California (Birhane et al. 2017). Raccoons in California carry other diseases, however. Raccoon roundworm

(Baylisascaris procyonis) is thought to be especially prevalent in the state, and is of particular concern because it can be transmitted to humans and sometimes be fatal (Moore et al. 2004).

The raccoon is classified as a fur-bearing mammal in California, and can be hunted or trapped, without any bag or possession limits, during its regulated season.

Baseline Population Estimate and Take Data

The calculation of the raccoon population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for raccoon reproduction, cover, and/or feeding: blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, Douglas-fir, eucalyptus, Jeffrey pine, Klamath mixed conifer, lacustrine, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, red fir, redwood, riverine, saline emergent wetland, Sierran mixed conifer, subalpine conifer, urban, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir (CDFW 2014a). The total area of CWHR habitats in Mendocino County that are of medium to high suitability for raccoon is 3,108 square miles (Table 2-2).

To our knowledge, only a single population density study of raccoons has been conducted in California. The study was conducted in the Livermore area in 1980, based on an observation by an experienced houndsman in that area that raccoon numbers had been declining. Density estimates of 0.45 and 0.70 raccoons per square mile were obtained for the project's two study areas, located on open space preserves in Alameda and Contra Costa Counties, respectively (Orloff 1980). These are the lowest raccoon population density estimates readily available in the literature (Riley et al. 1998), and may substantially underestimate California's raccoon population when extrapolated statewide (CDFG 2004). Nevertheless, conservatively following the methods of CDFG 2004, we applied these estimates to suitable habitats in Mendocino County, and after accounting for annual reproduction and mortality, obtained an estimate of 2,205 to 3,435 raccoons in the County. This may account for approximately 6 percent of the California low population estimate (Appendix K).

In Mendocino County, 10 to 73 raccoons were taken by WS-CA every year from 1997 to 2017, with an average of 42 individuals intentionally taken per year (USDA 2018; see Table 2-9 and Appendix K). Ten raccoons were unintentionally taken by WS-CA from 2007-2017 (USDA 2018a, see Appendices C and D).

2.9.3.8 Striped Skunk

Ecology of the Species

The range of the striped skunk spans the contiguous United States, extending into southern Canada and northern Mexico. It is associated with a variety of habitats including forests, woodlands, and grasslands, and has increasingly been found in urban areas, suburban neighborhoods, and agricultural lands. Striped skunks are most common at elevations below 6,800 feet, but have been documented as high as 13,700 feet. In California, the species occurs in virtually every habitat type from sea level to timberline, excluding portions of the Mojave and Colorado Deserts (Wade-Smith and Verts 1982, Zeiner et al. 1988-1990).

An opportunistic feeder, the striped skunk will change its diet to exploit resources as they become available. In the spring and summer, it is primarily insectivorous, consuming grasshoppers, crickets, and beetles and occasionally other invertebrates such as worms and crayfish. In the wintertime it relies more heavily on small mammals such as voles (*Microtis sp.*). It is also known to consume amphibians, reptiles, fish, the eggs and young of ground-nesting birds, and plant matter including fruits, seeds, and corn (Wade-Smith and Verts 1982). Skunks in residential areas commonly scavenge on garbage and pet food.

In suburban and urban environments, skunks frequently take shelter under homes, porches, and sheds, drawing concerns from residents due to odor, landscaping damage, and disease. Although most wildlife rabies cases in California are associated with bats, skunks are the second most common carrier, representing 12.7% of confirmed cases in 2015 (CDPH 2016). Skunks can also carry leptospirosis, listeriosis, canine distemper, and various other diseases.

Despite their scent weapon, skunks are hunted by a variety of larger mammalian predators including cougars, bobcats, coyotes, foxes, and badgers. They may also be taken by the great

horned owl and golden eagle, which are unaffected by the skunk's musk (Wade-Smith and Verts 1982, Zeiner et al. 1988-1990).

In terms of ecosystem services, skunks are an important source of insect control in both natural communities and anthropogenic landscapes. Nevertheless, skunks are considered a pest species in California and may be taken at any time of year and in any number. Skunks may also be trapped for their pelts; however, market demand for skunk pelts is presently low and trapping is relatively uncommon.

Baseline Population Estimate and Take Data

The calculation of the striped skunk population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for striped skunk reproduction, cover, and/or feeding: annual grassland, blue oak woodland, blue oak-foothill pine, chamise-redshank chaparral, closed-cone pine-cypress, coastal oak woodland, coastal scrub, cropland, deciduous orchard, Douglas-fir, eucalyptus, Jeffrey pine, Klamath mixed conifer, mixed chaparral, montane chaparral, montane hardwood, montane hardwood-conifer, montane riparian, pasture, perennial grassland, Ponderosa pine, red fir, redwood, saline emergent wetland, Sierran mixed conifer, subalpine conifer, urban, valley foothill riparian, valley oak woodland, vineyard, wet meadow, and white fir (CDFW 2014a). The total area of CWHR habitats in Mendocino County that are of medium to high suitability for striped skunk is 3,472 square miles (Table 2-2). CDFW calculates that there are between 1.3 and 6.2 striped skunks per square mile in California. Applying this density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality (CDFG 2004), we calculate that there are approximately 6,495 to 30,985 striped skunks in the Mendocino County, which may account for up to approximately 4.5 percent of the California low population estimate (Appendix L).

In Mendocino County, 28 to 101 striped skunks were taken by WS-CA every year from 1997 to 2017, with an average of 62 individuals intentionally taken per year (USDA 2018; see Table 2-9 and Appendix L). Five striped skunks were unintentionally taken by WS-CA from 2007-2017 (USDA 2018a, see Appendices C and D).

2.9.3.9 Virginia Opossum

Ecology of the Species

The Virginia opossum is a marsupial native to portions of North America and Central America, but not native to California. At the time of European settlement, its range in North America was limited to what is now Mexico and the southeastern United States. It gradually moved northward and westward, and in the early 1900s was introduced to several western states, including California (Zeiner et al. 1988-1990). Today, its natural range sweeps across the continent from Ontario to Colorado, taking in all points south and east through Costa Rica. Its introduced range includes California west of the Sierra Nevada, northern Oregon, and southern Washington.

Preferred opossum habitats include stream banks, swamps, and wetlands; however, this species can be found in wide range of habitats and readily adapts to and thrives in anthropogenic landscapes. In California, opossums are most often associated with riparian woodlands, brushy habitats, wetlands, and agricultural and residential areas.

A highly opportunistic omnivore, the opossum eats a wide variety of plant and animal matter. Depending on location and season, it may hunt for slugs, snails, insects, earthworms, mice, and snakes, may forage for fruits, grains, green vegetation, and fungi, and may scavenge carrion and anthropogenic foods (McManus 1974, Hopkins and Forbs 1980). In urban or suburban environments, pet food figures prominently into the opossum's diet (Hopkins and Forbes 1980).

The opossum is a prolific breeder, producing two litters per year in California and up to three annual litters in warmer parts of its range, with an average litter size of 6 to 10 (Gardner 1982). However, reproductive viability is short-lived, corresponding to a short overall lifespan. Males typically only participate in a single year of breeding and females are viable for two years. Opossum life expectancy has been estimated at 1.3 years or less in the wild (Gardner 1982), with annual mortality of 90 to 100 percent reported in a number of studies (Woods II and Hellgren 2003). In any given area, the young of the year comprise the bulk of the population, and adult males are virtually absent, their lives truncated by elevated stress hormone levels (Woods II and Hellgren 2003) in addition to factors affecting the remainder of the population, like predation and

roadkill (Gipson and Kamler 2001). In a trapping study in Oklahoma and Texas, no adult males were captured after more than 12,000 trap-nights spanning two years (Woods II and Hellgren 2003).

The opossum has the potential to benefit humans by functioning as an ecological trap for tick species that carry Lyme disease. Keesing et al. (2009) found that, while the opossum appears to be a preferred host for ticks, it kills an estimated 96.5 percent of its tick burden, translating to more than 5,000 ticks per week, per individual.

Notwithstanding these and other potential benefits, opossums are generally considered a nuisance due to their depredation of poultry and agricultural and garden crops, agonistic behavior toward pets, and potential to spread diseases and ectoparasites. Opossums may carry leptospirosis, bovine tuberculosis, toxoplasmosis, and various other pathogens (Baldwin 2015b), some of which may infect domesticated animals. Horses are known to contract a type of myeloencephalitis from exposure to a protozoan passed in opossum feces. Owing to these and other potential conflicts with humans, the opossum is considered a pest species in California and may be taken at any time of the year and in any number. It is also a commercially trapped species.

Baseline Population Estimate and Take Data

The calculation of the Virginia opossum population estimate assumes that the following CWHR habitats in Mendocino County are of medium and/or high suitability for opossum reproduction, cover, and/or feeding: blue oak woodland, blue oak-foothill pine, coastal oak woodland, coastal scrub, cropland, Douglas-fir, eucalyptus, mixed chaparral, montane hardwood, montane hardwood-conifer, montane riparian, Ponderosa pine, redwood, urban, valley foothill riparian, valley oak woodland, vineyard, and wet meadow (CDFW 2014a). The total area of CWHR habitats in Mendocino County that are of medium to high suitability for Virginia opossum is 2,765 square miles (Table 2-2). CDFW estimates that there are between 1.3 and 20.2 opossums per square mile in California (CDFG 2004). Applying this density estimate to suitable habitats in Mendocino County, and considering annual reproduction and mortality (CDFG 2004), we calculate that approximately 4,670 to 72,625 Virginia opossums occur in the County, which may account for approximately 11.5 percent of the California low population estimate (Appendix M).

In Mendocino County, 3 to 19 opossums were taken by WS-CA every year from 1997 to 2017, with an average of 12 individuals intentionally taken per year (USDA 2018; see Table 2-9 and Appendix M). Two Virginia opossums were unintentionally taken by WS-CA from 2007-2017 (USDA 2018a, see Appendices C and D).

3.0 EFFECTS ANALYSIS AND RECOMMENDATIONS

As discussed, the proposed project is the County's approval of the Mendocino County WS-CA IWDM Program, CSA, and Work Plan with WS-CA, and oversight of WS-CA's implementation of the Program. Two additional equal-level alternatives are under consideration, the Non-Lethal Program Alternative and Non-Lethal Program Variation. Under these alternatives, the County would contract with an entity other than WS-CA to resolve wildlife-human conflicts using non-lethal methods; the Non-Lethal Program Variation would, however, permit lethal interventions necessitated by critical public health and safety concerns. Although the proposed project and alternatives are administrative actions that would not, themselves, cause a direct physical change in the environment, they would each trigger a suite of wildlife management activities that would carry environmental effects, including effects on biological resources. Reasonably foreseeable effects on biological resources associated with these activities are discussed in the following sections. Professional recommendations are made, as necessary, for any substantial adverse effects to biological resources that may occur as a result of activities likely to be authorized under the proposed project and alternatives.

In evaluating the potential effects of the proposed IWDM Program and alternatives, applicable state, federal, and local regulations and policies were considered. Specifically, we considered regulations and policies related to special status species, designated critical habitat, and jurisdictional waters; regulations and policies related to avian species including the federal Migratory Bird Treaty Act and related state laws; applicable general plans and local ordinances; and applicable Habitat Conservation Plans and Natural Community Conservation Plans. A detailed discussion of the regulatory environment pertaining to the proposed IWDM Program and alternatives is presented in Appendix A.

3.1 POTENTIAL IMPACTS TO SPECIAL STATUS SPECIES

An analysis of impacts to the special status species identified in Tables 2.3-2.6 that could result from the proposed project and alternatives is presented in the following sections.

3.1.1 Mendocino County WS-CA IWDM Program Project

As discussed, 22 plants listed as threatened, endangered, or rare under the federal and/or state Endangered Species Acts (Table 2-3), and 91 plants considered threatened, endangered, or rare by CNPS (Table 2-4), have been documented in Mendocino County or have some potential to occur here per the USFWS (2018). No removal of vegetation or soil would be authorized under the proposed IWDM Program. The only activities under the proposed Program that would have the potential to impact special status plants or their habitats, including designated critical habitat, are off-road pedestrian and/or vehicular travel required for site access, and the placement of capture devices. In any given area, such activities would be extremely limited in scale and of short duration. Although there is some potential for damage to special status plants to occur as a result of these activities, any such impacts would be minimal, and would not substantially affect special status plant populations, nor would it contribute meaningfully to cumulative effects on special status plants from other past, current, or probable future projects or actions.

As discussed, 36 animal species listed as threatened, endangered, proposed, or candidate under the federal and/or state Endangered Species Acts (Table 2-5), and 46 animal species designated by CDFW as species of special concern and/or fully protected (Table 2-6), have been documented in Mendocino County (CDFW 2018, eBird 2018), or have some potential to occur here per the USFWS (2018) and/or NMFS (2018), or because the County is located within the species' range and suitable habitat is present. Statewide, WS-CA has consulted with both the USFWS and CDFW regarding species listed under the federal and state Endangered Species Acts, and has obtained concurrence from both agencies that WS-CA actions are not likely to adversely affect these species (USFWS 2007 and 2014 and CDFW 2014b). Nevertheless, the potential impacts of the proposed IWDM Program on federally- and state-listed species and other special status species potentially occurring in Mendocino County are analyzed in detail in this section.

The proposed Program would not result in substantial loss or degradation of habitat, including designated critical habitat, for any special status animal species, nor would it produce other substantial indirect effects for special status animals. No land development, construction, or removal of vegetation or soil would be authorized under the Program. The only Program-related activity that would directly impact habitat are off-road pedestrian and/or vehicular travel required

for site access, and the placement of capture devices. Although these activities may occasionally be conducted in habitat suitable for special status wildlife, any associated impacts would be temporary and extremely limited in scale.

The proposed Program would result in the take of apex predators including the black bear, cougar, and coyote that can function as “keystone species” with outsized influence over food webs and other ecosystem processes. When apex predators are removed from an ecosystem, cascading ecological effects are often observed as herbivores and mesopredators are released from control (Colman et al. 2014, Mezquida et al. 2006, Prugh et al. 2009). In some cases, these effects can be detrimental to special status wildlife. For example, smaller animals or life stages may experience increased predation by mesopredators (Barton 2003), and habitats supporting special status wildlife may be overbrowsed or otherwise physically altered (Ripple and Beschta 2004, Marshall et al. 2013).

However, under the proposed Program, no predator would be taken at a level that would be expected to produce substantial cascading effects in the ecosystem. Average annual WS-CA take of the black bear and coyote in Mendocino County between 1997 and 2017 only accounted for about 0.5% and 3% of these species’ low population estimates in the County, respectively. Average annual WS-CA take of the cougar during the baseline period relative to that species’ low population estimate in the County was somewhat higher, constituting 21% of adults (see Section 3.8.3); however, even with those levels of take, the cougar will continue to exert pressure on its primary prey, the black-tailed deer, and no cascading effects deleterious to special status wildlife are anticipated. Substantial indirect effects on special status wildlife in Mendocino County are not expected to result from WS-CA take of the County’s apex predators.

Another keystone species that may be targeted for lethal control under the proposed Program is the North American beaver (*Castor canadensis*). Beavers are often referred to as “ecosystem engineers” because of the profound influence they have on the habitats they occupy. Their dams create impoundments that expand sensitive wetland habitats, replenish groundwater, provide more consistent downstream flows, improve water quality, store nutrients for plants, and reduce stream bank erosion (Rosell et al. 2005, Westbrook et al. 2006). Beaver-made ponds also provide food and habitat for a variety of fish species, including the special status salmonids that occur in

Mendocino County. Indirect effects to these and other special status aquatic animals would be expected if beaver populations were significantly reduced by Program activities. However, lethal control of beavers under the proposed Program is expected to be minimal, if it occurs at all. During the 1997 to 2017 baseline period, no beavers were taken by WS-CA in Mendocino County. Because few, if any, beavers would be killed under the proposed Program, no ecosystem-level effects from beaver declines are expected to occur.

In terms of the Program's potential to directly affect special status wildlife, the 82 special status animal species potentially occurring in Mendocino County can be placed into three broad categories: (1) species that would not experience substantial direct effects because no Program activities would foreseeably occur in the habitats or range they occupy, (2) species that would not experience substantial direct effects because their life histories make them relatively invulnerable to the activities likely to be authorized under the proposed Program, and (3) species that would not experience substantial direct effects notwithstanding some inherent vulnerability to activities likely to be authorized under the proposed Program. Potential direct impacts to these three categories of special status animal species are discussed in the following sections.

3.1.1.1 Special Status Animals that Occupy Habitats within which IWDM Program Activities Would Not Occur

Twenty of the 82 special status animal species listed in Tables 2-5 and 2-6 occupy habitats within which no IWDM Program activities would foreseeably be conducted or have a current distribution entirely outside of Mendocino County. Seventeen species are found only in the Pacific Ocean, in the airspace above the ocean, on cliffs, rocks, or sandy beaches fronting the ocean, or on off-shore islands. These species comprise the green sea turtle (*Chelonia mydas*), Olive Ridley sea turtle (*Lepidochelys olivacea*), leatherback sea turtle (*Dermochelys coriacea*), short-tailed albatross (*Phoebastria albatrus*), western snowy plover, blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), southern resident killer whale (*Orcinus orca*), North Pacific right whale (*Balaena glacialis*), sei whale (*Balaenoptera borealis*), sperm whale (*Physeter macrocephalus*); Guadalupe fur seal (*Arctocephalus townsendi*), tufted puffin (*Fratercula cirrhata*), Cassin's auklet (*Ptychoramphus aleuticus*), ashy storm-petrel (*Oceanodroma homocrhoa*), and California brown pelican (*Pelecanus occidentalis*). The

Conservancy fairy shrimp (*Branchinecta conservatio*), is found only in vernal pools. Two species, the Humboldt marten (*Martes caurina humboldtensis*) and California wolverine (*Gulo gulo*), have been extirpated from Mendocino County. The current distribution of the Humboldt marten is limited to an area of approximately 267 square miles in Del Norte and Humboldt Counties (Hamlin et al. 2010), and there is only one known wolverine remaining in California, in the Tahoe region.

The proposed Program does not have the potential to directly impact these 20 species through Program-related injury or mortality because no Program activities would foreseeably occur in the areas they inhabit.

3.1.1.2 Special Status Animals that Occupy Habitats within which IWDM Program Activities May Occur, But Would Be Relatively Invulnerable to Program Activities

Fifty-six of the 82 special status animal species that potentially occur in Mendocino County are associated with habitats within which IWDM Program activities may be conducted, but have life histories that would make them relatively invulnerable to activities likely to be authorized under the Program. These species comprise the Behren's silverspot butterfly (*Speyeria zerene behrensii*), lotis blue butterfly (*Plebejus idas lotis*), California freshwater shrimp (*Syncaris pacifica*), tidewater goby, delta smelt (*Hypomesus transpacificus*), chinook salmon – California Coastal ESU, coho salmon – Southern Oregon / Northern California ESU and Central California Coast ESU (populations 4 and 2, respectively), steelhead – Northern California DPS (population 16), green sturgeon – Southern DPS, foothill yellow-legged frog (*Rana boylei*), California red-legged frog, western yellow-billed cuckoo (*Coccyzus americanus*), marbled murrelet (*Brachyramphus marmoratus*), bald eagle (*Haliaeetus leucocephalus*), Swainson's hawk (*Buteo swainsoni*), northern spotted owl (*Strix occidentalis caurina*), willow flycatcher (*Empidonax traillii*), bank swallow (*Riparia riparia*), Pacific lamprey (*Entosphenus tridentatus*), Navarro roach (*Lavinia symmetricus navarroensis*), Gualala roach (*Lavinia symmetricus parvippinis*), summer-run steelhead (*Oncorhynchus mykiss irideus*, population 36), red-bellied newt (*Taricha rivularis*), southern torrent salamander (*Rhyacotriton variegatus*), California giant salamander (*Dicamptodon enatus*), northern red-legged frog (*Rana aurora*), Pacific tailed frog (*Ascaphus truei*), western pond turtle (*Emys marmorata*), brant (*Branta bernicla*), redhead (*Aythya americana*), harlequin duck (*Histrionicus histrionicus*), Vaux's swift (*Chaetura vauxi*), black swift (*Cypseloides niger*),

common loon (*Gavia immer*), American white pelican (*Pelecanus erythrorhynchos*), black skimmer (*Rhynchops niger*), golden eagle (*Aquila chrysaetos*), white-tailed kite (*Elanus leucurus*), northern goshawk (*Accipiter gentilis*), northern harrier (*Circus cyaneus*), American peregrine falcon (*Falco peregrinus anatum*), short-eared owl (*Asio flammeus*), long-eared owl (*Asio otus*), olive-sided flycatcher (*Contopus cooperi*), loggerhead shrike (*Lanius ludovicianus*), purple martin (*Progne subis*), grasshopper sparrow (*Ammodramus savannarum*), yellow-breasted chat (*Icteria virens*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), yellow warbler (*Setophaga petechia*), Sonoma tree vole (*Arborimus pomo*), western mastiff bat (*Eumops perotis californicus*), pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), spotted bat (*Euderma maculatum*), and western red bat (*Lasiurus blossevillii*).

Although Program activities may be conducted in habitats supporting the two butterfly species, these activities would not injure or kill butterflies.

The fish, amphibians, and a number of the birds considered in this section, as well as the California freshwater shrimp and western pond turtle, have the potential to occur in stream or marsh habitat within which lethal control of beavers and muskrats (*Ondatra zibethicus*) may conceivably be conducted under the IWDM Program. During the 1997 to 2017 baseline period, no direct control assistance related to beavers or muskrats occurred in Mendocino County; therefore, it is assumed that such activities would be extremely rare, if they occur at all. Beaver and muskrat control by WS-CA statewide is overwhelmingly accomplished using firearms and is highly species-specific. Lethal control of beavers or muskrats via firearm in Mendocino County, if it occurs, would not have the potential to injure or kill co-occurring special status wildlife.

Statewide, WS-CA also takes beavers via trapping, generally with neck snares or body-grip (conibear) traps. Between 2015 and 2017, trapping methods accounted for 15 to 29 percent of beaver take by WS-CA. Given that lethal control of beavers is expected to be minimal to nonexistent under the proposed IWDM Program, these alternate methods would likely never be employed. If they are, they would be conducted in strict accordance with state regulations and WS Directives governing the use of traps. Any traps deployed would be sized for beavers and other field precautions would be taken to minimize the risk of non-target take, including take of special

status species. For these reasons, injury or mortality of the special status species considered in this section as a result of beaver trapping is extremely unlikely to occur under the proposed Program.

The terrestrial birds and mammals considered in this section also have minimal potential to be directly impacted by the IWDM Program. Because WS-CA would not remove trees or other vegetation, there would be minimal risk of Program-related injury or mortality of the tree-dwelling Sonoma tree vole, and minimal risk of Program-related damage or destruction of the active nests or roost locations of special status birds and bats. Although off-road pedestrian and/or vehicular travel and placement of capture devices could theoretically affect ground-nesting birds such as the northern harrier and grasshopper sparrow, this is considered an extremely remote possibility given the limited scale and duration of such impacts.

From time to time, birds may be caught in traps set by WS-CA for other species. Accidental entrapment of avian species was recorded three times in Mendocino County between 2007 and 2017, twice for turkey vultures (*Cathartes aura*) and once for common ravens. In all three instances, the entrapped birds survived and were released. Statewide, a number of avian species are accidentally entrapped by WS-CA each year; this occasionally includes special status birds such as the yellow-headed blackbird, peregrine falcon, and loggerhead shrike. In most cases, entrapped birds are simply released; between 2015 and 2017, only 12 birds were killed statewide as a result of accidental entrapment, and no special status bird mortality was reported. Given that accidental entrapment of birds by WS-CA is rare in Mendocino County and elsewhere in California, and that entrapped birds generally survive, it is considered unlikely that the special status birds considered in this section would be injured or killed by entering traps set for other species.

In summary, the special status animal species considered in this section have little potential to be directly impacted by the IWDM Program.

3.1.1.3 Special Status Animals that Occupy Habitats within which IWDM Program Activities May Occur and May Be Vulnerable to Program Activities

Six of the 82 special status animal species that potentially occur in Mendocino County have life history strategies and habitat preferences that could make them vulnerable to Program-related injury or mortality. These species comprise the burrowing owl (*Athene cunicularia*), tricolored blackbird (*Agelaius tricolor*), Point Arena mountain beaver (*Aplodontia rufa nigra*), fisher, ringtail, and American badger. As discussed above, the Program does not have the potential to produce substantial indirect effects for any of these species through habitat loss or degradation or altered ecosystem dynamics. Potential direct impacts to these species resulting from the proposed IWDM Program are discussed below.

Burrowing Owl

The burrowing owl is primarily a grassland species, but may also occur in open shrub lands, grazed pastures, and occasionally agricultural lands. A rare wintertime visitor to the North Coast, the burrowing owl is occasionally sighted on the County's beaches and coastal prairies. The burrowing owl makes secondary use of small mammal burrows, most notably those of the California ground squirrel, for roosting and nesting.

Although California ground squirrels may occasionally be targeted under the Program, the level of ground squirrel take in Mendocino County has traditionally been so low that any associated risk to the burrowing owl would be negligible. Between 1997 and 2017, WS-CA in Mendocino County took ground squirrels in only a single year. Lethal control of California ground squirrels by WS-CA is more common elsewhere in the state; however, it is generally accomplished via gunshot, which is highly species-specific and does not have the potential to result in accidental injury or mortality of burrowing owls. If lethal control of ground squirrels is required under the proposed Program, it is assumed that will be carried out via firearms or another species-specific method as is the case elsewhere in California, and will pose minimal risk to this species. Use of burrow fumigants would not be authorized under the proposed Program.

Overall, the burrowing owl has little potential to be directly impacted by the proposed IWDM Program.

Tricolored Blackbird

With its black body and red wing patches, the male tricolored blackbird can be difficult to discern from males of its close cousin, the red-winged blackbird (*Agelaius phoeniceus*). Tricolored blackbirds and red-winged blackbirds both forage in agricultural fields, feed lots, and pastures, and in the wintertime may co-occur in mixed flocks. During the breeding season, the two species segregate into pure flocks, but both nest in association with riparian areas, marshes, and fields of triticale (*Triticosecale* sp.), a robust wheat-rye hybrid. Red-winged blackbirds are commonly subjected to lethal control by WS-CA statewide, with an average of approximately 12,000 individuals taken per year between 2015 and 2017, generally by firearm. Due to the substantial overlap between tricolored blackbird and red-winged blackbird appearance and habitat preferences, there is some potential for tricolored blackbirds to be unintentionally taken during lethal control of red-winged blackbirds.

However, there is no record of red-winged blackbirds having been taken by WS-CA in Mendocino County, either intentionally or unintentionally, between the 1997 and 2017 baseline period. Red-winged blackbirds were not the subject of any technical assistance provided by WS-CA in the County during the 11 years that technical assistance data is available, 2007 to 2017. Moreover, statewide, although annual take of red-winged blackbirds by WS-CA was considerable between 2015 and 2017, there were no records of tricolored blackbirds having been shot by mistake, and only two records of tricolored blackbirds having been caught in cage traps intended for other birds; in both cases, the tricolored blackbirds survived. Because little, if any, direct control assistance related to the red-winged blackbird is anticipated in Mendocino County, and because statewide control of the red-winged blackbird appears to be adequately limiting unintentional impacts to the tricolored blackbird, the proposed IWDM Program is not expected to directly impact the tricolored blackbird.

Point Arena Mountain Beaver

The Point Arena mountain beaver is known from an area of just 24 square miles in western Mendocino County. Its current range extends from a point two miles north of Bridgeport Landing to a point five miles south of the town of Point Arena, within five miles of the Pacific Ocean (USFWS 2002). It occupies a variety of habitats including coastal scrub, coastal strand, conifer forest, and riparian communities, spending most of its life in underground burrow systems. It is a strict herbivore, feeding on a variety of plants, including a number of species that are unpalatable or toxic to other animals, such as bracken fern (*Pteridium aquilinum*), stinging nettle (*Urtica* sp.), thistles (*Cirsium* spp.), and larkspur (*Delphinium* sp.) (USFWS 1998).

Because the Point Arena mountain beaver does not venture far from its burrow system and does not scavenge or consume meat, it would be unlikely to be attracted to traps or snares that may be set for target species under the proposed IWDM Program. Although USFWS (1998) identified rodent control efforts such as poison baits and gopher traps as being potentially detrimental to the Point Arena mountain beaver, the proposed Program would not authorize the use of rodenticides, and there is no record of WS-CA take of gophers or technical assistance related to gophers in Mendocino County during the baseline period. Therefore, it is considered unlikely that Program activities within the small area known to be occupied by the Point Arena mountain beaver would result in injury or mortality of this species.

Fisher and Ringtail

The fisher occupies low- to mid-elevation coniferous, mixed coniferous, and hardwood forests with complex physical structure (USFWS 2016). The ringtail is also found at low to moderate elevations, but its habitat preferences emphasize shrubland as well as forest, and it is often found in close association with rocky hillsides (Zeiner et al. 1988-1990). Both species have the potential to occur throughout the County where suitable habitat exists.

USFWS (2016) identifies a number of stressors linked to direct mortality of fishers; among these are incidental trapping and exposure to rodenticides. When fishers are incidentally captured in body-gripping or leghold traps, crippling injury or mortality can result; however, incidental capture of fishers on the West Coast appears to be rare based on mandatory annual harvest reports submitted by trappers in Oregon (USFWS 2016). Anticoagulant rodenticides have increasingly

been detected in fisher carcasses in California, likely due to the proliferation of illegal marijuana cultivation sites on public lands, where such rodenticides are heavily applied (USFWS 2016). Toxicosis has been determined to be the direct cause of death for 15 California fishers to date (Gabriel et al. 2015). Little is known about the threats facing the ringtail because the animal is understudied, but because it has dietary and habitat overlap with the fisher, it likely experiences many of the same stressors.

The proposed Program would not authorize the use of rodenticides; therefore, there is no potential for project-related direct effects on the fisher or ringtail from this control method. As follows is a discussion of the potential direct effects on the fisher and ringtail resulting from trapping activities under the proposed Program.

California Fish and Game Code Sections 4004(a) and 3003.1(c) prohibit the use of steel-jawed leghold traps, padded or otherwise, except by government agency personnel addressing public health and safety concerns. Such traps are used infrequently by WS-CA, and mortality of animals unintentionally captured using this type of device is extremely low. Statewide between 2015 and 2017, an average of only 2 animals per year died in California as a result of unintentional capture in padded leghold traps. Use of body-grip (conibear) traps in California is subject to a number of restrictions imposed by California Fish and Game Code and WS Directives. Statewide use of body-grip (conibear) traps by WS-CA is rare, generally limited to capture of beavers and California ground squirrels. According to WS-CA data, no body-grip traps were used in Mendocino County between 2007 and 2017.

In addition to the types of traps identified by USFWS (2016) as posing a risk to fishers, fishers and ringtails also have some potential to be unintentionally captured in neck snares, foot snares, and cage traps. Statewide between 2015 and 2017, most animals that were unintentionally captured using neck snares died; however, unintentional captures were infrequent. In Mendocino County, an average of 3 animals died each year between 2007 and 2017 following unintentional capture in neck snares. In almost all such instances, the captured individual was of a species otherwise targeted by WS-CA in Mendocino County such as the raccoon, gray fox, feral swine, and striped skunk. When animals are unintentionally captured by WS-CA in foot snares and cage traps, they usually survive and can be released.

For all the years that data is available, there has never been an instance of fisher or ringtail capture by WS-CA in Mendocino County. Use of trap devices identified by USFWS (2016) as being most detrimental to fishers is strictly regulated and would occur minimally, if at all, in Mendocino County. Most trapping methods employed by WS-CA in Mendocino County are non-lethal, such that, in the unlikely event that a fisher or ringtail were unintentionally captured under the IWDM Program, they could be released. For these reasons, it is considered unlikely that Program activities would result in injury or mortality of these species.

American Badger

The American badger is associated with grasslands, savannahs and prairies throughout much of the western United States, including Mendocino County. Badgers prey primarily on small mammals including ground squirrels, pocket gophers, and mice, which they capture by digging out the animals' burrows. Badgers also dig to establish their underground dens, in some cases constructing a new sleeping den each day. Badgers may occasionally kill lambs and poultry or damage irrigation systems or earthen dams with their digging behavior.

Due to conflicting interactions with humans, badgers have traditionally been targeted by WS-CA in Mendocino County and elsewhere in California despite being designated a California Species of Special Concern by CDFW. The badger is also designated a furbearer pursuant to California Fish and Game Code Section 461 and may be taken during its regular season with no bag limit. In a 2004 California Environmental Quality Act (CEQA) analysis of potential effects associated with proposed revisions to California's furbearing and nongame mammal hunting and trapping regulations, CDFW used population models to assess whether California's badger population would be significantly affected by an annual statewide harvest of 424 badgers, which included hunting, trapping, and take by WS-CA. It determined that this level of harvest was less than 1 percent of overall badger mortality, and that badgers would not be significantly impacted by the proposed action (CDFG 2004).

Between 1997 and 2017, an average of one badger was killed by WS-CA each year in Mendocino County (see Table 2-9). Statewide between 2015 and 2017, badger take averaged 24 individuals per year, less than 25 percent of the annual take of this species by WS-CA that CDFW assumed in

its 2004 model. Given that (1) CDFW imposes no bag limits for the American badger, even after accounting for annual take by WS-CA, (2) annual badger harvest inclusive of WS-CA actions appear to represent a very small fraction of overall badger mortality, (3) current levels of take by WS-CA appear to be much lower than what was originally assumed by CDFW, and (3) badger take in Mendocino County is limited to just a few individuals per year, this species is unlikely to be adversely affected by Program-related take.

In summary, the proposed IWDM Program does not have the potential to result in substantial adverse direct or indirect effects on special status animal species in Mendocino County. It also does not have the potential to contribute meaningfully to cumulative effects on special status animals from other past, current, or probable future projects or actions.

Professional Recommendations. None are warranted.

3.1.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

As with the proposed Program, the Non-Lethal Program Alternative and Non-Lethal Program Variation do not have the potential to substantially affect the 113 special status plants potentially occurring in Mendocino County (Tables 2-3 and 2-4) because no land development or removal of vegetation or soil would be authorized under these alternatives. The only activities that would have the potential to impact special status plants are off-road pedestrian and/or vehicular travel required for site access, limited ground disturbance required for the installation of livestock fencing or other implements to be funded by the alternatives, and, under the Non-Lethal Program Variation, limited ground disturbance for the placement of capture devices targeting animals that have posed a serious public health or safety risk. Although there is some potential for damage to special status plants to occur as a result of these activities, any such impacts would be minimal, and would not substantially affect special status plant populations. The two alternatives also do not have the potential to contribute meaningfully to cumulative effects on special status plants from other past, current, or probable future projects or actions.

Also, similar to the proposed Program, the two equal-level alternatives do not have the potential to produce substantial indirect effects to any of the 82 special status animal species potentially

occurring in Mendocino County through loss or degradation of habitat or altered ecosystem dynamics. As discussed, the only activities that would directly impact habitat are off-road pedestrian and/or vehicular travel required for site access, limited ground disturbance required for the installation of livestock fencing and other implements and, in the case of the Non-Lethal Program Variation, limited ground disturbance required for the placement of capture devices targeting animals that have posed a serious public health or safety risk. Although these activities may occasionally be conducted in habitat suitable for special status wildlife, any associated impacts would be temporary and extremely limited in scale, and are not expected to substantially affect these species.

Take of problematic wildlife would be prohibited under the Non-Lethal Program Alternative and only authorized to address serious public health and safety concerns under the Non-Lethal Program Variation. Take authorized under the Non-Lethal Program Variation would not occur at levels that would affect predator-prey dynamics or other ecosystem processes. Some wildlife take may occur indirectly through use of livestock protection dogs (LPDs) funded under these alternatives. Studies of LPD use have found that LPDs occasionally harass and kill wildlife; this includes coyotes in Arizona and Utah (Black and Green 1985); black-backed jackals (*Canis mesomelas*), Chacma baboons (*Papio ursinus*), and the calves of several ungulate species (*Tragelaphus sp.* and *Oryx gazella*) in Namibia (Potgieter et al. 2015); and Lapland marmots (*Marmota sp.*) in Norway (Hansen and Smith 1999). Harassment of wildlife by LPDs in Namibia declined as farmers were advised on dog training techniques to correct the behavior (Potgieter 2011). Hansen and Smith (1999) partially attributed wildlife chasing behavior in their study dogs to improper imprinting; the dogs were introduced to sheep later in puppyhood than what is recommended, and likely roamed because they were not strongly bonded with the sheep. It is assumed that, if LPDs are funded under the Non-Lethal Program Alternative or Non-Lethal Program Variation, assistance with LPD imprinting and training would also be provided to minimize these unwanted behaviors. However, even if such assistance is not provided, based on previous research, wildlife take by LPDs would not occur at levels that would be expected to significantly affect predator-prey dynamics or other ecosystem processes.

Direct impacts to special status animals are expected to be minimal, if they occur at all, under the Non-Lethal Program Alternative and Non-Lethal Program Variation. As with the proposed IWDM Program, the alternatives would not result in injury or mortality of special status animals associated with habitats within which no wildlife damage management activities would foreseeably occur, or special status animals that are no longer found in Mendocino County. This includes the 20 species considered in Section 3.1.1.1. The proposed alternatives have minimal potential to incidentally injure or kill individuals of the 56 species addressed in Section 3.1.1.2 and the 6 species addressed in Section 3.1.1.3 because, with the exception of limited take to address serious public health and safety concerns under the Non-Lethal Program Variation, no wildlife take would be authorized.

As discussed, there is some potential for LPDs funded under the two alternatives to harass or kill wildlife. This could include special status animal species. In general, LPDs are more likely to harass medium- to large-sized animals that are easily detected, and predators that might be perceived as threatening to livestock (van Bommel 2016). Special status animals meeting these criteria in Mendocino County might include the Point Arena mountain beaver, fisher, and badger; as discussed, the California wolverine is no longer known to occur in the County. The fisher is associated with forest habitats and would rarely, if ever, venture into livestock operations where it would be at risk of harassment by LPDs. Badgers may occur in pastures and other agricultural lands and could conceivably be harassed by LPDs from time to time. However, because badgers sometimes damage agricultural property, and because “fur-bearing mammals that are injuring property may be taken at any time and in any manner” pursuant to Section 4180 of California Fish and Game Code, harassment by LPDs may paradoxically help protect badgers from the more serious threat of being taken by property owners. Gehring et al. (2010) found reduced occurrence of mesopredators in pastures protected by LPDs.

The Point Arena mountain beaver may occasionally be killed by domestic dogs; USFWS (1998) indicated that the Point Arena mountain beaver population at Irish Beach may have been affected by “an increase in predation by feral and nonferal house pets.” LPDs are sometimes known to kill large rodents; for example, Hanson and Smith (1999) found that the LPDs in their study, which had not undergone proper imprinting, routinely chased marmots and killed about half of the marmots they encountered. It is assumed that if LPDs are funded under the alternatives, assistance

with LPD imprinting and training would also be provided to minimize the risk of harassment and mortality of wildlife including special status animals.

Any harassment of Point Arena mountain beavers by LPDs would be expected to occur on or near pastures, where it is assumed LPDs would primarily be utilized. Pasture land mapped using the CWHR system (USFS 2018) account for only about 2 percent of the Point Arena mountain beaver's range. Even if LPDs were to be placed on all such lands under the project alternatives, which is unlikely, resulting harassment or take of Point Arena mountain beavers by LPDs is not expected to have a significant effect on this species because (1) LPDs would be properly imprinted and trained to minimize wildlife harassment behavior, and (2) any harassment or mortality of mountain beavers that does occur would affect a very small proportion of the population. Overall, the two equal-level alternatives are not expected to substantially affect special status animal species through injury or mortality.

In summary, the Non-Lethal Program Alternative and Non-Lethal Program Variation do not have the potential to result in substantial adverse direct or indirect effects on special status animal species in Mendocino County. They also do not have the potential to contribute meaningfully to cumulative effects on special status animals from other past, current, or probable future projects or actions.

Professional Recommendations. None are warranted.

3.2 POTENTIAL IMPACTS TO RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITIES

As discussed in Section 2.7, Mendocino County contains 13 sensitive natural communities mapped by CDFW, and a range of other habitats that are considered sensitive due to their associated biodiversity, wildlife value, and/or importance to special status species. The Mendocino County General Plan and five city plans identify various sensitive habitats within their jurisdictions, including riparian areas, wetlands, pygmy forests, and coastal dunes (see Appendix A). An analysis of impacts to sensitive habitats that could result from the proposed project and alternatives is presented in the following sections.

3.2.1 Mendocino County WS-CA IWDM Program Project

Potential Impacts. As discussed, no land development, construction, or removal of vegetation or soil would be authorized under the proposed IWDM Program. The only activities under the proposed Program that would directly impact habitat are off-road pedestrian and/or vehicular travel required for site access, and the placement of capture devices. Although these activities may occasionally be conducted in riparian or other sensitive habitat, any associated impacts would be temporary and extremely limited in scale.

The proposed Program would result in the take of apex predators, an action that, at sufficiently high levels, can create cascading ecological effects including damage to riparian communities and other sensitive habitats. For example, following the extirpation of wolves from the Yellowstone ecosystem in the 1920s, recruitment of cottonwood, willow, and other woody vegetation in riparian areas essentially ceased due to overbrowsing by elk. This, in turn, led to declines in beaver populations, which further impacted riparian vegetation as dams disappeared and stream flows increased (Marshall et al. 2013). Although some riparian areas recovered following the reintroduction of wolves to Yellowstone in 1995 (Ripple and Beschta 2004), others remain impaired, likely due to the beaver's continued absence (Marshall et al. 2013).

As discussed in Section 3.1, take of apex predators under the proposed Program is not expected to occur at levels that would cause substantial cascading effects in the ecosystem. Average annual WS-CA take of the black bear and coyote in Mendocino County between 1997 and 2017 only accounted for about 0.5% and 3% of these species' low population estimates in the County, respectively. Average annual WS-CA take of the cougar during the baseline period relative to that species' low population estimate in the County was somewhat higher, constituting approximately 21% of adults; however, even with those levels of take, the cougar will continue to exert pressure on its primary prey, the black-tailed deer, and substantial cascading effects to riparian or other sensitive habitats are not anticipated.

Potential impacts to riparian and other sensitive habitats associated with the proposed IWDM Program, if they occur at all, would be minimal, spatially limited, and/or temporary, and are not

expected to contribute meaningfully to cumulative effects on these habitats from other past, current, or probable future projects or actions.

Professional Recommendations. None are warranted.

3.2.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

As with the proposed IWDM Program, no land development, construction, or removal of vegetation or soil would be authorized under the two program alternatives. Minor habitat impacts may result from off-road pedestrian or vehicular travel and, in the case of the Non-Lethal Program Variation, placement of capture devices in the event that wildlife take is authorized. Although such activities may occasionally be conducted in riparian or other sensitive habitat, any associated impacts would be temporary and extremely limited in scale, and are not expected to substantially affect these habitats.

Certain habitat impacts may result from the two alternatives through non-lethal wildlife damage control methods employed by landowners using County funding. For example, landowners may use County funds to implement habitat management strategies aimed at reducing crop depredation, such as altering the composition of crops or planting lure crops. The alternatives may fund or install fences or pens to minimize livestock depredation. Generally speaking, these methods would be implemented in highly-modified anthropogenic landscapes that are not considered sensitive. Neither alternative would fund landowner activities involving ground disturbance or physical alteration of habitat in riparian or other sensitive habitats. No substantial adverse effects to sensitive habitats are expected to result from landowner activities funded under the Non-Lethal Program Alternative and Non-Lethal Program Variation.

The minimal levels of take that would be authorized under the Non-Lethal Program Variation for the protection of human health and safety would not have the potential to indirectly affect riparian or other sensitive habitats through disruption of predator-prey communities or other ecosystem dynamics.

Potential impacts to riparian and other sensitive habitats associated with the two alternatives, if they occur at all, would be minimal, spatially limited, and/or temporary, and are not expected to

contribute meaningfully to cumulative effects on these habitats from other past, current, or probable future projects or actions.

Professional Recommendations. None are warranted.

3.3 POTENTIAL IMPACTS TO STATE AND FEDERALLY PROTECTED WETLANDS AND WATERS

As discussed in Section 2.6, Mendocino County contains a vast network of rivers, streams, and wetlands likely to fall under the jurisdiction of the USACE, RWQCB, and/or CDFW. It also contains a large expanse of the territorial seas, which are federally-regulated waters.

As discussed, no land development or construction activities would be authorized under the proposed Program and alternatives. Minor habitat impacts may result from off-road pedestrian and vehicular travel and, in the case of the proposed IWDM Program and Non-Lethal Program Variation, localized ground disturbance associated with setting traps. Under the Non-Lethal Program Alternative and Non-Lethal Program Variation, localized habitats may also be impacted by County-funded landowner activities including installation of fences and pens or habitat management to reduce crop depredation. The proposed Program and alternatives would neither implement nor fund any activity involving ground disturbance or physical alteration of habitat in state- or federally-regulated wetlands or waters. No activity would be authorized, implemented, or funded that required the acquisition of a Clean Water Act permit or Section 1602 Streambed Alteration Agreement. There would be no impact to state or federally protected wetlands and waters under the proposed Program and alternatives, and no contribution to cumulative effects on these features from other past, current, or probable future projects or actions.

Professional Recommendations. None are warranted.

3.4 POTENTIAL IMPACTS ON THE MOVEMENT OF NATIVE FISH AND WILDLIFE SPECIES AND ESTABLISHED WILDLIFE MOVEMENT CORRIDORS

As discussed in Section 2.8, fish and wildlife in Mendocino County are expected to regularly and predictably move along the County's major drainages and associated riparian corridors, linkages

of public and other protected lands, swaths of contiguous forest, and various other habitat and landscape features. The proposed Program and alternatives may authorize activities that would temporarily disrupt wildlife movements along these corridors. For example, the use of frightening devices on agricultural lands may temporarily disturb non-target wildlife traveling along adjacent drainages or forest linkages, causing them to adjust course or discontinue travel until the disturbance has passed. Under the proposed Program and Non-Lethal Program Variation, the discharge of firearms for take of problematic wildlife may have a similar effect. Such disturbances would be localized and short-lived, and are not expected to substantially interfere with wildlife movement or established wildlife movement corridors.

As discussed, although no land development or construction would be authorized under the proposed Program and alternatives, small-scale habitat impacts could result from routine field activities such as off-road pedestrian and vehicular travel and, in the case of the proposed Program and Non-Lethal Program Variation, the placement of capture devices. Although such activities may occasionally occur within or intersect wildlife movement corridors, any associated impacts would be temporary and extremely limited in scale.

Under the Non-Lethal Program Alternative and Non-Lethal Program Variation, the County may provide funding for landowner installation of livestock fencing and pens. Fences may discourage or preclude the movement of certain wildlife species through a given area (Jakes et al. 2018). For example, although ungulates readily jump fences, neonates are often unable to do so and may become separated from their mothers (Harrington and Conover 2006). Fencing can form partial or complete barriers to migration in pronghorn (*Antilocapra americana*) (Seidler et al. 2015). Impermeable fences and large-scale fence networks can disrupt wildlife movements to the extent that gene flow is reduced (Epps et al. 2005, Flesch et al. 2009). The degree to which fencing impedes wildlife movement is dependent on several key factors including fence design and placement. The permeability of a fence tends to decrease with increased fence height, decreased fence clearance from the ground, and decreased wire spacing (Paige 2012). Fences that intersect game trails, ridges, gullies, or stream corridors are generally more disruptive to wildlife movements than fences that avoid such features (Paige 2012). Fences that are modified with

polywire, flagging, or markers to increase visibility can help ungulates and birds cross safely, with decreased risk of collisions (Jakes et al. 2018, Paige 2012, van Lanen et al. 2017).

Fencing installed using cost-sharing under the Non-Lethal Program Alternative and Non-Lethal Program Variation have the potential to disrupt wildlife movements across the affected properties. However, the two alternatives would not fund fence installations that intersect streams, riparian areas, or other established wildlife movement corridors. Moreover, it is anticipated that since these alternatives would utilize the best available science in the selection and implementation of animal damage management techniques, design features would be utilized that balance the goals of the fencing installation with permeability considerations.

The addition of fladry to existing fencing is an activity that could occur under the proposed Program through equipment loaned to landowners, as well as under the two equal-level alternatives through cost-sharing. Fladry, or brightly-colored flagging hung along a fence line, provides a visual deterrent that can be effective in preventing predators—particularly wolves and coyotes—from entering livestock enclosures. Fladry is typically hung near the base of a fence and would not be expected to prevent crossings by wildlife that jump over fences, like ungulates. Fladry may help birds navigate fence crossings by increasing the visibility of the fence.

Overall, the proposed Program and alternatives are not expected to interfere substantially with wildlife movement or the use of established wildlife corridors, or to contribute meaningfully to cumulative effects on movement and corridors from other past, current, or probable future projects or actions.

Professional Recommendations. None are warranted.

3.5 POTENTIAL IMPACTS TO NATIVE WILDLIFE NURSERY SITES

A variety of avian species nest colonially in Mendocino County. Brandt's and pelagic cormorants (*Phalacrocorax penicillatus* and *pelagicus*, respectively), western gulls (*Larus occidentalis*), and common murrelets (*Uria aalge*) nest in large, mixed-species colonies on rocky islands and headlands. Clark's and western grebes (*Aechmophorus clarkia* and *occidentalis*, respectively) nest colonially on floating algal mats in marshes and sloughs, and black-crowned night herons (*Nycticorax*

nycticorax) in adjacent riparian vegetation. Cliff swallows (*Petrochelidon pyrrhonata*) nest in colonies of hundreds to thousands of birds on the underside of bridges and roof eaves. The tricolored blackbird, a state threatened species, nests colonially in cattails and blackberry thickets associated with wetlands, ponds, and ditches, and in triticale fields. In addition to avian species, a variety of native bats nest colonially in buildings and hollow trees and on bridges.

No land development, removal of trees or other vegetation, removal of soil, or demolition of buildings would be authorized under the proposed Program and alternatives. Habitat impacts under the Program and alternatives would consist of off-road vehicular and pedestrian travel, and limited ground disturbance required for the placement of capture devices (IWDM Program and Non-Lethal Program Variation) or livestock fencing (Non-Lethal Program Alternative and Non-Lethal Program Variation). Most habitat impacts would be of short duration and all would be limited in scale. Direct impacts to or disturbance of communal nest and roost sites would be inherently minimized through these aspects of the project description.

Statewide, WS-CA occasionally provides services related to cliff swallow nest colonies and bat roosts in or on buildings. Bat-related services are generally limited to technical assistance, wherein homeowners are provided brochures or instruction on how to exclude bats from inhabited buildings. In Mendocino County, 30 parties were provided technical assistance related to bats between 2007 and 2017. As discussed, however, homeowner actions resulting from technical assistance are not within the scope of this analysis. Services related to cliff swallow nests may include nest removal by WS-CA, a form of direct control assistance. However, there is no record of any form of assistance related to cliff swallows having been provided by WS-CA in Mendocino County during the years for which data is available, 1997 to 2017.

Similarly, no direct control assistance related to bats is anticipated under the Non-Lethal Program Alternative and Non-Lethal Program Variation. The Non-Lethal Program Alternative would not authorize the removal of cliff swallow nest colonies, and the Non-Lethal Program Variation would do so only to address serious public health concerns.

Because impacts to native wildlife nursery sites under the proposed Program and alternatives would be extremely minimal, if they occur at all, they are not expected to contribute meaningfully to cumulative effects on such sites from other past, present, or probable future projects or actions.

Professional Recommendations. None are warranted.

3.6 CONSISTENCY WITH LOCAL POLICIES AND ORDINANCES

As discussed in Appendix A, six general plans are in effect in Mendocino County, all of which contain goals and policies relevant to biological resources. Ordinances pertaining to biological resources are also contained in the Mendocino County Code, as discussed in Appendix A. These policies and ordinances deal primarily with the protection of wetland and riparian areas, other sensitive habitats, and wildlife movement corridors. Potential impacts to these resources associated with the proposed Program and alternatives were addressed in Sections 4.2-4.4 and found to be insubstantial. The proposed Program and alternatives would not conflict with local policies and ordinances dealing with wetland and riparian areas, other sensitive habitats, and wildlife movement corridors.

Policy RM-28 of the Mendocino County General Plan requires that “all discretionary public and private projects that identify special-status species in a biological resources evaluation... avoid impacts to special-status species and their habitat to the maximum extent feasible.” Potential impacts to special status species associated with the proposed IWDM Program and alternatives were addressed in Section 3.1 and found to be insubstantial. The proposed Program and alternatives are unlikely to impact special status species habitat because all habitat impacts would be minimal, temporary, and/or confined to anthropogenic landscapes. As such, the proposed Program and alternatives would be consistent with Policy RM-28 of the Mendocino County General Plan.

Policy OS-5.1 of the Fort Bragg Coastal General Plan is a directive to “preserve native plant and animal species and their habitat.” This policy applies only to Fort Bragg’s coastal zone, an area of approximately 1,000 acres. It is expected that wildlife services within this small area would be requested minimally, if at all, under the proposed Program and alternatives. Any services

performed under the Non-Lethal Program Alternative would be consistent with Policy OS-5.1 because this alternative would not result in the take of any wildlife, and because associated habitat impacts would be minimal, temporary, and/or confined to anthropogenic landscapes.

In the unlikely event that common wildlife species were to be taken in Fort Bragg's coastal zone under the proposed Program or Non-Lethal Program Variation, take would occur at a level that would ensure the preservation of the species in question, as will be discussed below under Section 3.8. Although Fort Bragg's coastal zone may support special status species, none have life histories that would make them vulnerable to the lethal control measures likely to be used under the proposed Program and Non-Lethal Program Variation. As with the Non-Lethal Program Alternative, habitat impacts associated with the proposed Program and alternatives would be minimal, temporary, and/or limited to anthropogenic landscapes, and as such, would not conflict with Policy OS-5.1's requirement for native habitat preservation.

Professional Recommendations. None are warranted.

3.7 CONSISTENCY WITH ADOPTED HABITAT CONSERVATION PLANS AND NATURAL COMMUNITY CONSERVATION PLANS

As discussed in Appendix A, one Habitat Conservation Plan (HCP), the Fisher Family HCP, is presently in effect in Mendocino County. It covers approximately 24 acres of coastal scrub in Point Arena, where it authorizes limited incidental take of the federally endangered Behren's silverspot butterfly and Point Arena mountain beaver, provided certain protective measures are implemented. The HCP also establishes two conservation areas totaling 7.75 acres that are designed to protect, in perpetuity, occupied and potential habitat for the covered species.

If wildlife damage management services are requested within the 24-acre area covered by this HCP, certain activities that may routinely be authorized under the proposed IWDM Program and alternatives would have the potential to conflict with the HCP's conservation measures for federally listed species. For example, off-road vehicular travel would conflict with the HCP if it occurred in the HCP-established conservation areas, and use of County funds to purchase livestock guardian animals would conflict with the HCP if such animals were allowed to enter the

conservation areas. However, any services performed on lands covered by the Fisher Family HCP under the proposed Program or alternatives would be modified to be consistent with the HCP's conservation measures. The proposed IWDM Program and alternatives would not conflict with the provisions of the Fisher Family HCP.

Professional Recommendations. None are warranted.

3.8 POTENTIAL IMPACTS TO TARGET WILDLIFE

The proposed IWDM Program and alternatives are expected to target a number of wildlife species that have traditionally been associated with property damage and loss in Mendocino County. Based on past requests for assistance and subsequent take by WS-CA in the County, the species expected to be targeted most often by the proposed Program and alternatives are the black bear, bobcat, cougar, coyote, gray fox, feral swine, raccoon, striped skunk, and Virginia opossum (see Section 2.9.3). Potential impacts to these species associated with the proposed Program and alternatives are discussed in the following sections. Although other wildlife species have been targeted in the past and would presumably be targeted by future wildlife damage management activities in the County, historical take levels have been so low that any impacts are expected to be negligible.

3.8.1 Black Bear

3.8.1.1 Mendocino County WS-CA IWDM Program Project

As discussed in Section 2.9.3.1, average take of black bears by WS-CA in Mendocino County between 1997 and 2017 averaged 13 individuals per year. Assuming a population of 2,535 black bears in the County as indicated by our low estimate, annual take by WS-CA has represented just 0.51 percent of the County's black bears (see Appendix E). This is well below CDFW's estimated sustained-yield level of 14.2 percent for black bears in California, or the annual surplus of bears that can be removed without causing population declines (CDFG 2011). Even if it is conservatively assumed that annual take of black bears in Mendocino County under the proposed IWDM Program would average 26 individuals, the highest reported take during the baseline years, this would only

represent 1.02 percent of the County's low population estimate (see Appendix E). This level of take is not expected to adversely affect the County's black bear population.

In addition to take under the IWDM Program, black bears in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including legal and illegal hunting and depredation take by entities other than WS-CA. Sport hunting take of black bears in Mendocino County between 1997 and 2017 averaged 86 bears annually (Appendix O). Illegal hunting is not readily trackable. Computer simulations by CDFW indicate that, prior to 1985, illegal harvest of black bears may have been roughly equivalent to legal harvest. Poaching appeared to decrease following revisions to California's black bear regulations in 1985, and more recently has been estimated at approximately 25 percent of the legal harvest rate (CDFG 2011). CDFW reported an annual average of 9 bears taken under the authority of depredation permits in Mendocino County between 2006 and 2014 (CDFW 2018b); it is conservatively assumed all such take was by entities other than WS-CA. Collectively, these mortality factors account for an average of 117 individuals per year. When considered with average annual take by WS-CA in the County, average additive mortality in the County is 130 bears per year, or 5.1 percent of the low population estimate. This is well below the sustained-yield level of 14.2 percent. Therefore, when considered with other forms of additive mortality, the proposed IWDM Program would not have incremental effects on the County's black bear population that are cumulatively considerable.

Profession Recommendations. None are warranted.

3.8.1.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

Because the Non-Lethal Program Alternative would not authorize the take of bears, it does not have the potential to cause declines in the Mendocino County black bear population, either individually or in combination with other stressors on this species. Although the Non-Lethal Program Variation may authorize the take of bears to address serious public safety concerns, black bears rarely pose a threat to public safety, and are therefore unlikely to be taken under this alternative. Effects on the County's black bear population from the Non-Lethal Program Alternative and Non-Lethal Program Variation are expected to be negligible.

Profession Recommendations. None are warranted.

3.8.2 Bobcat

3.8.2.1 Mendocino County WS-CA IWDM Program Project

As discussed in Section 2.9.3.2, average take of bobcats by WS-CA in Mendocino County between 1997 and 2017 averaged 6 individuals per year. Assuming a population of 2,210 bobcats in the County as indicated by our low estimate, annual take by WS-CA has represented just 0.27 percent of the County's bobcats. This is well below the sustained-yield level of 20 percent that CDFW uses to inform its bobcat management program (CDFG 2004). Even if it is conservatively assumed that annual take of bobcats in Mendocino County under the proposed IWDM Program would average 12 individuals, the highest reported take during the baseline years, this would only represent 0.54 percent of the County's low population estimate (see Appendix F). This level of take is not expected to adversely affect the County's bobcat population.

In addition to take under the IWDM Program, bobcats in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including legal and illegal harvest and depredation take by entities other than WS-CA. Bobcat harvest in Mendocino County between 1997 and 2017, considering both sport hunting and commercial trapping until the latter was banned in 2015, and using the higher sport hunting average generated by game take hunter surveys, was approximately 80 individuals per year (Appendix O). No CDFW data or estimates were available for illegal bobcat harvest levels or depredation take of bobcats in Mendocino County by entities other than WS-CA. It is conservatively assumed that illegal bobcat harvest in the County is equivalent to legal bobcat harvest at 80 animals per year, and that non-WS-CA depredation take in the County is equivalent to WS-CA depredation take at 6 animals per year. Collectively, these mortality factors account for an average of 166 individuals per year. When considered with average annual take by WS-CA in the County, average additive mortality in the County is 172 bobcats per year, or 7.8 percent of the low population estimate. This is well below CDFW's accepted sustained-yield level of 20 percent. Therefore, the proposed IWDM Program would not have incremental effects on the County's bobcat population that are cumulatively considerable when accounting for other forms of additive mortality.

Profession Recommendations. None are warranted.

3.8.2.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

Because the Non-Lethal Program Alternative would not authorize the take of bobcats, it does not have the potential to cause declines in the Mendocino County bobcat population, either individually or in combination with other stressors on this species. Although the Non-Lethal Program Variation may authorize the take of bobcats to address serious public safety concerns, bobcats almost never pose a threat to public safety, and are therefore unlikely to be taken under this alternative. Effects on the County's bobcat population from the Non-Lethal Program Alternative and Non-Lethal Program Variation are expected to be negligible.

Profession Recommendations. None are warranted.

3.8.3 Cougar

The cougar is a “specially protected mammal” under California Fish and Game Code (FGC) Section 4800, subject to special provisions under FGC Sections 4800-4810. Take of the species is tightly controlled as no sport take is allowed in California. FGC Section 4801 authorizes CDFW or an approved local agency with public safety responsibility to remove or take an individual cougar that poses a public safety threat, but Section 4801.5 states that “...nonlethal procedures shall be used when removing or taking any mountain lion that has not been designated as an imminent threat to public health or safety.” Take of cougars that have depredated, or are in the act of depredating, livestock or other property may be taken as provided for under Sections 4802-4809, but only in accordance with provisions designed to ensure that the correct animal is taken, and as authorized by a depredation permit issued by CDFW. There has not been an approved sport hunt of cougars anywhere in California since 1972, some 47 years ago, due to a series of legislative moratoriums and lawsuits.

Mendocino County appears to support a lower population of cougars than other areas of Northern California. Allen et al. (2015) reported a population density of 0.55 adult and 0.13 juvenile/subadult cougars (0.68 overall) per 100 km² (0.018/mi²) on the Mendocino National Forest, one of the lowest cougar densities ever documented. Assuming that cougars occur at this

density throughout all habitats in the County that are of moderate to high suitability for this species, the County's cougar population would number only 43 adults and 12 juveniles/subadults, or 55 overall.

Moreover, cougar demography and genetic diversity in the North Coast region suggest a population that may already be somewhat impaired. Cougars in California's coastal regions have the lowest genetic diversity in the state (Ernest et al. 2003), and the state's cougars exhibit 73% fewer alleles than those in South America (Culver et al. 2000). Interestingly, the southern three-quarters of the North Coast region, where the County is situated, is genetically differentiated from the northern one-quarter of this region despite apparently contiguous habitat and no obvious landscape barriers (Ernest et al. 2003). Sluggish gene flow between these areas may be reflective of demography. Male cougars are more likely than female cougars to disperse from their natal ranges, and males tend to disperse farther (Sweanor et al. 2000); therefore, a shortage of males may mean decreased gene flow. Cougar demography on the Mendocino National Forest does appear skewed toward females; Allen et al. (2015) captured four adult females and only one adult male in a 402 km² trapping area in which every resident cougar was believed to have been captured.

Although it is illegal to hunt cougars in California, cougars in Mendocino County are occasionally killed by WS-CA and other entities in response to livestock and pet depredation. Poaching poses an additional mortality factor; Allen et al. (2015) cited poaching as one of two likely causes of low cougar density on the Mendocino National Forest. Because male cougars are more likely than female cougars to depredate livestock (Torres et al. 1996) and trophy males may be a more attractive target for poachers, it follows that human-caused mortality may be higher for male than female cougars in Mendocino County. Ordinarily, the removal of territorial male cougars from a population is offset by immigration into the area by young males (Robinson et al. 2008, Dawn 2002). However, because the southern North Coast region has relatively low incoming gene flow (Ernest et al. 2003), human-caused mortality may be driving down the ratio of males to females in this population. This, in turn, would be expected to reduce breeding opportunities for females (Dawn 2002), and could significantly reduce overall reproduction (Beier 1993).

Based on the small size of the County's cougar population, the relatively low levels of gene flow and genetic diversity in the larger cougar subpopulation the County is situated in, and the

apparently low male-to-female sex ratio, the County's cougar population may be at risk of dropping below self-sustaining levels with the introduction of new mortality factors, and possibly even with continuance of the status quo. An analysis of the potential impacts to the County's cougar population associated with activities to be authorized under the proposed IWDM Program and alternatives follows.

3.8.3.1 Mendocino County WS-CA IWDM Program Project

Under the proposed IWDM Program, cougars would periodically be taken by WS-CA to address depredation or public safety concerns. Between 1997 and 2017, an average of approximately 9 cougars per year were taken by WS-CA. Most cougar populations can sustain an annual harvest rate of 20 to 30 percent of their adult members (Beck et al. 2005). Based on Allen et al.'s (2015) adult cougar density on the Mendocino National Forest, there are an estimated 43 adult cougars County-wide. Average annual take by WS-CA during the baseline years represented approximately 21 percent of this estimate, which is at the low end of the maximum sustainable harvest rate given by Beck et al. (2005) and others. The highest level of cougar take in a given year between 1997 and 2017 was 15, or approximately 35 percent of the adult population estimate, which exceeds the maximum sustainable harvest rate. However, this assumes that all cougars taken by WS-CA are adults, which is certainly not the case, since young cougars are more likely to be found in human-occupied areas than their older counterparts (Kertson 2010) and more likely to be involved in conflicts with humans (Beier 1991). Moreover, the rate of cougar take by WS-CA in Mendocino County declined over the baseline years, from an annual average of 12 individuals between 1997 and 2007 to an annual average of 5 individuals between 2008 and 2017. The last time annual take by WS-CA exceeded 30 percent of the adult population estimate was in 2005. Therefore, assuming take of cougars under the proposed Program occurs at similar levels to those observed between 1997 and 2017, the Program in and of itself is unlikely to cause the County's cougar population or the larger southern North Coast subpopulation defined by Ernest et al. (2003) to drop below self-sustaining levels.

However, take of cougars under the proposed IWDM Program represents only one of several human-caused mortality factors operating on this species in Mendocino County. In addition to take by WS-CA, landowners and other entities may take cougars under depredation permits issued by

CDFW. Poaching likely exerts substantial additional pressure on the County's cougar population. Even in non-hunted cougar populations, humans are often the main cause of mortality for this species (Logan et al. 1996). No CDFW data or estimates were available for illegal cougar harvest levels or depredation take of cougars in Mendocino County by entities other than WS-CA. However, given that average annual take by WS-CA between 1997 and 2017 was already approaching the maximum sustainable harvest rate for the County's cougar population, additional mortality factors have considerable potential to cause the population to drop below self-sustaining levels.

Similar stressors appear to be at work throughout the southern North Coast subpopulation defined by Ernest et al. (2003). WS-CA operates in most counties in this subpopulation, and cougar depredation permits are presumably also issued to non-WS-CA entities and subsequently filled. Poaching is expected to exert pressure on cougars throughout the southern North Coast subpopulation, not just Mendocino County. Therefore, it cannot be assumed that cougar surpluses elsewhere in the subpopulation will offset losses in Mendocino County.

Importantly, previous research has shown that high cougar harvest rates can exacerbate conflicts with humans rather than lower them. A study in Washington found that increased killing of cougars, while causing a short-term decline in the cougar population, also resulted in increased conflicts with humans (Peebles et al. 2013), likely due to a shift in the population structure toward younger males (Robinson et al. 2008), which are more often associated with depredation events than other demographic groups. Limiting annual harvest to the population's intrinsic growth rate, which in Washington averaged 14 percent, should help to stabilize the population structure (Beausoleil et al. 2013), which in turn would be expected to minimize conflicts with humans (Peebles et al. 2013, Lambert et al. 2006).

Cougars occur in low densities in Mendocino County despite an abundance of prey and protection from hunting, suggesting that the population is already somewhat impaired. Assuming that annual take of cougars under the IWDM Program occurs at levels observed during the baseline period, the Program has the potential to produce environmental effects on the cougar that are cumulatively considerable.

Professional Recommendations

It is recommended that the proposed IWDM Program implement the following measure for the cougar:

Recommendation 1: Except to address serious public safety concerns, direct control assistance related to cougars should utilize only non-lethal methods. Cougars should only be taken by WS-CA if an attack on a human has occurred or appears imminent.

In the Santa Ana and Santa Monica Mountains of southern California, where a lack of genetic diversity has been noted in cougars (Ernest et al. 2014) and anthropogenic pressures appear to be restricting connectivity between cougar populations, CDFW has amended its depredation incident response policy to reflect a tiered approach prioritizing use of non-lethal methods (CDFW 2017). In those regions, a depredation permit for take of a cougar in a specific area will only be issued following three depredation incidents that appear to demonstrate the animal's affinity for the area, and only after implementing non-lethal methods in response to the first two incidents. In the event that it is not feasible to implement Recommendation 1, the following recommendation adapted from CDFW (2017) is provided.

Recommendation 2: Except to address serious public safety concerns, direct control assistance related to cougars should prioritize use of non-lethal methods. A cougar should only be taken by WS-CA after it has been involved in three depredation incidents in a specific area and non-lethal methods have failed, or if an attack on a human has occurred or appears imminent.

The following procedures should be implemented for successive depredation events occurring in the same specific area within a time period strongly suggesting the cougar's affinity for that location:

First Depredation Event: After confirming that the depredation was caused by a cougar, the WS-CA technician should educate the landowner on cougar behavior and discuss site-specific options for preventing future depredation. WS-CA should provide instruction on non-lethal strategies to be implemented by the landowner and lend appropriate equipment if available. WS-CA should communicate to the landowner that continued assistance will be conditional upon the landowner taking measures to reduce the potential for attracting cougars, such as (1) removing the carcasses of depredated animals, (2) installing or repairing fencing or other shelter designed to exclude cougars from the depredated resource, and (3) removing cover from the immediate vicinity by clearing brush or removing lower limbs from shrubs. These conditions should be identified in writing in WS-CA's work plan or

other agreement with the landowner. If the cougar is still present at the time of WS-CA's first site visit, the technician may pursue or haze the cougar.

Second Depredation Event: After confirming (1) that the depredation was most likely caused by the cougar involved in the first incident, (2) that the landowner implemented non-lethal strategies as instructed, and (3) that the landowner implemented the required conditions for continued assistance, WS-CA should work with the landowner to develop a new set of non-lethal strategies to be employed and lend appropriate equipment if available. If there are additional measures that can be employed by the landowner to avoid attracting cougars onto the property, the WS-CA field technician should identify these in writing as a condition of continued assistance. If the cougar is still present at the time of WS-CA's second site visit, the technician may pursue or haze the cougar.

Third Depredation Event: After confirming (1) that the depredation was most likely caused by the cougar involved in the first and second incidents, (2) that the landowner implemented non-lethal strategies as instructed, and (3) that the landowner implemented the required conditions for continued assistance, WS-CA may take the cougar associated with the ongoing depredation.

3.8.3.2 Non-Lethal Program Alternative

Because the Non-Lethal Program Alternative would not authorize the take of cougars, it does not have the potential to cause the Mendocino County cougar population or larger southern North Coast cougar subpopulation to drop below self-sustaining levels, either individually or in combination with other stressors on this species.

Profession Recommendations. None are warranted.

3.8.3.3 Non-Lethal Program Variation

The Non-Lethal Program Variation would only authorize the take of cougars to address serious public safety concerns. It is assumed that cougars would only be taken under this alternative if an attack on a human had occurred or appeared imminent. As discussed in Section 2.9.3.3, cougar attacks are very rare, averaging about one every two years in California. Of the fifteen verified cougar attacks in California between 1986 and 2014, two (13%) were in Mendocino County (CDFW 2018e). The Mendocino County attacks occurred at the same time and likely involved the same cougar; however, conservatively considering the attacks to be separate incidents yields a rate of about one attack in Mendocino County every 14 years. Even if the Non-Lethal Program

Variation results in the take of three times the number of individuals indicated by the attack rate in Mendocino County to account for situations where an attack appears imminent, this only amounts to about one cougar every 5 years. This level of take would not have the potential to cause the Mendocino County cougar population or larger southern North Coast cougar subpopulation to drop below self-sustaining levels, either individually or in combination with other stressors on this species.

Profession Recommendations. None are warranted.

3.8.4 Coyote

3.8.4.1 Mendocino County WS-CA IWDM Program Project

As discussed in Section 2.9.3.4, average take of coyotes by WS-CA in Mendocino County between 1997 and 2017 averaged 197 individuals per year. Assuming a population of 6,500 coyotes in the County as indicated by our low estimate, annual take by WS-CA has represented just 3.0 percent of the County's coyotes. This is well below the sustained-yield level of 70 percent that CDFW uses to inform its coyote management program (CDFG 2004). Even if it is conservatively assumed that annual take of coyotes in Mendocino County under the proposed IWDM Program would average 272 individuals, the highest reported take during the baseline years, this would only represent 4.2 percent of the County's low population estimate (see Appendix H). This level of take is not expected to adversely affect the County's coyote population.

In addition to take under the IWDM Program, coyotes in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including hunting, trapping, and depredation take by entities other than WS-CA. Hunting and trapping take of coyotes in Mendocino County reported to CDFW between 1997 and 2017 averaged 875 individuals per year (Appendix O). No CDFW data is available for depredation take of coyotes by entities other than WS-CA. Because coyotes can be taken at any time of the year and in any number, with no reporting requirements, the actual number of coyotes killed by private parties in Mendocino County each year is likely much higher than what the available data indicate. It is conservatively assumed that unreported hunting and trapping take of coyotes in the County is

equivalent to reported hunting and trapping take at 875 animals per year, and that non-WS-CA depredation take is equivalent to WS-CA take at 197 animals per year. Collectively, these mortality factors account for an average of 1,947 individuals per year. When considered with average annual take by WS-CA in the County, average additive mortality in the County is 2,144 coyotes per year, or 32.9 percent of the low population estimate. This is well below CDFW's accepted sustained-yield level of 70 percent. Therefore, the proposed IWDM Program would not have incremental effects on the County's coyote population that are cumulatively considerable when accounting for other forms of additive mortality.

Profession Recommendations. None are warranted.

3.8.4.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

Because the Non-Lethal Program Alternative would not authorize the take of coyotes, it does not have the potential to cause declines in the Mendocino County coyote population, either individually or in combination with other stressors on this species. Although the Non-Lethal Program Variation may authorize the take of coyotes to address serious public safety concerns, coyotes rarely pose a threat to public safety, and are therefore unlikely to be taken under this alternative. Effects on the County's coyote population from the Non-Lethal Program Alternative and Non-Lethal Program Variation are expected to be negligible.

Profession Recommendations. None are warranted.

3.8.5 Feral Swine

3.8.5.1 Mendocino County WS-CA IWDM Program Project

As discussed in Section 2.9.3.5, average take of the feral swine by WS-CA in Mendocino County between 1997 and 2017 averaged 24 individuals per year. Assuming a population of 18,890 feral swine in the County as indicated by our low estimate, annual take by WS-CA has represented just 0.13 percent of the County's feral swine. Even if it is conservatively assumed that annual take of feral swine in Mendocino County under the proposed IWDM Program would average 91 individuals, the highest reported take during the baseline years, this would only represent 0.48

percent of the County's low population estimate (see Appendix I). CDFW permits the hunting of feral swine without regard to sustainable yield because the feral swine is an invasive species that causes considerable damage in California's ecosystems and agricultural landscapes. Regardless, annual take of less than 1 percent of Mendocino County's feral swine population under the proposed IWDM Program is expected to have negligible population-level effects, and would not contribute meaningfully to cumulative effects on this invasive species.

Profession Recommendations. None are warranted.

3.8.5.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

The Non-Lethal Program Alternative would not authorize the take of feral swine, and the Non-Lethal Program Variation would do so only to address serious public safety concerns, which rarely arise in association with this species. Effects on the County's feral swine population from the Non-Lethal Program Alternative and Non-Lethal Program Variation are expected to be negligible.

Profession Recommendations. None are warranted.

3.8.6 Gray Fox

3.8.6.1 Mendocino County WS-CA IWDM Program Project

As discussed in Section 2.9.3.6, average take of the gray fox by WS-CA in Mendocino County between 1997 and 2017 averaged 12 individuals per year. Assuming a population of 4,785 gray foxes in the County as indicated by our low estimate, annual take by WS-CA has represented just 0.25 percent of the County's gray foxes. This is well below the sustained-yield level of 25 percent that CDFW uses to inform its gray fox management program (CDFG 2004). Even if it is conservatively assumed that annual take of gray foxes in Mendocino County under the proposed IWDM Program would average 29 individuals, the highest reported take during the baseline years, this would only represent 0.61 percent of the County's low population estimate (see Appendix J). This level of take is not expected to adversely affect the County's gray fox population.

In addition to take under the IWDM Program, gray foxes in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors,

including legal and illegal harvest and depredation take by entities other than WS-CA. Gray fox harvest in Mendocino County between 1997 and 2017, considering both sport hunting and commercial trapping, averaged 196 individuals per year (Appendix O). No CDFW data or estimates were available for illegal gray fox harvest levels or depredation take of gray foxes in Mendocino County by entities other than WS-CA. It is conservatively assumed that illegal gray fox harvest in the County is equivalent to legal gray fox harvest at 196 animals per year, and that non-WS-CA depredation take in the County is equivalent to WS-CA depredation take at 12 animals per year. Collectively, these mortality factors account for an average of 404 individuals per year. When considered with average annual take by WS-CA in the County, average additive mortality in the County is 416 gray foxes per year, or 8.7 percent of the low population estimate. This is well below CDFW's accepted sustained-yield level of 25 percent. Therefore, the proposed IWDM Program would not have incremental effects on the County's gray fox population that are cumulatively considerable when accounting for other forms of additive mortality.

Profession Recommendations. None are warranted.

3.8.6.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

Because the Non-Lethal Program Alternative would not authorize the take of gray foxes, it does not have the potential to cause declines in the County's gray fox population, either individually or in combination with other stressors on this species. Although the Non-Lethal Program Variation may authorize the take of foxes to address serious public safety concerns, gray foxes almost never pose a threat to public safety, and are therefore unlikely to be taken under this alternative. Effects on the County's gray fox population from the Non-Lethal Program Alternative and Non-Lethal Program Variation are expected to be negligible.

Profession Recommendations. None are warranted.

3.8.7 Raccoon

3.8.7.1 Mendocino County WS-CA IWDM Program Project

Average intentional take of raccoons by WS-CA in Mendocino County between 1997 and 2017 was 42 individuals per year, with an average of one additional animal taken unintentionally each year between 2007 and 2017 (see Section 2.9.3.7). Assuming a population of 2,205 raccoons in the County as indicated by our low estimate, annual take by WS-CA, both intentional and unintentional, has represented just 2.0 percent of the County's raccoons. This is well below the sustained-yield level of 49 percent that CDFW uses to inform its raccoon management program (CDFG 2004). Even if it is conservatively assumed that annual take of raccoons in Mendocino County under the proposed IWDM Program would average 73 individuals, the highest reported take during the baseline years, this would only represent 3.3 percent of the County's low population estimate (see Appendix K). This level of take is not expected to adversely affect the County's raccoon population.

In addition to take under the IWDM Program, raccoons in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including legal and illegal harvest and depredation take by entities other than WS-CA. Raccoon harvest in Mendocino County between 1997 and 2017, considering both sport hunting and commercial trapping, averaged 373 individuals per year (Appendix O). No CDFW data or estimates were available for illegal raccoon harvest levels or depredation take of raccoons in Mendocino County by entities other than WS-CA. It is conservatively assumed that illegal raccoon harvest in the County is equivalent to legal raccoon harvest at 373 animals per year, and that non-WS-CA depredation take in the County is equivalent to WS-CA depredation take at 43 animals per year. Collectively, these mortality factors account for an average of 789 individuals per year. When considered with average annual take by WS-CA in the County, average additive mortality in the County is 832 raccoons per year, or 37.7 percent of the low population estimate. This is below than CDFW's accepted sustained-yield level of 49 percent. Therefore, the proposed IWDM Program would not have incremental effects on the County's raccoon population that are cumulatively considerable when accounting for other forms of additive mortality.

Profession Recommendations. None are warranted.

3.8.7.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

Because the Non-Lethal Program Alternative would not authorize the take of raccoons, it does not have the potential to cause declines in the County's raccoon population, either individually or in combination with other stressors on this species. Although the Non-Lethal Program Variation may authorize the take of raccoons to address serious public safety concerns, raccoons almost never pose a threat to public safety, and are therefore unlikely to be taken under this alternative. Effects on the County's raccoon population from the Non-Lethal Program Alternative and Non-Lethal Program Variation are expected to be negligible.

Profession Recommendations. None are warranted.

3.8.8 Striped Skunk

3.8.8.1 Mendocino County WS-CA IWDM Program Project

As discussed in Section 2.9.3.8, average take of striped skunks by WS-CA in Mendocino County between 1997 and 2017 averaged 62 individuals per year. Assuming a population of 6,495 striped skunks in the County as indicated by our low estimate, annual take by WS-CA has represented just 0.95 percent of the County's striped skunks. Even if it is conservatively assumed that annual take of striped skunks in Mendocino County under the proposed IWDM Program would average 101 individuals, the highest reported take during the baseline years, this would only represent 1.5 percent of the County's low population estimate (see Appendix L). This level of take is not expected to adversely affect the County's striped skunk population.

In addition to take under the IWDM Program, striped skunks in the County would continue to experience other forms of mortality that are expected to be additive to natural mortality factors, including commercial trapping and depredation take by entities other than WS-CA. Commercial trapping of striped skunks in Mendocino County between 1997 and 2017 averaged 18 individuals per year (Appendix O). No CDFW data or estimates were available for depredation take of striped skunks in Mendocino County by entities other than WS-CA. Because skunks can be taken at any

time of the year and in any number, with no reporting requirements, the actual number of striped skunks killed by private parties in Mendocino County each year is likely much higher than what the available data indicate. It is conservatively assumed that unreported skunk harvest in the County is equivalent to legal striped skunk harvest at 18 animals per year, and that non-WS-CA depredation take in the County is equivalent to WS-CA depredation take at 62 animals per year. Collectively, these mortality factors account for an average of 98 individuals per year. When considered with average annual take by WS-CA in the County, average additive mortality in the County is 160 striped skunks per year, or 2.5 percent of the low population estimate. Even when accounting for other forms of additive mortality, the proposed IWDM Program is not expected to have incremental effects on the County's striped skunk population that are cumulatively considerable.

Profession Recommendations. None are warranted.

3.8.8.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

Because the Non-Lethal Program Alternative would not authorize the take of skunks, it does not have the potential to cause declines in the County's striped skunk population, either individually or in combination with other stressors on this species. Although the Non-Lethal Program Variation may authorize the take of striped skunks to address serious public safety concerns, individuals of this species almost never pose a threat to public safety, and are therefore unlikely to be taken under this alternative. Effects on the County's striped skunk population from the Non-Lethal Program Alternative and Non-Lethal Program Variation are expected to be negligible.

Profession Recommendations. None are warranted.

3.8.9 Virginia Opossum

3.8.9.1 Mendocino County WS-CA IWDM Program Project

As discussed in Section 2.9.3.9, average take of Virginia opossums by WS-CA in Mendocino County between 1997 and 2017 averaged 12 individuals per year. Assuming a population of 4,670 opossums in the County as indicated by our low estimate, annual take by WS-CA has represented

just 0.26 percent of the County's opossums. Even if it is conservatively assumed that annual take of opossums in Mendocino County under the proposed IWDM Program would average 19 individuals, the highest reported take during the baseline years, this would only represent 0.41 percent of the County's low population estimate (see Appendix M). The Virginia opossum is not native to California and can be taken at any time and in any number without regard to sustainable yield. Regardless, annual take of less than 1 percent of the County's opossum population under the proposed IWDM Program is expected to have negligible population-level effects, and would not contribute meaningfully to cumulative effects on this species.

Profession Recommendations. None are warranted.

3.8.9.2 Non-Lethal Program Alternative and Non-Lethal Program Variation

The Non-Lethal Program Alternative would not authorize the take of Virginia opossums, and the Non-Lethal Program Variation would do so only to address serious public safety concerns, which are not expected to occur in association with this species. Effects on the County's Virginia opossum population from the Non-Lethal Program Alternative and Non-Lethal Program Variation are expected to be negligible.

Profession Recommendations. None are warranted.

LITERATURE REFERENCED

- Allen, M. L., L. M. Elbroch, D. S. Casady, and H. U. Wittmer. 2015. Feeding and spatial ecology of mountain lions in the Mendocino National Forest. *California Fish and Game* 101(1):51-65.
- Baldwin, R. A. 2015a. Pest Notes: Raccoons. University of California Statewide Integrated Pest Management Program, Davis, CA.
- Baldwin, R. A. 2015b. Pest Notes: Opossums. University of California Statewide Integrated Pest Management Program, Davis, CA.
- Barton, B. T. 2005. Cascading effects of predator removal on the ecology of sea turtle nesting beaches. Master's thesis. University of Central Florida, Orlando.
- Beausoleil, R. A., G. M. Koehler, B. T. Maletzke, B. N. Kertson, and R. B. Wielgus. 2013. Research to regulation: cougar social behavior as a guide for management. *Wildlife Society Bulletin* 37(3):680-688.
- Beck, T., J. Beecham, P. Beier, T. Hofstra, M. Hornocker, F. Lindzey, K. Logan, B. Pierce, H. Quigley, I. Ross, H. Shaw, R. Sparrowe, and S. Torres. 2005. *Cougar Management Guidelines*. Opal Creek Press LLC, Salem, Oregon. 137pp.
- Beier, P. 1996. Metapopulation models, tenacious tracking, and cougar conservation. Pages 293–323 in D. R. McCullough, editor, *Metapopulations and wildlife management*. Island Press, Washington, D.C., USA
- Beier, P. 1993. Puma: a population simulator for cougar conservation. *Wildlife Society Bulletin* 21:356-357.
- Beier, P. 1991. Cougar attacks on humans in the United States and Canada. *Wildlife Society Bulletin* 19: 403–412.
- Beier, P. and R. F. Noss. 1998. Do habitat corridors really provide connectivity? *Conservation Biology* 12:1241-1252.
- Berger K.M. and E. M. Gese. 2007. Does interference competition with wolves limit the distribution and abundance of coyotes? *Journal of Animal Ecology* 76: 1075–1085.
- Birhane M. G., J. M. Cleaton, B. P. Monroe. 2017. Rabies surveillance in the United States during 2015. *Journal of the American Veterinary Medical Association* 250:1117-1130.
- Black, H. L., & Green, J. S. 1985. Navajo use of mixed-breed dogs for management of predators. *Journal of Range Management* 38:11–15.

- Bren School Group Project. 2014. Wild Pig Management at Tejon Ranch. University of California, Santa Barbara. Available at: https://www.bren.ucsb.edu/research/2014Group_Projects/documents/Chanchos_FinalReport_FINAL.pdf.
- Bunnell, F. L. and D.E.N. Tait. 1985. Mortality Rates of North American Bears. Arctic Vol. 38, No. 4: pp. 316-323.
- Calflora. 2018. Calflora: An online database of plant identification and distribution [web application]. Calflora, Berkeley, California. Available: <http://www.calflora.org>.
- California Department of Fish and Game (CDFG). 2011. Draft Environmental Document – Bear Hunting. Wildlife Branch. Sacramento, CA. Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=82753&inline>.
- _____. 2004. *Furbearing and Nongame Mammal Hunting and Trapping*. The Resources Agency, State of California Draft Environmental Document. 180 pp.
- California Department of Fish and Wildlife (CDFW). 2018a. California Natural Diversity Database. The Resources Agency, Sacramento, CA.
- _____. 2018b. Black Bear information webpages. Wildlife Branch – Game Management. Available at: <https://www.wildlife.ca.gov/Conservation/Mammals/Black-Bear>. Sacramento, CA.
- _____. 2018c. Vegetation Classification and Mapping Program. Biogeographic Data Branch. Available at: <https://www.wildlife.ca.gov/Data/VegCAMP>. Sacramento, CA.
- _____. 2018d. Natural Communities webpage. Biogeographic Data Branch. Available at: <https://www.wildlife.ca.gov/data/VegCAMP/Natural-Communities/> Background# sensitive natural communities. Sacramento, CA.
- _____. 2018e. Mountain Lions in California webpages. Wildlife Investigations Lab. Available at: <https://www.wildlife.ca.gov/Conservation/Mammals/Mountain-Lion>. Rancho Cordova, CA.
- _____. 2018f. Wild Pig Management Program. Wildlife Branch – Game Management. Available at: <https://www.wildlife.ca.gov/Conservation/Mammals/Wild-Pig>.
- _____. 2018g. Game Take Hunter Survey Reports. Wildlife Branch – Game Management. Available at: <https://www.wildlife.ca.gov/Hunting/Upland-Game-Birds#22503332-harvest-data>
- _____. 2018h. Summaries of Licensed Fur Trappers’ and Dealers’ Reports. License and Revenue Branch. Available at: <https://www.wildlife.ca.gov/licensing/trapping>.

- _____ 2018i. Black Bear Management and Harvest Annual Bear Take Reports (2008-2016). Wildlife Branch – Game Management. Available at: <https://www.wildlife.ca.gov/Conservation/Mammals/Black-Bear/Management-and-Harvest>
- _____ 2018j. Bobcat Harvest Assessment Reports. Wildlife Branch – Game Management. Available at: <https://www.wildlife.ca.gov/hunting/nongame-furbearers#22863334-harvest-data>
- _____ 2018k. Wild Pig Take Reports by License Year. Wildlife Branch – Game Management. Available at: <https://www.wildlife.ca.gov/hunting/wild-pig#194444-harvest-data>
- [2017. Human/Wildlife Interactions in California: Mountain Lion Depredation, Public Safety, and Animal Welfare – Amendment to Department Bulletin 2013-02. Departmental Bulletin, Department of Fish and Wildlife. Issued December 15, 2017.](#)
- _____ 2014a. CWHR version 9.0 personal computer program. California Interagency Wildlife Task Group. Sacramento, CA.
- _____ 2014b. RE: Request for concurrence on Wildlife Services Program effects on State listed threatened and endangered species in California and Proposed Action. Letter to Dennis Orthmeyer, State Director, USDA APHIS Wildlife Services. October 29, 2014.
- California Department of Public Health (CDPH). 2016. Rabies surveillance in California, annual report 2015. Veterinary Public Health Section, Infectious Diseases Branch, Division of Communicable Disease Control, Center for Infectious Diseases, California Department of Public Health, Sacramento, CA.
- California Native Plant Society. 2018. Inventory of Rare and Endangered Vascular Plants of California (online: <http://cnps.site.aplus.net/cgi-bin/inv/inventory.cgi>).
- City of Fort Bragg. 2008. Coastal General Plan. Available at: <https://city.fortbragg.com/284/Coastal-General-Plan>
- City of Fort Bragg. 2013. Inland General Plan. Available at: <https://city.fortbragg.com/156/Inland-General-Plan>
- City of Point Arena. 2006. General Plan/Local Coastal Plan. Available at: <https://pointarena.ca.gov/documents/general-planlocal-coastal-plan/>
- City of Ukiah. 1995. General Plan. Available at: <http://www.cityofukiah.com/documents-and-maps/>
- City of Willits. 1992. Willits General Plan Revision. Available at: <http://www.cityofwillits.org/DocumentCenter/View/108/General-Plan-PDF>

- Colman, N. J., C. E. Gordon, M. S. Crowther, and M. Letnic. 2014. Lethal control of an apex predator has unintended cascading effects on forest mammal assemblages. *Proceedings of the Royal Society B* 281:20133094.
- Conner, L. M., B. D. Leopold, and M. J. Chamberlain. 2001. Multivariate habitat models for bobcats in southern forested landscapes. Pages 51-55 *In* Woolf, A., C. K. Nielsen, and R. D. Bluett, editors. *Proceedings of the Symposium on Current Bobcat Research and Implications for Management, The Wildlife Society 2000 Conference*. Carbondale, Illinois: Southern Illinois University.
- Connolly, G. E. and W. M. Longhurst. 1975. The effects of control on coyote populations: A simulation model. Division Agricultural Science, University of California, Davis, Bulletin 1872.
- County of Mendocino. 2009. General Plan Available at: <https://www.mendocinocounty.org/government/planning-building-services/plans/mendocino-county-general-plan>
- Crabtree, R. L. and J. W. Sheldon. 1999. Coyotes and canid coexistence. In T. W. Clark, et al., (Eds.), *Carnivores in Ecosystems: The Yellowstone Experience*, pp. 127–163. New Haven: Yale University Press.
- Culver M, W. E. Johnson, J. Pecon-Slattery, and S. J. O’Brien. 2000. Genomic ancestry of the American puma (*Puma concolor*). *Journal of Heredity* 91:186–197.
- Dawn, D. 2002. Management of cougars (*Puma concolor*) in the western United States. Thesis, San Jose State University, San Jose, California.
- Elbroch, L. M. and A. Kusler. 2018. Are pumas subordinate carnivores, and does it matter? *PeerJ* 6:e4293; DOI 10.7717/peerj.4293.
- eBird. 2018. eBird: An online database of bird distribution and abundance [web application]. eBird, Cornell Lab of Ornithology, Ithaca, New York. Available: <http://www.ebird.org>.
- Epps, C. W., P. J. Palsbell, J. D. Wehausen, G. K. Roderick, R. R. Ramey II, and D. R. McCullough. 2005. Highways block gene flow and cause a rapid decline in genetic diversity of desert bighorn sheep. *Ecology Letters* 8:1029-1038.
- Ernest, H. B., W. M. Boyce, V. C. Bleich, B. May, S. J. Stiver, and S. G. Torres. 2003. Genetic structure of mountain lion (*Puma concolor*) populations in California. *Conservation Genetics* 4:353-366.
- Flesch, A. D., C. W. Epps, J. W. Cain III, M. Clark, P. R. Krausman, and J. R. Morgart. 2009. Potential effects of the United States-Mexico border fence on wildlife. *Conservation Biology* 24(1):171-181.

- Fox, C. H. and C. M. Papouchis. 2005. Coyotes in our midst: coexisting with an adaptable and resilient carnivore. Animal Protection Institute, Sacramento, CA.
- Gabriel, M. W., L. W. Woods, G. M. Wengert, N. Stephenson, J. M. Higley, and C. Thompson. 2015. Patterns of natural and human-caused mortality factors of a rare forest carnivore, the fisher (*Pekania pennant*) in California. PLoS ONE 10(11): e0140640. doi:10.1371/journal.pone.0140640.
- Gardner, A. L. 1982. Virginia opossum. Pages 3-36 in J. A. Chapman and G. A. Feldhamer, eds. Wild mammals of North America. Johns Hopkins Univ. Press, Baltimore, MD. 1147pp.
- Gehring, T., Vercauteren, K., & Landry, J. 2010. Livestock protection dogs in the 21st century: Is an ancient tool relevant to modern conservation challenges? BioScience 60:299–308.
- Gipson, P. and J. Kamler. 2001. Survival and home ranges of opossums in northeastern Kansas. The Southwestern Naturalist, 46:2: 178-182.
- Grewal, H. 2018. Mendocino County 2016 Crop Report. Department of Agriculture, County of Mendocino. Ukiah, CA.
- Hamlin, R., L. Roberts, G. Schmidt, K. Brubaker and R. Bosch 2010. Species assessment for the Humboldt marten (*Martes americana humboldtensis*). U.S. Fish and Wildlife Service, Arcata Fish and Wildlife Office, Arcata, California. 34 + iv pp.
- Hansen, I., & Smith, M. E. 1999. Livestock-guarding dogs in Norway Part II: Different working regimes. Journal of Range Management 52: 312–316.
- Harrington, J. L. and M. R. Conover. 2006. Characteristics of ungulate behavior and mortality associated with wire fences. Wildlife Society Bulletin 34(5):1295-1305.
- Hody, J. W. and R. Kays. 2018. Mapping the expansion of coyotes (*Canis latrans*) across North and Central America. ZooKeys 759:81-97.
- Hopkins, D. and R. Forbes. 1980. Dietary patterns of the Virginia opossum in an urban environment. The Murrelet, 61:1: 20-30.
- Jakes, A. F., P. F. Jones, L. Christine Paige, R. G. Seidler, and M. P. Huijser. 2018. A fence runs through it: A call for greater attention to the influence of fences on wildlife and ecosystems. Biological Conservation 227:310-318.
- Jay, M. T., M. Cooley, D. Carychao, G. W. Wiscomb, R. A. Sweitzer, L. Crawford-Miksza, J. A. Farrar, D. K. Lau, J. O'Connell, A. Millington, R. V. Asmundson, E. R. Atwill, R. E. Mandrell. 2007. Escherichia coli 0157:H7 in feral swine near spinach fields and cattle, central California coast. Emerging Infectious Diseases 13:1908-1911.
- Jennings, W. L., N. J. Schneider, A. L. Lewis, and J. E. Scatterday. 1960. Fox rabies in Florida. Journal of Wildlife Management 24:171-179.

- Jurek, R. M. 1992. Nonnative red foxes in California. Nongame Bird and Mammal Section Report 92-04. The Resources Agency, Department of Fish and Game, Sacramento, CA.
- Kaller, M.D. and W.E. Kelso. 2006. Swine activity alters invertebrates and microbial communities in a coastal plain watershed. *American Midland Naturalist*. 156(1):163-177.
- Kelleyhouse, D. G. 1975. Habitat utilization and ecology of the black bear in northern California. M.S. Thesis, Humboldt State University, Arcata, CA.
- Keesing, F., J. Brunner, S. Duerr, M. Killilea, K. LoGiudice, K. Schmidt, H. Vuong, and R. S. Ostfeld. 2009. Hosts as ecological traps for the vector of Lyme disease. *Proceedings of the Royal Society B* 276(1675):3911-3919.
- Kertson, B. N. 2010. Cougar ecology, behavior, and interactions with people in a wildland-urban environment in western Washington. Dissertation. University of Washington, Seattle, WA, USA.
- Kilgo, J. C., C. E. Shaw, M. Vukovich, M. J. Conroy, C. Ruth. 2017. Reproductive characteristics of a coyote population before and during exploitation. *The Journal of Wildlife Management* 81(8):1386-1393.
- Lambert, C.M., R. B. Wielgus, H. R. Robinson, H. S. Cruickshank, R. Clarke, and J. Almack. 2006. Cougar population dynamics and viability in the Pacific Northwest. *Journal of Wildlife Management* 70: 246–254.
- LaRue, M., C. Nielsen, M. Dowling, K. Miller, B. Wilson, H. Shaw, C. Anderson. 2012. Cougars Are Recolonizing the Midwest: Analysis of Cougar Confirmations during 1990–2008. *Journal of Wildlife Management* 76(7):1364-1369.
- Lindzey, F. G., W. D. VanSickle, B. B. Ackerman, D. Barnhurst, T. P. Hemker, and S. P. Laing. 1994. Cougar population dynamics in southern Utah. *Journal of Wildlife Management*. 58:619-624.
- Lindzey, F. G., W. D. Van Sickle, S. P. Laing, and C. S. Mecham. 1992. Cougar population response to manipulation in southern Utah. *Wildlife Society Bulletin*. 20:224-227.
- Logan, K. A., L L. Sweanor, T. K. Ruth, and M. G. Hornocker. 1996. Cougars of the San Andres Mountains, New Mexico. Final Report, Federal Aid in Wildlife Restoration Project W-128-R. New Mexico Department of Game and Fish, Santa Fe, NM.
- Lynes, B. C. and S. D. Campbell. 2000. Germination and viability of mesquite (*Prosopis pallida*) seed following ingestion and excretion by feral pigs (*Sus scrofa*). *Tropical Grasslands* 34: 125-128
- Marshall, K. M., N. T. Hobbs, and D. J. Cooper. 2013. Stream hydrology limits recovery of riparian ecosystems after wolf reintroduction. *Proceedings of the Royal Society B* 280: 20122977.

- Maser, C., B. R. Mate, J. F. Franklin, and C. T. Dyrness. 1981. Natural history of Oregon Coast mammals. Gen. Tech. Rep. PNW-133. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. 496 p.
- Mattson, D., K. Logan, and L. Sweanor. 2011. Factors governing risk of cougar attacks on humans. *Human-Wildlife Interactions* 5(1):135-138.
- Mezquida, E. T., S. J. Slater, and C. Benkman. 2006. Sage-grouse and indirection interactions: potential implications of coyote control on sage-grouse populations. *Condor* 108(4):747-759.
- McManus, J. 1974. *Didelphis virginiana*. *Mammalian Species*, 40: 1-6.
- Meshriy, M. 2017. Licensed Fur Trappers' and Dealers' Report, 2016-17. Natural Resources Agency, Department of Fish and Wildlife, Wildlife and Fisheries Division, Wildlife Branch, Sacramento, CA.
- Moore, L., L. Ash, F. Sorvillo, and O. G. W. Berlin. 2004. *Baylisascaris procyonis* in California. *Emerging Infectious Diseases* 10(9):1693-1694.
- Mountain Lion Foundation. 2018. Mountain lion status in California. Sacramento, CA. Available at: <https://mountainlion.org/us/ca/-ca-status.asp>
- National Marine Fisheries Service (NMFS). 2018. NMFS Resources in California, West Coast Region, National Oceanic and Atmospheric Administration – Fisheries. Available at: https://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html
- Orloff, S. 1980. Raccoon status in Contra Costa and Alameda counties. Job progress report, Project No. W-54-R-12, California Department of Fish and Game, Nongame Wildlife Investigations, Sacramento.
- Paige, C. 2012. A Landowner's Guide to Wildlife Friendly Fences: How to Build Fence with Wildlife in Mind, Second Edition. Private Land Technical Assistance Program, Montana Fish, Wildlife, and Parks, Helena, Montana.
- Peebles, K. A., R. B. Wielgus, B. T. Maletzke, and M. E. Swanson. 2013. Effects of remedial sport hunting on cougar complaints and livestock depredations. *PLoS ONE* 8(11): e79713. doi:10.1371/journal.pone.0079713.
- Pierce, B. and V. Bleich. 2003. Mountain lion. Pages 744-757 in G. A. Feldhamer, B. C. Thompson, and J. A. Chapman, eds. *Wild Mammals of North America: Biology, Management, and Conservation*, Second Edition. Baltimore: Johns Hopkins University.
- Potgieter, G. C., Kerley, G. I., & Marker, L. L. 2015. More bark than bite? The role of livestock guarding dogs in predator control on Namibian farmlands. *Oryx* 50: 1–9.

- Potgieter, G. C. 2011. The effectiveness of livestock guarding dogs for livestock production and conservation in Namibia. MSc thesis. Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.
- Prugh, L. R., C. J. Stoner, C. W. Epps, W. T. Bean, W. J. Ripple, A. S. Laliberte, J. S. Brashares. 2009. The Rise of the Mesopredator. *BioScience* 59: 779-79
- Quinn, R. D. 1990. Habitat preferences and distribution of mammals in California chaparral. Res. Pap. PSW-202. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 11 p.
- Raine, R. M. and J. L. Kansas. 1990. Black Bear Seasonal Food Habits and Distribution by Elevation in Banff National Park, Alberta. Pages 297-304 *In* Bears: Their Biology and Management, Vol. 8, A Selection of Papers from the Eighth International Conference on Bear Research and Management, Victoria, British Columbia, Canada, 1989 (1990).
- Riley, S. P. D., J. Hadidian, and D. A. Manski. 1998. Population density, survival, and rabies in raccoons in an urban national park. *Canadian Journal of Zoology* 76:1153-1164.
- Ripple, W. J. and R. L. Beschta. 2006. Linking a cougar decline, trophic cascade, and catastrophic regime shift in Zion National Park. *Biological Conservation* 133:397-408.
- Ripple W. J., Beschta R. L. 2004. Wolves and the ecology of fear: Can predation risk structure ecosystems? *BioScience* 54: 755-766.
- Robinson H. S., R. B. Wielgus, H. S. Cooley, and S. W. Cooley SW. 2008. Sink populations in carnivore management: cougar demography and immigration in a hunted population. *Ecological Applications* 18:1028–1037.
- Roberts, N. M. and S. M. Crimmins. 2010. Bobcat population status and management in North America: Evidence of large-scale population increase. *Journal of Wildlife Management* 1(2):169-174.
- Roemer, G. W., C. J. Donlan, and F. Courchamp. 2002. Golden eagles, feral pigs, and insular carnivores: how exotic species turn native predators into prey. *Proc. Nat. Acad. Sci.*, 99: 791-796.
- Rosell, F., O. Bozser, P. Collen, and H. Parker. 2005. Ecological impact of beavers *Castor fiber* and *Castor canadensis* and their ability to modify ecosystems. *Mammal Review* 35(3-4):248-276.
- Seidler, R. G., R. A. Long, J. Berger, S. Bergen, and J. P. Beckmann. 2015. Identifying impediments to long-distance mammal migration. *Conservation Biology* 29(1):99-109.
- Scheick, B. K. and W. McCown. 2014. Geographic distribution of American black bears in North America. *Ursus* 25(1):24-33.

- Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Siemann, E., J.A. Carrillo, C. A. Gabler, R. Zipp, and W. E. Rogers. 2009. Experimental test of the impacts of feral hogs on forest dynamics and processes in the southeastern U.S. *Forest Ecology and Management* 258:546-553.
- Suraci, J. P., M. Clinchy, and L. Y. Zanette. 2017. Do large carnivores and mesocarnivores have redundant impacts on intertidal prey? *PLoS One* 12(1): e0170255.
- Sweaner L. L., K. A. Logan, and M. G. Hornocker. 2000. Cougar dispersal patterns, metapopulation dynamics, and conservation. *Conservation Biology* 14:798–808.
- Sweitzer, R. A., Van Vuren, D., Gardner, I. A., Boyce, W. M., and Waithman, J. D. 2000. Estimating sizes of wild pig populations in the North and Central Coast regions of California. *Journal of Wildlife Management*, 64(2), 531-542.
- Taylor, J. D., A. Morzillo, and A. M. Anderson. 2014. Estimating the total economic impact of black bear peeling in western Oregon using GIS and REMI. USDA National Wildlife Research Center – Staff Publications. 1791. Available at: https://digitalcommons.unl.edu/icwdm_usdawrc/1791.
- Texas A&M. 2012. Feral Hog Population Growth, Density and Harvest in Texas. Texas A&M University AgriLife Extension Service. Available at: <https://invasivespecies.wa.gov/documents/squealonthepigs/FeralHogPopGrowthDensity&HarvestinTX.pdf>.
- The Mendocino Voice. 2018. Rabies alert: wild fox tests positive in Ukiah. January 2, 2018. Available at: <https://www.mendovoice.com/2018/01/rabies-alert/>
- The Wildlife Society (TWS). 2014. Feral swine in North America. Issue statement. Bethesda, Maryland.
- Thornton, D. H. and D. L. Murray. 2014. Influence of hybridization on niche shifts in expanding coyote populations. *Diversity and Distributions* 20: 1355–1364
- Toigo, C., S. Servanty, J.M. Gailard, S. Brandt, and E. Baubet. 2008. Disentangling Natural from Hunting Mortality in an Intensively Hunted Wild Boar Population. *Journal of Wildlife Management*. 72(7): 1532-1539.
- Torres, S. G., T. M. Mansfield, J. E. Foley, T. Lupo, and A. Brinkhaus. 1996. Mountain lion and human activity in California: Testing speculations. *Wildlife Society Bulletin* 24:451–460.

- Trapp, G. R. and D. L. Hallberg. 1975. Ecology of the gray fox (*Urocyon cinereoargenteus*): a review. In: Fox, M. W., ed. The wild canids: Their systematics, behavioral ecology and evolution. Behavioral Science Series. New York: Van Nostrand Reinhold Company: 164-178.
- U.S Department of Agriculture (USDA). 2018a. Animal and Plant Health Inspection Service – California Wildlife Services Program, Mendocino County Take Data.
- _____. 2018b. Animal and Plant Health Inspection Service. Program Data Reports for Years 1997-2017 for California. Available at: https://www.aphis.usda.gov/aphis/ourfocus/wildlifedamage/SA_Reports.
- USDA Cooperative Extension. 2014. Food habits of feral hogs. October 9, 2012. Available online at: <https://articles.extension.org/pages/63655/food-habits-of-feral-hogs>.
- U.S. Fish and Wildlife Service. 2018a. Information for Planning and Consultation website. Available at: <https://ecos.fws.gov/ipac/>.
- _____. 2018b. Long-extinct eastern cougar to be removed from endangered species list correcting lingering anomaly. News bulletin, January 22, 2018. Available online at: https://www.fws.gov/northeast/ecougar/pdf/Cougar_News_Bulletin_Final_1_18.pdf.
- _____. 2018c. USFWS Threatened and Endangered Species Active Critical Habitat Report. Environmental Conservation Online System. Available online at: <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>.
- _____. 2017. Florida panther population estimate updated. Press release, February 22, 2017. Available online at: <https://www.fws.gov/southeast/news/2017/02/florida-panther-population-estimate-updated>.
- _____. 2016. Final Species Report, Fisher (*Pekania pennanti*), West Coast Population. Klamath Falls Fish and Wildlife Office, March 2016.
- _____. 2014. Subject: Informal Consultation on USDA APHIS California Wildlife Services Program Part II. Letter to Dennis Orthmeyer, State Director, California Office, APHIS-WS. April 15, 2014.
- _____. 2007. RE: Amended Biological Assessment for APHIS-WS Activities to Protect Livestock, Property, Human Health and Safety, and Natural Resources in the State of California. Letter to Craig Coolahan, State Director, California Office, APHIS-WS. May 8, 2007.
- _____. 2002. Draft Guidelines for Project-Related Habitat Assessments and Surveys for Point Arena Mountain Beaver (*Aplodontia rufa nigra*). Unpublished document on file at the Arcata Fish and Wildlife Office, Arcata, California.

- _____. 1998. Point Arena Mountain Beaver (*Aplodontia rufa nigra* (Rafinesque)) Recovery Plan. Region 1, Portland, OR. 71 pp.
- _____. 1976-2002. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Available online at: <http://www.fws.gov/wetlands/>
- U.S. Forest Service (USFS). 2018. CALVEG, ESRI file geodatabase, S_USA.EVMid_R05_NorCoastMid.gdb.zip and S_USA.EVMid_R05_NorCoastWest.gdb.zip, available at <https://data.fs.usda.gov/geodata/edw/datasets.php>. USDA-Forest Service, Pacific Southwest Region.
- van Bommel. 2016. Livestock guardian dogs as surrogate top predators? How Maremma sheepdogs affect a wildlife community. *Ecology and Evolution* 6(16):6702-6711.
- van Lanen, N. J., A. W. Green, T. R. Gorman, L. A. Quattrini, and D. C. Pavlacky Jr. 2017. Evaluating efficacy of fence markers in reducing greater sage-grouse collisions with fencing. *Biological Conservation* 213:70-83.
- Wade-Smith, J. and B. Verts. 1982. *Mephitis mephitis*. *Mammalian Species*, 173: 1-7.
- Westbrook, C. J., D. J. Cooper, and B. W. Baker. 2006. Beaver dams and overbank floods influence groundwater–surfacewater interactions of a Rocky Mountain riparian area. *Water Resources Research* 42:1-12.
- White, C. G., P. Zager, and M. W. Gratson. 2010. Influence of Predator Harvest, Biological Factors, and Landscape on Elk Calf Survival in Idaho. *Journal of Wildlife Management* 74(3):355-359
- Woods II, H. and E. Hellgren. 2003. Seasonal changes in the physiology of male Virginia opossums (*Didelphis virginiana*): Sign of the dasyurid semelparity syndrome. *Physiological and Biochemical Zoology*, 76:3: 406-417.
- Zeiner, David C., William F. Laudenslayer, Kenneth E. Mayer and Marshal White, Eds. 1988-1990. California's wildlife, volume I, amphibians and reptiles, volume II, birds, and volume III, mammals. Department of Fish and Game. Sacramento, CA. (Online: <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>).

APPENDIX A: REGULATORY FRAMEWORK

CITY AND COUNTY GENERAL PLANS

In California, cities and counties are required to adopt general plans to guide future development. General plans must address a range of topics or “elements” related to planning and growth, including land use, circulation, housing, conservation, open space, noise, safety, environmental justice, and air quality. Cities and counties partially located within California’s designated coastal zone, a swath of land and water subject to the jurisdiction of the California Coastal Commission as established by the California Coastal Act of 1976, must undertake land use planning separately for this zone; this can be accomplished by including a coastal element in the larger general plan, or by adopting a separate coastal general plan. For each element of a general plan, specific goals must be identified, with an accompanying set of policies and implementation measures to ensure the goal can be achieved. Most general plans address biological resources in some form, usually as part of their open space, conservation, and coastal elements.¹

Six general plans are in effect in Mendocino County. These are the County of Mendocino General Plan, the City of Ukiah General Plan, the City of Willits General Plan, the City of Fort Bragg Inland General Plan, the City of Fort Bragg Coastal General Plan, and the City of Point Arena General Plan / Local Coastal Plan. Each city general plan applies to that city’s incorporated area and a larger sphere of influence surrounding the incorporated area. The County of Mendocino General Plan applies to all portions of the County outside of the four incorporated areas, save tribal lands.

County of Mendocino General Plan

The County of Mendocino General Plan was adopted in 2009, except the *Coastal* and *Housing* elements, which were adopted in 1991 and 2015, respectively. Goals, policies, and implementation measures related to biological resources are found in the *Resource Management* and *Coastal* elements of the plan (County of Mendocino 2009). Goals and policies from these elements that pertain to biological resources and are relevant to the IWDM Program Project and/or alternatives include, but are not limited to:

- Protect stream corridors and associated riparian habitat.

- Protect, use, and manage the county’s farmlands, forests, water, air, soils, energy, and other natural resources in an environmentally sound and sustainable manner.
- Conserve, restore, and enhance natural resources, sensitive environments, and ecological integrity.
- Ensure that discretionary projects avoid impacts to special status species and their habitat to the maximum extent feasible. Where impacts cannot be avoided, projects shall adopt effective mitigation strategies in consultation with state and federal resource agencies.
- Ensure that discretionary projects avoid impacts to wetlands or provide for no-net-loss wetland mitigation consistent with state and federal regulations.
- Ensure that projects retain movement corridors to allow for continued wildlife use.
- Promote land uses and management practices that protect biological diversity and productivity.
- Conserve native vegetation, critical habitats, and soil resources.
- Encourage farmers, land owners, and property managers to protect sensitive resources.
- Promote techniques and features such as habitat contiguity, wildlife corridors, and maintaining habitat for sensitive plant and animal species.
- In rural areas, promote vegetation and landscape management programs that protect wildlife and livestock habitat, discourage pest species and non-native species, reduce wildfire risk, and conserve water resources.
- Protect “pygmy” ecosystems by minimizing vegetation removal, disruption of vegetation continuity, and introduction of anthropogenic water and nutrients.
- Protect wildlife and livestock from depredation by domestic animals.
- Promote sustainable forest management practices.
- Preserve and protect dunes as environmentally sensitive habitats.
- Treat any pygmy forests containing rare or endangered plants as environmentally sensitive habitats.
- Maintain, enhance, and where feasible, restore marine resources; afford special protection for areas and species of biologic or economic significance; sustain biologic productivity of coastal waters.

City of Ukiah General Plan

The City of Ukiah General Plan was adopted in 1995. The *Open Space and Conservation* element of the plan contains a number of goals, policies, and implementation measures related to biological resources (City of Ukiah 1995). Goals and policies pertaining to biological resources and relevant to the IWDM Program Project and/or alternatives include, but are not limited to:

- Ensure the health and viability of the Russian River and its tributaries.
- Maintain river bed and banks for flood control, water delivery, and fish habitat.
- Maintain the Russian River as a natural riparian corridor.
- Conserve coastal oak woodlands in the planning area's hills.
- Conserve and replenish valley oaks in the Valley.
- Limit public access where necessary to protect important fish habitat.

City of Willits General Plan

The City of Willits General Plan was adopted in 1992. The *Conservation and Open Space* element has an overall goal of ensuring that the future growth of Willits occurs in a manner that minimizes adverse impacts on the City's vegetation, wildlife, open space, and natural resources. This goal is to be achieved through a number of policies and implementation measures related to biological resources (City of Willits 1992), though mostly unrelated to the IWDM Program Project and alternatives. The only policy that pertains to the project and alternatives is a general requirement to "conserve, to the greatest feasible extent, the City's existing natural resources, with particular emphasis on air and water quality, open space, tree preservation, and riparian maintenance and enhancement."

City of Fort Bragg General Plans

The City of Fort Bragg has two general plans, one for areas within the designated coastal zone, and one for inland areas. The Coastal General Plan was adopted in 2008 and the Inland General Plan was adopted in 2013. Goals, policies, and implementation measures related to biological resources can be found in the *Conservation, Open Space, Energy, and Parks* element of both the

Coastal (City of Fort Bragg 2008) and Inland plans (City of Fort Bragg 2013). Goals and policies from these plans that pertain to biological resources and are relevant to the IWDM Program Project and/or alternatives include, but are not limited to:

- Designate areas in the City containing watercourse, wetlands, sensitive plant and wildlife habitat, and forested land Special Review Areas.
- Require that sensitive natural resources in Special Review Areas be preserved and protected to the maximum degree feasible.
- Ensure that projects proposed in forested areas meet the requirements of the Special Review Areas.
- To the maximum extent feasible, preserve, protect, and restore streams and creeks to their natural state.
- Ensure protection of water resources from pollution and sedimentation.
- Conserve and enhance a variety of open space features including creeks, wildlife habitats, and other amenities.
- Preserve and enhance the City's Environmentally Sensitive Habitat Areas (ESHAs), limiting development and requiring appropriate mitigation.
- Prohibit vegetation removal in ESHAs other than as specified in the General Plan.
- Preserve native plant and animal species and their habitat.
- Maintain, enhance, and where feasible, restore marine resources; afford special protection for areas and species of biologic or economic significance; sustain biologic productivity of coastal waters.

City of Point Arena General Plan / Local Coastal Plan

The City of Point Arena's General Plan / Local Coastal Plan was adopted in 1995 and revised in 2006. Goals, policies, and implementation measures related to biological resources can be found in the *Land Use and Development*, *Open Space and Conservation*, and *Coastal* elements of this plan (Appendices S, T, and U, respectively). Policies from these elements that pertain to biological resources and are relevant to the IWDM Program Project and/or alternatives include, but are not limited to:

- Sensitive habitat areas shall be preserved.
- No activity on any property shall be allowed to discharge harmful pollutants or untreated runoff into waters at the Cove, or into any creek, or into the air.
- North-facing slopes south of Point Arena Creek in the annexation area represent confirmed Point Arena mountain beaver habitat that shall be set aside for protection of the small populations of this sensitive species.
- ESHAs shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.
- Every effort should be made to enhance wildlife habitats and maintain wildlife travel corridors along waterways and within riparian corridors, within the city and its environs.
- The City shall protect the non-developed flat areas of Arena Cove as a flood basin, wildlife habitat, and critical link in the Arena Creek life-chain.
- The City recognizes the marine resources and seashore habitats of the area and shall strive to protect these resources.
- The City shall protect water resources and quality and shall allow no discharging of harmful pollutants into any waterway.
- Riparian buffer areas shall be maintained to preserve and protect the valuable wildlife habitats provided by riparian areas along streams and creeks.
- The City shall establish a 500-foot riparian setback area from the centerline of Point Arena Creek to protect potential habitat for the Point Arena mountain beaver.
- The City recognizes that the main values of Arena Creek are its biologic importance, its aesthetic qualities, its natural habitats, and its contribution to the biology of the waters of Arena Cove, and shall strive to protect this resource.
- Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance.
- The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms shall be maintained and, where feasible, restored.
- Fencing or walls that do not permit the free passage of wildlife shall be prohibited in any wildlife corridor. Fencing adjacent to ESHAs shall be sited and designed to be wildlife permeable, enabling wildlife to pass through.

MENDOCINO COUNTY CODE

The Mendocino County Code contains a number of measures related to biological resources. Chapter 20.496 of the Coastal Zoning Code sets forth the County's regulations in "environmentally sensitive habitat and other resource areas." Most such regulations pertain to development and are therefore not relevant to the IWD Program Project and alternatives. However, Section 20.496.025 presents a list of specific activities that are allowed in wetlands and estuaries, and Section 20.496.040 presents a list of specific activities allowed in dunes. Section 20.496.035 prohibits activities in riparian corridors and areas of riparian vegetation that "could degrade the riparian area or diminish its value as a natural resource," with certain exceptions.

THREATENED AND ENDANGERED SPECIES

In California, imperiled plants and animals may be afforded special legal protections under the California Endangered Species Act (CESA) and/or Federal Endangered Species Act (FESA). Species may be listed as "threatened" or "endangered" under one or both Acts, and/or as "rare" under CESA. Under both Acts, "endangered" means a species is in danger of extinction throughout all or a significant portion of its range, and "threatened" means a species is likely to become endangered within the foreseeable future. Under CESA, "rare" means a species may become endangered if their present environment worsens. Both Acts prohibit "take" of listed species, defined under CESA as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86), and more broadly defined under FESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3).

Projects that may result in the "take" of listed species must generally enter into consultation with the USFWS and/or CDFW pursuant to FESA and CESA, respectively. In some cases, incidental take authorization(s) from these agencies may be required before the project can be implemented.

CALIFORNIA FULLY PROTECTED SPECIES

The classification of certain animal species as "fully protected" was the State of California's initial effort in the 1960s, prior to the passage of the California Endangered Species Act, to identify and provide additional protection to those species that were rare or faced possible extinction.

Following CESA enactment in 1970, many fully protected species were also listed as California threatened or endangered. Fully protected species are identified, and their protections stipulated, in California Fish and Game Code (FGC) Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and fish (5515). Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take, except in conjunction with necessary scientific research and protection of livestock.

DESIGNATED CRITICAL HABITAT

As discussed in Section 2.5, the USFWS often designates areas of “critical habitat” when it lists species as threatened or endangered. Critical habitat is defined by section 3(5)(A) of the federal Endangered Species Act as “(i) The specific areas within the geographic area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.” The Act goes on to define “conservation” as “the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which listing under the Act is no longer necessary.”

The designation of a specific area as critical habitat does not directly affect its ownership. Federal actions that result in destruction or adverse modification of critical habitat are, however, prohibited in the absence of prior consultation with the USFWS according to provisions of the act. Furthermore, recent appellate court cases require that federal actions affecting critical habitat promote the recovery of the listed species protected by the critical habitat designation.

The USFWS designates critical habitat for a species by identifying general areas likely to contain the species’ “primary constituent elements,” or physical or biological features of the landscape that the species needs to survive and reproduce. Although a unit of critical habitat for a particular species may be quite large, only those lands within the unit that contain the species’ primary constituent elements are actually considered critical habitat by the USFWS.

HABITAT CONSERVATION PLANS AND NATURAL COMMUNITY CONSERVATION PLANS

Section 10 of the federal Endangered Species Act establishes a process by which non-federal projects can obtain authorization to incidentally take listed species, provided take is minimized and thoroughly mitigated. A Habitat Conservation Plan (HCP), developed by the project applicant in collaboration with the USFWS and/or NMFS, ensures that such minimization and mitigation will occur, and is a prerequisite to the issuance of a federal incidental take permit. Similarly, a Natural Community Conservation Plan (NCCP), developed by the project applicant in collaboration with CDFW, provides for the conservation of biodiversity within a project area, and permits limited incidental take of state-listed species.

There is one HCP in effect in Mendocino County, and a combined HCP/NCCP that is currently under development. The Fisher Family HCP was adopted in 2007. It covers approximately 24 acres of coastal scrub in Point Arena, and authorizes limited incidental take of the federally endangered Behren's silverspot butterfly (*Speyeria zerene behrensii*) and Point Arena mountain beaver (*Aplodontia rufa nigra*) associated with development and occupancy of a home site. The HCP establishes two conservation areas totaling 7.75 acres that are designed to protect, in perpetuity, occupied and potential habitat for the covered species. The HCP also requires implementation of certain measures to minimize take of the covered species. Measures that may be relevant to the IWDM Program Project and alternatives include:

- No rodenticide use is allowed within the conservation areas.
- Pesticide use elsewhere on the property must be conducted in accordance with the Environmental Protection Agency (EPA)'s 1998 *Interim Measures for Use of Rodenticides in Mendocino County* (EPA 1998). Specifically:
 - (1) Application of burrow fumigants must be supervised by a person trained to distinguish the dens and burrows of target species from those of non-target species
 - 2) Use of burrow fumigants is restricted to the active burrows of target species
 - 3) Use of burrow fumigants is prohibited within 500 feet of water courses except in cultivated areas

- 4) Rodent baits must be placed in tamper-resistant bait boxes in areas inaccessible to wildlife.
- No vehicles of any kind will be allowed within the conservation areas.
 - No domestic or feral animals of any kind will be allowed in the conservation areas including domestic cats, dogs, horses, cattle, or other livestock.

The Mendocino Redwood Company (MRC) HCP/NCCP, is being developed by MRC, CDFW, USFWS, NMFS, and other stakeholders for approximately 232,000 acres of coastal forest that is in timber production. It is anticipated that it will cover 42 special status plants and animals, many of which are listed under the state and/or federal Endangered Species Acts. Because the HCP/NCCP has not yet been adopted, it is unknown, at present, whether it will include conservation measures relevant to the IWDM Program Project and alternatives.

MIGRATORY BIRDS

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Although the USFWS and its parent administration, the U.S. Department of the Interior, have traditionally interpreted the FMBTA as prohibiting incidental as well as intentional take of birds, a January 2018 legal opinion issued by the Department of the Interior now states that incidental take of migratory birds while engaging in otherwise lawful activities is permissible under the FMBTA. However, California FGC makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

BIRDS OF PREY

Birds of prey are protected in California under provisions of the FGC (Section 3503.5), which states that it is unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and eagles) or Strigiformes (owls), as well as their nests and eggs. The bald eagle and golden eagle are afforded additional protection under the federal Bald and Golden Eagle Protection Act (16 USC 668), which makes it unlawful to kill birds or their eggs.

NESTING BIRDS

In California, protection is afforded to the nests and eggs of all birds. FGC Section 3503 states that it is “unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of “take” by the CDFW.

DEPREDATION PERMITS

In certain situations, CDFW may issue depredation permits to individuals reporting property damage or loss caused by wildlife. Depredation permits allow the permit holder to lawfully take the problematic animal regardless of time of year or the species’ legal status. For example, cougars may not be legally hunted in California, but may be taken under the authority of a depredation permit issued pursuant to FGC Section 4802. Depredation permits may also be issued for elk (FGC Section 4181), deer (FGC Section 4181.5), wild turkeys (FGC Section 4181), feral swine (FGC Section 4181), and black bears (FGC Section 4181). Depredation take by WS-CA requires a depredation permit from CDFW.

Certain animals may be taken immediately, without the need for a depredation permit, if they are in the act of damaging property. These include black bears (Section 4181.1), feral swine (Section 4181.1), fur-bearing mammals (Section 4180), and nongame mammals (Section 4152). Depending on the species, the method of taking may be regulated and/or CDFW may need to be notified following the taking.

WETLANDS AND OTHER JURISDICTIONAL WATERS

The USACE regulates the filling or grading of Waters of the U.S. under the authority of Section 404 of the Clean Water Act. Waters of the U.S. are defined in the 2015 Clean Water Rule as including the following:

- 1) All waters used in interstate or foreign commerce (also known as traditional navigable waters), including all waters subject to the ebb and flow of the tide;
- 2) All interstate waters including interstate wetlands;
- 3) The territorial seas;
- 4) All impoundments of Waters of the U.S.;
- 5) All tributaries of waters defined in Nos. 1 through 4 above, where “tributary” refers to a water (natural or constructed) that contributes flow to another water and is characterized by the physical indicators of a bed and bank and an ordinary high water (OHW) mark;
- 6) Adjacent waters, defined as either (a) located in whole or in part within 100 feet of the OHW mark of waters defined in Nos. 1 through 5 above, or (b) located in whole or in part within the 100-year floodplain and within 1,500 feet of the OHW mark of waters defined in Nos. 1 through 5 above;
- 7) Western vernal pools, prairie potholes, Carolina bays and Delmarva bays, pocosins, and Texas coastal prairie wetlands, if determined on a case-specific basis to have a significant nexus to waters defined in Nos. 1 through 3 above;
- 8) Waters that do not meet the definition of adjacency, but are determined on a case-specific basis to have a significant nexus to waters defined in Nos. 1 through 3 above, and are either (a) located in whole or in part within the 100-year floodplain of waters defined in Nos. 1 through 3 above, or (b) located within 4,000 feet of the OHW mark of waters defined in Nos. 1 through 5 above.

Under the Clean Water Rule, the following are categorically excluded from the definition of Waters of the U.S.:

- 1) Waste treatment systems;
- 2) Prior converted cropland;
- 3) Artificially irrigated areas that would revert to dry land should application of irrigation water to the area cease;
- 4) Groundwater and groundwater recharge basins;

- 5) Storm water control features constructed to convey treat or store storm water created in dry land; and
- 6) Three types of ditches: (a) ditches with ephemeral flow that are not a relocated or excavated tributary, (b) ditches with intermittent flow that are not a relocated or excavated tributary or that do not drain wetlands, and (c) ditches that do not flow, either directly or through another water, to a traditional navigable water.

The limit of USACE jurisdiction in Waters of the U.S. is the OHW mark for inland waters and the high tide mark for the territorial seas. All activities that involve the discharge of dredge or fill into areas of USACE jurisdiction are subject to Section 404 permitting. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No Section 404 permit can be issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet state water quality standards.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board has regulatory authority to protect the water quality of all surface water and groundwater in the State of California (“Waters of the State”). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the U.S., require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a Water of the U.S. may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

**APPENDIX B: MENDOCINO COUNTY WS-CA TARGET INTENTIONAL TAKE
(1997-2017)**

Appendix B. Mendocino County WS-CA Target Intentional Take (1997-2017)

Common Species Name (Scientific name)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Grand Total	Annual Average
American Badger (<i>Taxidea taxus</i>)	0	0	0	0	3	2	0	3	1	0	2	1	0	0	0	0	0	0	0	0	0	12	0.57
Black Bear (<i>Ursus americanus</i>)	3	10	8	14	6	16	22	13	9	21	12	12	8	16	26	12	9	13	8	9	14	261	12.43
Black-tailed Deer (<i>Odocoileus hemionus</i>)	0	1	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	5	1	4	0	15	0.71
Bobcat (<i>Lynx rufus</i>)	5	1	4	10	9	5	3	12	3	7	4	4	7	1	8	7	5	7	4	4	2	112	5.33
California Ground Squirrel (<i>Otospermophilus beecheyi</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	20	0.95
Cats - Feral and Free-ranging (<i>Felis silvestris catus</i>)	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0.14
Common Raven (<i>Corvus corax</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4	0.19
Cougar (<i>Puma concolor</i>)	12	13	9	15	10	15	11	14	14	7	9	5	2	6	10	4	4	2	2	9	8	181	8.62
Coyote (<i>Canis latrans</i>)	151	127	136	244	241	254	241	232	227	216	272	212	210	180	152	149	175	191	171	172	166	4,119	196.14
Dogs - Feral, Free-ranging, and Hybrids (<i>Canis lupus familiaris</i>)	0	0	3	9	16	16	12	28	12	15	14	26	26	8	10	6	8	14	0	8	3	234	11.14
Elk (<i>Cervus canadensis</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0.10
European Starling (<i>Sturnus vulgaris</i>)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	0.29
Feral Swine (<i>Sus scrofa</i>)	1	0	3	7	0	1	2	29	2	2	0	26	28	34	87	43	21	41	91	38	36	492	23.43
Gray Fox (<i>Urocyon cinereoargenteus</i>)	18	11	1	13	10	29	11	10	6	7	3	3	9	1	9	14	3	18	16	20	23	235	11.19
North American Porcupine (<i>Erethizon dorsatum</i>)	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	2	0	0	6	0.29
Raccoon (<i>Procyon lotor</i>)	10	20	30	65	45	50	51	60	73	33	20	14	32	28	51	43	35	41	67	57	43	868	41.33
Red Fox (<i>Vulpes vulpes</i>)	1	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	8	0.38
Rock Dove (<i>Columba livia</i>)	0	0	98	166	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	13.43
Striped Skunk (<i>Mephitis mephitis</i>)	28	34	88	52	49	70	64	101	85	41	29	86	68	57	67	71	55	45	43	75	79	1,287	61.29
Unknown Ground Squirrel	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0.38
Unknown Snake (Poisonous and Non-Poisonous)	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.10
Virginia Opossum (<i>Didelphis virginiana</i>)	3	10	12	7	3	5	11	18	12	16	17	14	17	3	11	14	9	7	7	19	18	233	11.10
Western Gray Squirrel (<i>Sciurus griseus</i>)	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0.19
Western Spotted Skunk (<i>Spilogale gracilis</i>)	0	0	1	0	0	0	0	1	0	2	1	0	0	1	2	2	4	7	0	0	1	22	1.05
Total Animals Taken	234	227	393	613	410	463	428	525	446	375	383	403	411	335	457	365	329	392	418	416	393	8,416	400.76

Source: USDA 2018a

**APPENDIX C: MENDOCINO COUNTY WS-CA TARGET UNINTENTIONAL TAKE
(2008-2017)**

Appendix C. Mendocino County WS-CA Target Unintentional Take (2008-2017)

Common Species Name (Scientific name)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Grand Total	Annual Average
American Badger (<i>Taxidea taxus</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Black Bear (<i>Ursus americanus</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Black-tailed Deer (<i>Odocoileus hemionus</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Bobcat (<i>Lynx rufus</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
California Ground Squirrel (<i>Otospermophilus beecheyi</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Cats - Feral and Free-ranging (<i>Felis silvestris catus</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Common Raven (<i>Corvus corax</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Cougar (<i>Puma concolor</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Coyote (<i>Canis latrans</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Dogs - Feral, Free-ranging, and Hybrids (<i>Canis lupus familiaris</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Elk (<i>Cervus canadensis</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
European Starling (<i>Sturnus vulgaris</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Feral Swine (<i>Sus scrofa</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	1	0	0	1	0.10
Gray Fox (<i>Urocyon cinereoargenteus</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	1	1	0.10
North American Porcupine (<i>Erethizon dorsatum</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Raccoon (<i>Procyon lotor</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	4	1	0	0	0	0	5	0.50
Red Fox (<i>Vulpes vulpes</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Rock Dove (<i>Columba livia</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Striped Skunk (<i>Mephitis mephitis</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	1	1	1	1	0	0	4	0.40
Unknown Ground Squirrel	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Unknown Snake (Poisonous and Non-Poisonous)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Virginia Opossum (<i>Didelphis virginiana</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	2	0	0	0	0	0	2	0.20
Western Gray Squirrel (<i>Sciurus griseus</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Western Spotted Skunk (<i>Spilogale gracilis</i>)	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0
Total Animals Taken	-	-	-	-	-	-	-	-	-	-	-	0	0	0	0	7	2	1	2	0	1	13	1.30

- Data unavailable

Source: USDA 2018a

**APPENDIX D: MENDOCINO COUNTY WS-CA NON-TARGET UNINTENTIONAL
TAKE (2007-2017)**

Appendix D. Mendocino County WS-CA Non-Target Unintentional Take (2007-2017)

Common Species Name (Scientific name)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Grand Total	Annual Average
American Badger (<i>Taxidea taxus</i>)	-	-	-	-	-	-	-	-	-	-	2	0	0	0	0	0	0	0	0	0	0	2	0.18
Black Bear (<i>Ursus americanus</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Black-tailed Deer (<i>Odocoileus hemionus</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	5	1	4	0	10	0.91
Bobcat (<i>Lynx rufus</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
California Ground Squirrel (<i>Otospermophilus beecheyi</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Cats - Feral and Free-ranging (<i>Felis silvestris catus</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Common Raven (<i>Corvus corax</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Cougar (<i>Puma concolor</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Coyote (<i>Canis latrans</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Dogs - Feral, Free-ranging, and Hybrids (<i>Canis lupus familiaris</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Elk (<i>Cervus canadensis</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	1	0	1	0.09
European Starling (<i>Sturnus vulgaris</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Feral Swine (<i>Sus scrofa</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	1	0	0	0	0	0	0	0	1	0.09
Gray Fox (<i>Urocyon cinereoargenteus</i>)	-	-	-	-	-	-	-	-	-	-	0	1	0	0	2	0	0	0	1	1	1	6	0.55
North American Porcupine (<i>Erethizon dorsatum</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	1	2	0	0	3	0.27
Raccoon (<i>Procyon lotor</i>)	-	-	-	-	-	-	-	-	-	-	1	0	0	0	1	0	1	0	1	0	1	5	0.45
Red Fox (<i>Vulpes vulpes</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Rock Dove (<i>Columba livia</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Striped Skunk (<i>Mephitis mephitis</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	1	1	0.09
Unknown Ground Squirrel	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Unknown Snake (Poisonous and Non-Poisonous)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Virginia Opossum (<i>Didelphis virginiana</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Western Gray Squirrel (<i>Sciurus griseus</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Western Spotted Skunk (<i>Spilogale gracilis</i>)	-	-	-	-	-	-	-	-	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Total Animals Taken	-	-	-	-	-	-	-	-	-	-	3	1	0	1	3	0	1	6	5	6	3	29	2.64

- Data unavailable

Source: USDA 2018a

APPENDIX E: BLACK BEAR POPULATION AND TAKE ESTIMATES

**APPENDIX E
BLACK BEAR POPULATION AND TAKE ESTIMATES**

Mendocino County Population Estimate*		
Suitable Mendocino County Land Area (Square Miles) ¹		3,335
Low Density (Individuals per Square Mile) ²		0.58
High Density (Individuals per Square Mile) ²		0.77
Sex Ratio (Percentage of Females) ²		50%
Litter Size ²		1.6
Mortality ³		26.93%
	Low	High
Total Adults (Land Area X Density)	1,935	2,565
Breeding Females (Total Adults X Sex Ratio)	970	1,285
Young at Den (Breeding Females X Breeding Success X Litter Size)	1,550	2,055
County Population Before Mortality (Total Adults + Young at Den)	3,485	4,620
County Population After Mortality ((Total Adults + Young at Den) X (1-Natural Mortality))	2,545	3,375

California Population Estimate*	
California Low Population Estimate After Mortality ²	30,000

Mendocino County WS-CA Baseline Take	
Annual Average of Mendocino County WS-CA Take (1997-2017) ⁴	13
Annual Average of Mendocino County WS-CA Take Compared to Mendocino County Low Population	0.51%
Annual Average of Mendocino County WS-CA Take Compared to California Low Population	0.04%
Percent Highest Historic Mendocino County WS-CA Take (26) ⁴ of Mendocino County Low Population Estimate	1.02%
Percent Highest Historic Mendocino County WS-CA Take (26) ⁴ of California Low Population Estimate	0.09%

California WS-CA Baseline Take	
Annual Average of California WS-CA Take (1997-2017) ⁵	105

Mendocino County WS-CA Take Compared to California WS-CA Take	
Annual Average of Mendocino County WS-CA Take Compared to Annual Average of California WS-CA Take	12.38%

Notes:

1. Total all land and habitats in Mendocino County (USFS 2018), as summarized in Table 2-2
- 2: From CDFW Black Bear Informational Pages (CDFW 2018b)
- 3: From Bunnell and Tait 1985. Conservative average of cub (30%) subadult (35%) and adult (17.2% for female and 25.5% for male)
4. Mendocino County take data from WS-CA (USDA 2018a), as summarized in Table 2-9
5. California take data from WS-CA (USDA 2018b), as summarized in Appendix N.

*Populations estimates are rounded to the nearest multiple of five. These estimates were calculated using information from sources on the internet, often from locations outside of Mendocino County and California, and should not be considered precise.

APPENDIX F: BOBCAT POPULATION AND TAKE ESTIMATES

**APPENDIX F
BOBCAT POPULATION AND TAKE ESTIMATES**

Mendocino County Population Estimate*		
Suitable Mendocino County Land Area (Square Miles) ¹		3,410
Low Density (Individuals per Square Mile) ²		0.55
High Density (Individuals per Square Mile) ²		0.58
Sex Ratio (Percentage of Females) ²		50%
Female Breeding Success ²		53%
Litter Size ²		2.7
Natural Mortality ^{2,3}		31.38%
	Low	High
Total Adults (Land Area X Density)	1,875	1,980
Breeding Females (Total Adults X Sex Ratio)	940	990
Young at Den (Breeding Females X Breeding Success X Litter Size)	1,345	1,415
County Population Before Natural Mortality (Total Adults + Young at Den)	3,220	3,395
County Population After Natural Mortality ((Total Adults + Young at Den) X (1-Natural Mortality))	2,210	2,330

California Population Estimate*	
California Low Population Estimate After Natural and Harvest Mortality ²	81,610

Mendocino County WS-CA Baseline Take	
Annual Average of Mendocino County WS-CA Take (1997-2017) ⁴	6
Annual Average of Mendocino County WS-CA Take Compared to Mendocino County Low Population	0.27%
Annual Average of Mendocino County WS-CA Take Compared to California Low Population	0.01%
Percent Highest Historic Mendocino County WS-CA Take (12) ⁴ of Mendocino County Low Population Estimate	0.54%
Percent Highest Historic Mendocino County WS-CA Take (12) ⁴ of California Low Population Estimate	0.01%

California WS-CA Baseline Take	
Annual Average of California WS-CA Take (1997-2017) ⁵	63

Mendocino County WS-CA Take Compared to California WS-CA Take	
Annual Average of Mendocino County WS-CA Take Compared to Annual Average of California WS-CA Take	9.52%

- Notes:
1. Total all land and habitats in Mendocino County (USFS 2018), as summarized in Table 2-2
 - 2: From CDFG 2004
 - 3: Calculated using estimations of natural mortality from CDFG 2004 (Natural Causes/Population Before Mortality)
 4. Mendocino County take data from WS-CA (USDA 2018a), as summarized in Table 2-9
 5. California take data from WS-CA (USDA 2018b), as summarized in Appendix N

*Populations estimates are rounded to the nearest multiple of five. These estimates were calculated using information from sources on the internet, often from locations outside of Mendocino County and California, and should not be considered precise.

APPENDIX G: COUGAR POPULATION AND TAKE ESTIMATES

**APPENDIX G
COUGAR POPULATION AND TAKE ESTIMATES**

Mendocino County Population Estimate*		
Suitable Mendocino County Land Area (Square Miles) ¹		2,992
	Individuals per Square Mile	Total Individuals (Individuals per Square Mile X Land Area)
Low Density ²	0.018 (0.014 adults)	55 (43 adults)
High Density ³	0.044	130

California Population Estimate*	
California Low Population Estimate ³	3,100

Mendocino County WS-CA Baseline Take	
Annual Average of Mendocino County WS-CA Take (1997-2017) ⁴	9
Annual Average of Mendocino County WS-CA Take Compared to Mendocino County Low Population	16.36% (20.93% adults)
Annual Average of Mendocino County WS-CA Take Compared to California Low Population	0.29%
Percent Highest Historic Mendocino County WS-CA Take (15) ⁴ of Mendocino County Low Population Estimate	27.27% (34.88% adults)
Percent Highest Historic Mendocino County WS-CA Take (15) ⁴ of California Low Population Estimate	0.48%

California WS-CA Baseline Take	
Annual Average of California WS-CA Take (1997-2017) ⁵	103

Mendocino County WS-CA Take Compared to California WS-CA Take	
Annual Average of Mendocino County WS-CA Take Compared to Annual Average of California WS-CA Take	8.74%

Notes:

1. Total all land and habitats in Mendocino County (USFS 2018), as summarized in Table 2-2
2. From Allen et. al. (2015). Low density calculated by using 0.68 individuals (0.55 adults) per 100 km² and dividing by 38.6102 (i.e. number of square miles per 100km²).
3. From Mountain Lion Foundation (2018). Calculated by dividing 1.7 individuals per 100 km² by 38.6102 (i.e. number of square miles per 100km²)
4. Mendocino County take data from WS-CA (USDA 2018a), as summarized in Table 2-9.
5. California take data from WS-CA (USDA 2018b), as summarized in Appendix N.

*Populations estimates are rounded to the nearest multiple of five. These estimates were calculated using information from sources on the internet, often from locations outside of Mendocino County and California, and should not be considered precise.

APPENDIX H: COYOTE POPULATION AND TAKE ESTIMATES

**APPENDIX H
COYOTE POPULATION AND TAKE ESTIMATES**

Mendocino County Population Estimate*		
Suitable Mendocino County Land Area (Square Miles) ¹		3,472
Low Density (Individuals per Square Mile) ²		1
High Density (Individuals per Square Mile) ²		5
Sex Ratio (Percentage of Females) ²		50%
Female Breeding Success ²		65%
Litter Size ²		5.5
Natural Mortality ^{2,3}		32.83%
	Low	High
Total Adults (Land Area X Density)	3,470	17,360
Breeding Females (Total Adults X Sex Ratio)	1,735	8,680
Young at Den (Breeding Females X Breeding Success X Litter Size)	6,205	31,030
County Population Before Natural Mortality (Total Adults + Young at Den)	9,675	48,390
County Population After Natural Mortality ((Total Adults + Young at Den) X (1-Natural Mortality))	6,500	32,500
California Population Estimate*		
California Low Population Estimate After Natural and Harvest Mortality ²		227,820
Mendocino County WS-CA Baseline Take		
Annual Average of Mendocino County WS-CA Take (1997-2017) ⁴		197
Annual Average of Mendocino County WS-CA Take Compared to Mendocino County Low Population		3.03%
Annual Average of Mendocino County WS-CA Take Compared to California Low Population		0.09%
Percent Highest Historic Mendocino County WS-CA Take (272) ⁴ of Mendocino County Low Population Estimate		4.18%
Percent Highest Historic Mendocino County WS-CA Take (272) ⁴ of California Low Population Estimate		0.12%
California WS-CA Baseline Take		
Annual Average of California WS-CA Take (1997-2017) ⁵		6,365
Mendocino County WS-CA Take Compared to California WS-CA Take		
Annual Average of Mendocino County WS-CA Take Compared to Annual Average of California WS-CA Take		3.10%

Notes:

1. Total all land and habitats in Mendocino County (USFS 2018), as summarized in Table 2-2

2: From CDFG 2004

3: Calculated using estimations of natural mortality from CDFG 2004 (Natural Causes/Population Before Mortality)

4. Mendocino County take data from WS-CA (USDA 2018a), as summarized in Table 2-9

5. California take data from WS-CA (USDA 2018b), as summarized in Appendix N.

*Populations estimates are rounded to the nearest multiple of five. These estimates were calculated using information from sources on the internet, often from locations outside of Mendocino County and California, and should not be considered precise.

APPENDIX I: FERAL SWINE POPULATION AND TAKE ESTIMATES

**APPENDIX I
FERAL SWINE POPULATION AND TAKE ESTIMATES**

Mendocino County Population Estimate		
Suitable Mendocino County Land Area (Square Miles) ¹		2,346
Low Density (Individuals per Square Mile) ²		1.81
High Density (Individuals per Square Mile) ²		9.84
Sex Ratio (Percentage of Females) ³		50%
Numbers of Litters Per Year ³		1.5
Litter Size ³		5.64
Natural Mortality ⁴		15.00%
	Low	High
Total Adults (Land Area X Density)	4,245	23,085
Breeding Females (Total Adults X Sex Ratio)	2,125	11,545
Young at Den (Breeding Females X Breeding Success X Litter Size)	17,980	97,670
County Population Before Natural Mortality (Total Adults + Young at Den)	22,225	120,755
County Population After Natural Mortality ((Total Adults + Young at Den) X (1-Natural Mortality))	18,890	102,640

California Population Estimate	
California Low Population Estimate After Natural and Harvest Mortality ⁵	200,000

Mendocino County WS-CA Baseline Take	
Annual Average of Mendocino County WS-CA Take (1997-2017) ⁶	24
Annual Average of Mendocino County WS-CA Take Compared to Mendocino County Low Population	0.13%
Annual Average of Mendocino County WS-CA Take Compared to California Low Population	0.01%
Percent Highest Historic Mendocino County WS-CA Take (91) ⁶ of Mendocino County Low Population Estimate	0.48%
Percent Highest Historic Mendocino County WS-CA Take (91) ⁶ of California Low Population Estimate	0.05%

California WS-CA Baseline Take	
Annual Average of California WS-CA Take (1997-2017) ⁶	545

Mendocino County WS-CA Take Compared to California WS-CA Take	
Annual Average of Mendocino County WS-CA Take Compared to Annual Average of California WS-CA Take	4.40%

Notes:

1. Total all land and habitats in Mendocino County (USFS 2018)
- 2: From Sweitzer et al. 2000, and calculated based on 0.7 to 3.8 wild pigs per square kilometer.
- 3: From Texas A&M 2012
4. From Toigo et al. 2008
5. From Bren School Group Project 2014
6. Mendocino County take data from WS-CA (USDA 2018a), as summarized in Table 2-9

APPENDIX J: GRAY FOX POPULATION AND TAKE ESTIMATES

**APPENDIX J
GRAY FOX POPULATION AND TAKE ESTIMATES**

Mendocino County Population Estimate*		
Suitable Mendocino County Land Area (Square Miles) ¹		3,459
Low Density (Individuals per Square Mile) ²		1
High Density (Individuals per Square Mile) ²		3.04
Sex Ratio (Percentage of Females) ²		47%
Female Breeding Success ²		95%
Litter Size ²		3.8
Natural Mortality ^{2,3}		48.71%
	Low	High
Total Adults (Land Area X Density)	3,460	10,515
Breeding Females (Total Adults X Sex Ratio)	1,625	4,940
Young at Den (Breeding Females X Breeding Success X Litter Size)	5,865	17,835
County Population Before Natural Mortality (Total Adults + Young at Den)	9,325	28,350
County Population After Natural Mortality ((Total Adults + Young at Den) X (1-Natural Mortality))	4,785	14,540
California Population Estimate*		
California Low Population Estimate After Natural and Harvest Mortality ²		157,175
Mendocino County WS-CA Baseline Take		
Annual Average of Mendocino County WS-CA Take (1997-2017) ⁴		12
Annual Average of Mendocino County WS-CA Take Compared to Mendocino County Low Population		0.25%
Annual Average of Mendocino County WS-CA Take Compared to California Low Population		0.01%
Percent Highest Historic Mendocino County WS-CA Take (29) ⁴ of Mendocino County Low Population Estimate		0.61%
Percent Highest Historic Mendocino County WS-CA Take (29) ⁴ of California Low Population Estimate		0.02%
California WS-CA Baseline Take		
Annual Average of California WS-CA Take (1997-2017) ⁵		157
Mendocino County WS-CA Take Compared to California WS-CA Take		
Annual Average of Mendocino County WS-CA Take Compared to Annual Average of California WS-CA Take		7.64%

Notes:

1. Total all land and habitats in Mendocino County (USFS 2018), as summarized in Table 2-2

2: From CDFG 2004

3: Calculated using estimations of natural mortality from CDFG 2004 (Natural Causes/Population Before Mortality)

4. Mendocino County take data from WS-CA (USDA 2018a), as summarized in Table 2-9

5. California take data from WS-CA (USDA 2018b), as summarized in Appendix N.

*Populations estimates are rounded to the nearest multiple of five. These estimates were calculated using information from sources on the internet, often from locations outside of Mendocino County and California, and should not be considered precise.

APPENDIX K: RACCOON POPULATION AND TAKE ESTIMATES

**APPENDIX K
RACCOON POPULATION AND TAKE ESTIMATES**

Mendocino County Population Estimate*		
Suitable Mendocino County Land Area (Square Miles) ¹		3,108
Low Density (Individuals per Square Mile) ²		0.45
High Density (Individuals per Square Mile) ²		0.70
Sex Ratio (Percentage of Females) ³		48%
Female Breeding Success ³		86%
Litter Size ³		3.5
Natural Mortality ³		35.39%
	Low	High
Total Adults (Land Area X Density)	1,400	2,175
Breeding Females (Total Adults X Sex Ratio)	670	1,045
Young at Den (Breeding Females X Breeding Success X Litter Size)	2,015	3,145
County Population Before Natural Mortality (Total Adults + Young at Den)	3,415	5,320
County Population After Natural Mortality ((Total Adults + Young at Den) X (1-Natural Mortality))	2,205	3,435

California Population Estimate*	
California Low Population Estimate After Natural and Harvest Mortality ³	36,930

Mendocino County WS-CA Baseline Take	
Annual Average of Mendocino County WS-CA Take (1997-2017) ⁴	43
Annual Average of Mendocino County WS-CA Take Compared to Mendocino County Low Population	1.95%
Annual Average of Mendocino County WS-CA Take Compared to California Low Population	0.12%
Percent Highest Historic Mendocino County WS-CA Take (73) ⁴ of Mendocino County Low Population Estimate	3.31%
Percent Highest Historic Mendocino County WS-CA Take (73) ⁴ of California Low Population Estimate	0.20%

California WS-CA Baseline Take	
Annual Average of California WS-CA Take (1997-2017) ⁵	2,103

Mendocino County WS-CA Take Compared to California WS-CA Take	
Annual Average of Mendocino County WS-CA Take Compared to Annual Average of California WS-CA Take	2.04%

Notes:

- Total all land and habitats in Mendocino County (USFS 2018), as summarized in Table 2-2
- From Orloff 1980
- From CDFG 2004
- Mendocino County take data from WS-CA (USDA 2018a), as summarized in Table 2-9
- California take data from WS-CA (USDA 2018b), as summarized in Appendix N.

*Populations estimates are rounded to the nearest multiple of five. These estimates were calculated using information from sources on the internet, often from locations outside of Mendocino County and California, and should not be considered precise.

APPENDIX L: STRIPED SKUNK POPULATION AND TAKE ESTIMATES

**APPENDIX L
STRIPED SKUNK POPULATION AND TAKE ESTIMATES**

Mendocino County Population Estimate*		
Suitable Mendocino County Land Area (Square Miles) ¹		3,472
Low Density (Individuals per Square Mile) ²		1.3
High Density (Individuals per Square Mile) ²		6.2
Sex Ratio (Percentage of Females) ²		46%
Female Breeding Success ²		80%
Litter Size ²		5.6
Natural Mortality ^{2,3}		52.96%
	Low	High
Total Adults (Land Area X Density)	4,515	21,525
Breeding Females (Total Adults X Sex Ratio)	2,075	9,900
Young at Den (Breeding Females X Breeding Success X Litter Size)	9,295	44,350
County Population Before Natural Mortality (Total Adults + Young at Den)	13,810	65,875
County Population After Natural Mortality ((Total Adults + Young at Den) X (1-Natural Mortality))	6,495	30,985

California Population Estimate*	
California Low Population Estimate After Natural and Harvest Mortality ⁴	143,190

Mendocino County WS-CA Baseline Take	
Annual Average of Mendocino County WS-CA Take (1997-2017) ⁴	62
Annual Average of Mendocino County WS-CA Take Compared to Mendocino County Low Population	0.95%
Annual Average of Mendocino County WS-CA Take Compared to California Low Population	0.04%
Percent Highest Historic Mendocino County WS-CA Take (101) ⁴ of Mendocino County Low Population Estimate	1.56%
Percent Highest Historic Mendocino County WS-CA Take (101) ⁴ of California Low Population Estimate	0.07%

California WS-CA Baseline Take	
Annual Average of California WS-CA Take (1997-2017) ⁵	4,022

Mendocino County WS-CA Take Compared to California WS-CA Take	
Annual Average of Mendocino County WS-CA Take Compared to Annual Average of California WS-CA Take	1.54%

- Notes:
1. Total all land and habitats in Mendocino County (USFS 2018), as summarized in Table 2-2
 2. From CDFG 2004
 3. Calculated using estimations of natural mortality from CDFG 2004 (Natural Causes/Population Before Mortality)
 4. Mendocino County take data from WS-CA (USDA 2018a), as summarized in Table 2-9
 5. California take data from WS-CA (USDA 2018b), as summarized in Appendix N.

*Populations estimates are rounded to the nearest multiple of five. These estimates were calculated using information from sources on the internet, often from locations outside of Mendocino County and California, and should not be considered precise.

APPENDIX M: VIRGINIA OPOSSUM POPULATION AND TAKE ESTIMATES

**APPENDIX M
VIRGINIA OPOSSUM POPULATION AND TAKE ESTIMATES**

Mendocino County Population Estimate*		
Suitable Mendocino County Land Area (Square Miles) ¹		2,765
Low Density (Individuals per Square Mile) ²		1.3
High Density (Individuals per Square Mile) ²		20.2
Sex Ratio (Percentage of Females) ²		44%
Female Breeding Success ²		80%
Litter Size ²		14.4
Natural Mortality ^{2,3}		78.57%
	Low	High
Total Adults (Land Area X Density)	3,595	55,855
Breeding Females (Total Adults X Sex Ratio)	1,580	24,575
Young at Den (Breeding Females X Breeding Success X Litter Size)	18,200	283,105
County Population Before Natural Mortality (Total Adults + Young at Den)	21,795	338,960
County Population After Natural Mortality ((Total Adults + Young at Den) X (1-Natural Mortality))	4,670	72,625

California Population Estimate*	
California Low Population Estimate After Natural and Harvest Mortality ²	40,445

Mendocino County WS-CA Baseline Take	
Annual Average of Mendocino County WS-CA Take (1997-2017) ⁴	12
Annual Average of Mendocino County WS-CA Take Compared to Mendocino County Low Population	0.26%
Annual Average of Mendocino County WS-CA Take Compared to California Low Population	0.03%
Percent Highest Historic Mendocino County WS-CA Take (19) ⁴ of Mendocino County Low Population Estimate	0.41%
Percent Highest Historic Mendocino County WS-CA Take (19) ⁴ of California Low Population Estimate	0.05%

California WS-CA Baseline Take	
Annual Average of California WS-CA Take (1997-2017) ⁵	1,197

Mendocino County WS-CA Take Compared to California WS-CA Take	
Annual Average of Mendocino County WS-CA Take Compared to Annual Average of California WS-CA Take	1.00%

- Notes:
1. Total all land and habitats in Mendocino County (USFS 2018), as summarized in Table 2-2
 - 2: From CDFG 2004
 - 3: Calculated using estimations of natural mortality from CDFG 2004 (Natural Causes/Population Before Mortality)
 4. Mendocino County take data from WS-CA (USDA 2018a), as summarized in Table 2-9
 5. California take data from WS-CA (USDA 2018b), as summarized in Appendix N.

*Populations estimates are rounded to the nearest multiple of five. These estimates were calculated using information from sources on the internet, often from locations outside of Mendocino County and California, and should not be considered precise.

**APPENDIX N: CALIFORNIA WS-CA INTENTIONAL AND UNINTENTIONAL TAKE
OF THE PRIMARY SPECIES (1997-2017)**

APPENDIX N. California WS-CA Intentional and Unintentional Take of the Primary Species (1997-2017)

Common Species Name (Scientific name)	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Grand Total	Annual Average*
Black Bear (<i>Ursus americanus</i>)	47	80	76	104	81	86	92	85	91	93	139	90	130	169	138	128	89	138	121	83	130	2,190	105
Bobcat (<i>Lynx rufus</i>)	77	99	113	99	72	71	63	67	52	48	61	83	74	59	54	65	70	54	15	18	9	1,323	63
Cougar (<i>Puma concolor</i>)	71	91	102	139	121	104	110	133	120	115	137	123	103	108	102	77	59	102	80	74	76	2,147	103
Coyote (<i>Canis latrans</i>)	8,786	8,390	7,361	8,714	8,319	7,354	6,165	6,347	6,103	7,268	7,759	6,159	6,447	5,638	5,394	5,823	5,084	5,394	3,952	3,893	3,305	133,655	6,365
Feral Swine (<i>Sus scrofa</i>)	17	69	196	210	272	422	185	253	302	470	596	774	905	898	856	884	1,119	856	688	612	845	11,429	545
Gray Fox (<i>Urocyon cinereoargenteus</i>)	156	231	144	150	110	161	166	94	130	148	122	208	176	199	202	179	173	202	102	113	116	3,282	157
Raccoon (<i>Procyon lotor</i>)	1,522	1,743	1,777	1,913	2,115	2,112	2,170	1,984	1,758	2,112	2,370	2,644	2,671	2,479	2,510	2,558	2,699	2,511	1,600	1,497	1,411	44,156	2,103
Striped Skunk (<i>Mephitis mephitis</i>)	4,501	3,969	3,908	3,713	4,354	4,273	4,069	3,790	3,866	4,526	4,749	5,522	4,763	4,611	4,092	3,729	3,631	4,092	2,957	2,593	2,734	84,442	4,022
Virginia Opossum (<i>Didelphis virginiana</i>)	1,473	1,358	1,333	1,359	1,443	1,382	1,557	1,362	1,235	1,263	1,152	1,208	1,244	982	1,263	1,044	855	1,263	729	650	969	25,124	1,197

*Annual Average rounded up to the nearest 1.

Source: USDA 2018b

**APPENDIX O: COMMERCIAL TRAPPING AND SPORT HUNTING TAKE OF THE
PRIMARY SPECIES IN MENDOCINO COUNTY AND CALIFORNIA (FISCAL YEARS
1996-1997 THROUGH 2016-2017 AND CALENDAR YEARS 1997-2017)**

APPENDIX O: Commercial Trapping and Sport Hunting Take of the Primary Species in Mendocino County and California (Fiscal Years 1996-1997 through 2016-2017 and Calendar Years 1997-2017)

Commercial trapping, Bobcat Harvest Report, and Wild Pig (Feral Swine) Take Report Fiscal Year	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006*	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	Total	Average ***
Game Take Hunter Survey Calendar Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009**	2010	2011***	2012***	2013***	2014***	2015***	2016***	2017***		
BLACK BEAR																							
Sport Hunting (Annual Bear Take Reports)																							
Mendocino County ¹		102	91	93	122	78	74	85	56	112	66	67	91	61	101	82	72	107	88	77	NR	1,625	86
California ^{1,2}		1,676	1,836	1,796	1,633	1,768	1,670	1,848	1,418	1,822	1,861	2,028	1,900	1,503	1,745	1,962	1,078	1,439	1,287	1,072	NR	31,342	1,650
BOBCAT																							
Commercial Trapping																							
Mendocino County ²	13	55	10	NR	4	5	8	0	4	0	2	1	4	16	NR	3	4	0	5	NR	NR	134	
California ²	984	1,059	190	178	220	214	394	429	506	627	885	715	623	457	893	1,499	1,214	1,292	760	NR	NR	13,139	
Sport Hunting (Bobcat Harvest Report)																							
Mendocino County	16	21	10	12	5	14	9	9	8	7	8	7	4	8	6	10	6	3	5	8	7	183	9
California	429	426	353	352	414	295	273	272	261	265	317	336	281	251	238	255	324	308	206	263	265	6,384	304
Sport Hunting (Game Take Hunter Survey)																							
Mendocino County ¹	0	167	0	0	16	0	123	34	32	NR	0	NR	NR	53	NR	NR	NR	NR	NR	NR	NR	425	71
California ¹	1,320	2,299	1,124	1,753	1,517	1,552	1,379	739	608	1,165	1,867	1,198	NR	1,518	NR	NR	NR	NR	NR	NR	NR	18,039	1,388
COYOTE																							
Commercial Trapping																							
Mendocino County ¹	7	29	0	NR	6	0	0	0	0	0	0	0	0	0	NR	0	0	0	0	0	0	42	14
California	1,367	1,127	301	201	296	290	396	636	443	133	226	204	149	82	139	209	280	169	156	114	111	7,029	335
Sport Hunting (Game Take Hunter Survey)																							
Mendocino County ¹	480	1667	532	922	799	365	2299	1,108	969	372	500	639	NR	532	NR	NR	NR	NR	NR	NR	NR	11,184	861
California ¹	41,956	30,675	44,736	61,084	62,246	52,947	52,748	64,820	54,824	56,682	69,365	56,815	NR	69,914	NR	NR	NR	NR	NR	NR	NR	718,812	55,294
FERAL SWINE																							
Sport Hunting (Wild Pig Harvest Report)																							
Mendocino County ¹	NR	NR	NR	NR	205	267	290	305	213	285	137	131	210	283	303	243	257	284	157	362	421	4,353	257
California ¹	NR	NR	NR	NR	6,391	7,770	5,800	6,014	4,106	5,453	4,570	3,021	3,838	3,834	3,574	2,948	3,397	3,582	1,605	4,223	4,637	74,763	4,398
Sport Hunting (Game Take Hunter Survey)																							
Mendocino County ¹	1,000	1,134	1,035	953	1,158	1,217	1,962	1,007	1,453	694	800	1,384	NR	1,438	NR	NR	NR	NR	NR	NR	NR	15,235	1,172
California ¹	17,479	52,516	29,449	38,043	42,579	30,399	27,585	20,980	23,388	19,357	20,499	15,096	NR	23,668	NR	NR	NR	NR	NR	NR	NR	361,038	27,773
GRAY FOX																							
Commercial Trapping																							
Mendocino County ¹	18	112	15	NR	8	24	4	21	4	4	10	2	19	18	NR	2	1	2	8	6	21	299	16
California	822	1,267	232	260	178	203	266	326	242	276	531	588	732	491	593	657	982	1338	774	284	133	11,175	533
Sport Hunting (Game Take Hunter Survey)																							
Mendocino County ¹	0	67	0	127	0	91	674	34	64	0	33	0	NR	346	NR	NR	NR	NR	NR	NR	NR	1,436	180
California ¹	1,640	3,267	1,981	1,241	1,419	2,678	2,023	470	449	1,338	1,833	1,518	NR	2,236	NR	NR	NR	NR	NR	NR	NR	22,093	1,700
RACCOON																							
Commercial Trapping																							
Mendocino County ¹	15	55	2	NR	2	0	0	0	0	4	0	0	12	0	NR	0	0	0	10	30	30	160	18
California	1,057	983	459	1,245	841	539	709	1,352	1,029	209	588	210	555	597	562	609	612	246	139	120	66	12,727	607
Sport Hunting (Game Take Hunter Survey)																							
Mendocino County ¹	0	300	0	0	0	0	153	201	258	0	NR	NR	NR	373	NR	NR	NR	NR	NR	NR	NR	1,285	257
California ¹	4,320	5,400	7,006	4,386	3,229	6,177	4,046	4,431	3,869	2,627	9,967	4,473	NR	9,957	NR	NR	NR	NR	NR	NR	NR	55,448	5,376
STRIPED SKUNK																							
Commercial Trapping																							
Mendocino County ¹	2	75	0	NR	0	0	0	0	0	0	0	0	0	0	NR	0	0	1	7	15	5	105	18
California	1,113	950	996	914	1,083	667	735	1,028	1,092	160	486	65	276	328	457	514	425	176	272	129	39	11,905	567
VIRGINIA OPOSSUM																							
Commercial Trapping																							
Mendocino County ²	0	1	0	NR	0	0	0	0	0	0	0	0	0	0	NR	0	0	0	2	7	0	10	4
California	526	329	275	333	338	214	411	1,987	343	108	24	24	88	16	153	165	164	60	51	44	48	5,701	272

Notes:
 1. Average calculated only for years with take to provide conservative estimate.
 2. Average not calculated because trapping no longer legal.
 NR=Not Reported
 *Beginning in 2005, the trapping license application changed recording methods to differentiate between commercial fur/recreational trappers and nuisance/pest control trappers. This accounts for the reduced number of reporting from FY 2005-2006 to 2017
 **The 2009 hunter survey was not performed due to state budget constraints.
 ***2010 is the latest year Game Take Hunter Survey Reports are posted on the CDFW website for these species. There are no reports for these species from 2011 to present.
 ****Averages are all rounded up to the nearest 1 for a conservative estimate.
 Depredation take data for the cougar is not available.
 Sources: CDFW 2018g (Game Take Hunter Surveys); CDFW 2018h (Trapping Reports); CDFW 2018i (Annual Bear Take Reports); CDFW 2018j (Bobcat Harvest Assessments); CDFW 2018l (Wild Pig Take Report)

APPENDIX F

Environmental Noise & Vibration Assessment

Integrated Wildlife Damage Management Program EIR

Mendocino County, California

BAC Job # 2018-010

Prepared For:

Raney Planning & Management, Inc.

Attn: Mr. Nick Pappani
1501 Sports Drive
Sacramento, CA 95834

Prepared By:

Bollard Acoustical Consultants, Inc.



Dario Gotchet, Consultant

April 12, 2019



Introduction

The proposed project is the approval of the Integrated Wildlife Damage Management (IWDM) Program (project) to protect livestock, crops, human health and safety, and property from wildlife damage in Mendocino County, California. The project area is shown on Figure 1. Figure 2 shows land ownership and jurisdiction within the County of Mendocino.

According to the IWDM Program Notice of Preparation (NOP), the proposed IWDM Program would be implemented initially pursuant to a five-year Cooperative Service Agreement (CSA) with the United States Department of Agriculture Animal and Plant Health Inspection Service – Wildlife Services (APHIS-WS-CA). Activities performed under the IWDM Program would be implemented by APHIS-WS-CA field specialists in accordance with the regulations, standards, and guidelines of the IWDM Program, including APHIS-WS-CA policies, directives, and standard operating procedures. The County of Mendocino would not be involved in any of the wildlife damage management activities, though would provide oversight of APHIS-WS-CA's implementation of the IWDM Program.

The following section discusses the existing noise and vibration environment in the project area, and identifies potential impacts and mitigation measures related to implementation of the IWDM Program in Mendocino County, California. Specifically, this section analyzes potential noise and vibration impacts associated with the IWDM Program's wildlife control methods upon nearby receptors within the project area relative to applicable federal, state and local noise and vibration criteria, and to the existing ambient noise and vibration environment. The following section also identifies potential impacts and mitigation measures associated with a non-lethal program alternative and variation.

Environmental Setting

Noise Fundamentals and Terminology

Noise is often described as unwanted sound. Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard, and are designated as sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, or Hertz (Hz). Definitions of acoustical terminology are shown in Appendix A.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in decibel levels

correspond closely to human perception of relative loudness. Figure 3 shows common noise levels associated with various sources.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by filtering the frequency response of a sound level meter by means of the standardized A-weighting network. As a result, all sound levels reported in this study are in terms of A-weighted decibels.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn} , and shows good correlation with community response to noise generated by transportation noise sources.

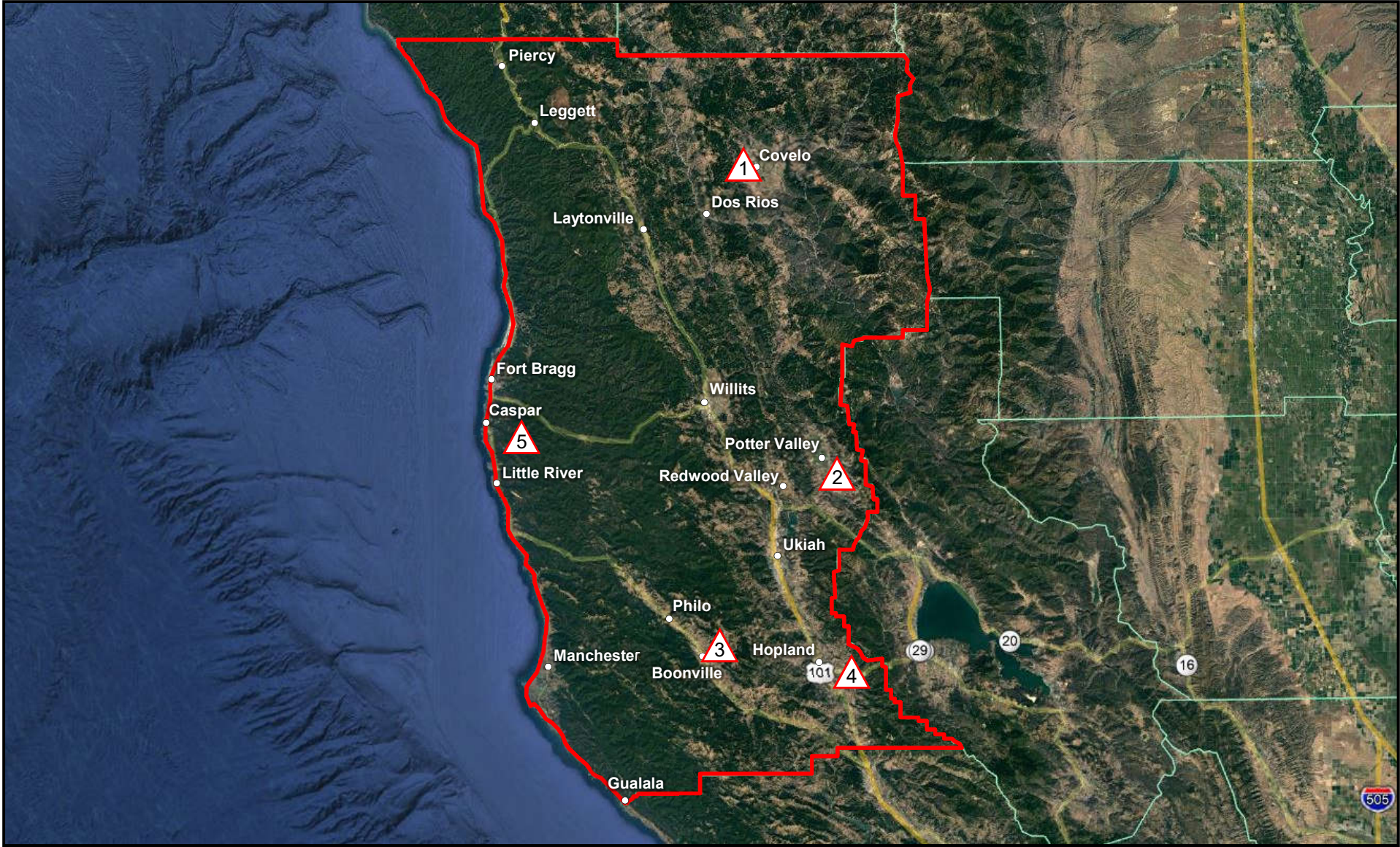
The Day-night Average Level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment, and would be a poor indicator of anticipated public reaction to brief periods of elevated impulsive noise.

Noise in the community has often been cited as being a health problem – not in terms of actual physiological damages such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities such as sleep, speech, education, recreation, and tasks demanding concentration or coordination. When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability of the environment for people decreases.



Because many rural residential areas experience very low noise levels, residents may express concern about the loss of "peace and quiet" due to the introduction, or increase, of a sound which was not previously audible or which was previously infrequent. In very quiet environments, the introduction of virtually any change in local activities will cause an increase in noise levels.

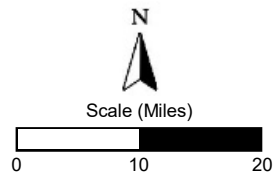
Character of Impulsive Noise

There are other factors that should be considered in addition to the overall A-weighted noise level. For example, sounds with noticeable impulsive content, such as the discharge of firearms, have been shown to be more annoying than the A-weighted sound level alone suggest. This is likely because of the potential "startle effect" of impulsive noise sources. Many noise standards apply a penalty, or correction, of 5 dBA to impulsive sounds to account for this higher level of annoyance. By way of example, the County of Mendocino applies a -5 dB adjustment for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.



Legend

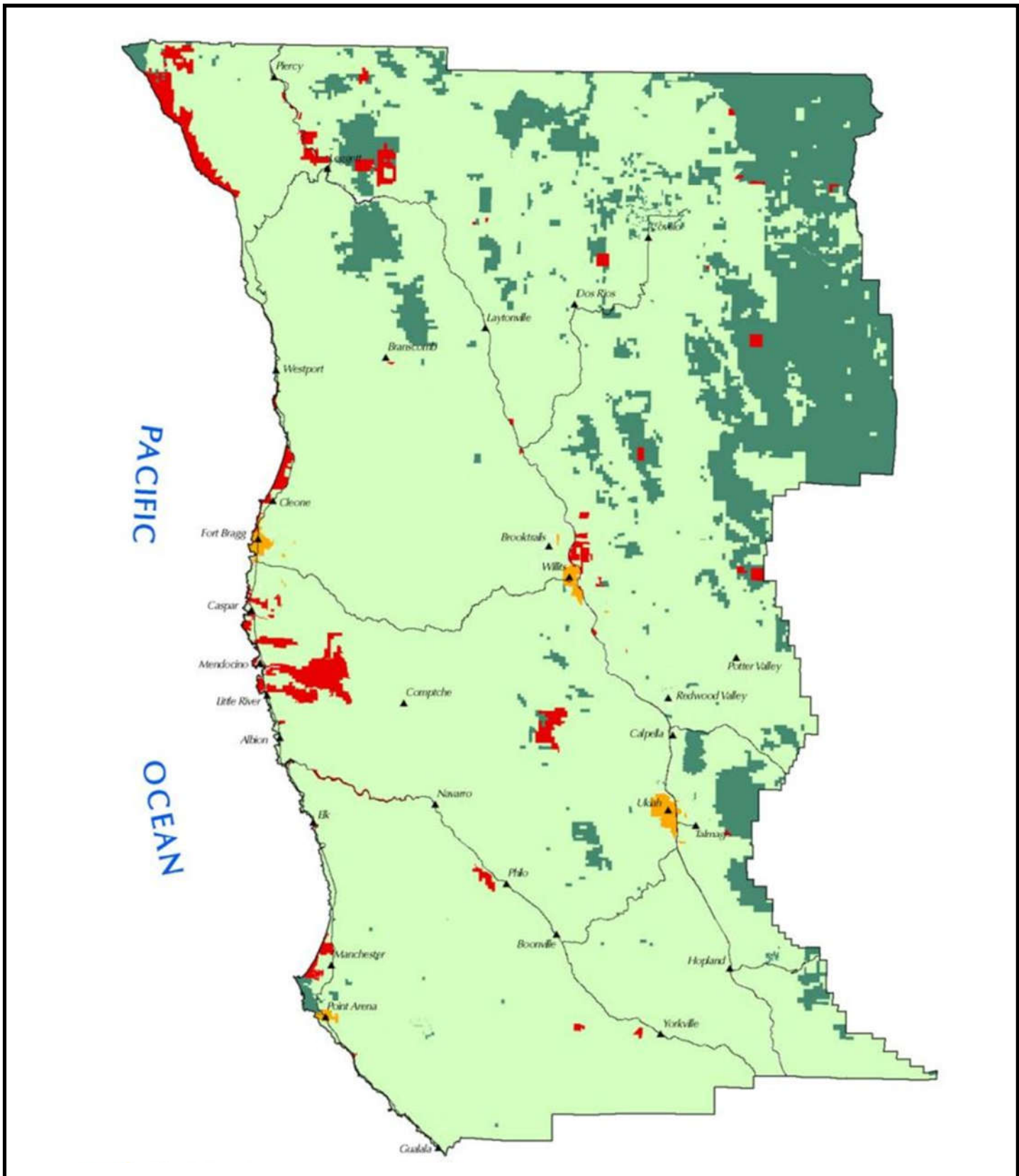
-  Project Area – County of Mendocino
-  Long-Term Noise Measurement Sites



**Integrated Wildlife Damage
Management Program EIR**
Mendocino County, California
Project Area & Noise Measurement Sites

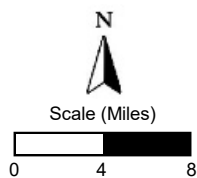
Figure 1





Legend

- US Government
- State of California
- County of Mendocino
- Incorporated Cities

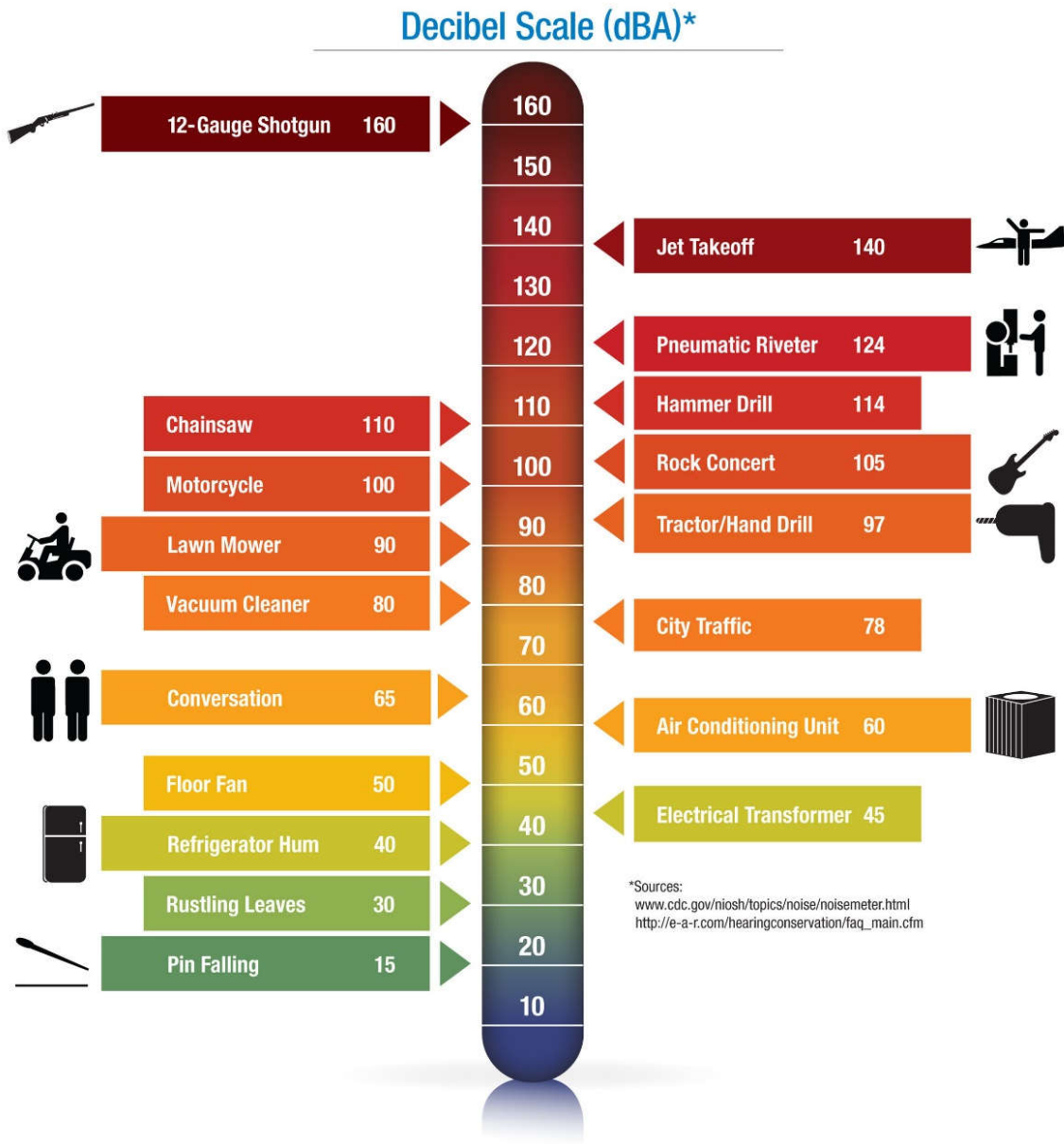


Integrated Wildlife Damage Management Program EIR
 Mendocino County, California
 County Land Ownership and Jurisdiction

Figure 2



**Figure 3
Noise Levels Associated with Common Noise Sources**



Noise generated by firearms usage consists of bursts of high-energy impulsive sound. This differs from sound generated by common community noise sources which may also be impulsive, such as punch presses or other industrial noise sources. In the publication, *A Review of Research on the Annoyance Caused by Impulse Sounds Produced by Small Firearms* (Joos Vos, 1995 Inter-Noise Conference, Newport Beach, CA), a penalty of 5 dB for firearms is considered to be too small, and a penalty of 10 dB is reported to be more appropriate.

Other methods of assessing noise effects of firearms usage utilize the C-weighting scale. Because the C-weighting scale places greater emphasis on low-frequency noise than the A-weighting scale, it is considered to be a better indicator of likely public response to impulsive noises with considerable low-frequency content, such as sonic booms and artillery fire. However, for small arms fire (e.g., hunting rifles, handguns, and shotguns), utilization of the A-weighting scale is appropriate since frequency analysis reveals that most of the sound energy is in the middle and upper frequency bands.

Meters used for the measurement of sound pressure levels (sound level meters, or SLM), can be programmed to measure and report sound pressure levels in a variety of ways. For measurement purposes, sound level meters are commonly programmed to utilize the “slow” response setting, as the vast majority of environmental sounds are non-impulsive, and the slow setting provides a good representation of ambient conditions for normal community noise sources. Firearms usage, however, generates noise levels over a much shorter duration of time than typical environmental noise sources. As a result, if the slow response setting is used to measure firearms noise, the maximum noise levels will often be understated.

Conversely, using the “fast” or “impulsive” response settings to monitor general environmental noise will often overstate ambient conditions. As a result, “fast” or “impulsive” response settings are normally used to monitor firearms noise, and the slow response setting is commonly used to measure general background noise levels.

Sound Propagation Characteristics

Effects of Distance on Sound Propagation

In an ideal, homogenous, atmosphere, the sound pressure of a point source decreases at a rate of 6 dB per doubling of distance from the noise source. This 6 dB decrease is due to spherical spreading of sound as it radiates away from the source. Due to atmospheric conditions and the presence of obstacles, the sound pressure levels measured outdoors are almost always different than those predicted based on spherical spreading alone.

The important factors that affect sound propagation are sound absorption in the air, the presence of barriers and ground cover, the effects of wind and temperature gradients, and the acoustic effect of the presence of the ground. These factors tend to be interrelated in that the effect of one will often be dependent of the presence of the others.

Atmospheric (Molecular) Absorption and Anomalous Excess Attenuation

Air absorbs sound energy. The amount of absorption is dependent on the temperature and humidity of the air, as well as the frequency of the sound. Families of curves have been developed which relate these variables to molecular absorption coefficients, frequently expressed in terms of dB per thousand feet. For standard day atmospheric conditions, defined as 59 degrees Fahrenheit and 70% relative humidity, the molecular absorption coefficient at 1000 hertz is 1.5 dB per thousand feet. Molecular absorption is greater at higher frequencies, and reduced at lower frequencies. In addition, the molecular absorption coefficients generally increase in drier conditions. Similarly, as temperature increases, molecular absorption coefficients typically increase as well.

Anomalous excess attenuation caused by variations in wind speed, wind direction, and thermal gradients in the air can typically be estimated using an attenuation rate of 1.5 dB per thousand feet for a noise source generating a 1000 hertz signal. As with molecular absorption, anomalous excess attenuation typically decreases with lower frequencies and increases with higher frequencies. For the purposes of this evaluation, a single attenuation factor of 1.5 dB per thousand feet of distance was used for project-generated noise sources.

Effects of Barriers and Ground Cover

A noise barrier is any impediment which intercepts the path of sound as it travels from source to receiver. Such impediments can be natural, such as a hill or other naturally occurring topographic feature which blocks a receptor's view of the source, vegetative, such as heavy tree cover which similarly blocks the source from view of the receptor, or man-made, such as a solid wall, earthen berm, or structure constructed between the noise source and receptor. Regardless of the type of impediment, the physical properties of sound are such that, at the point where the line-of-sight between the source and receiver is interrupted by a barrier, a 5 dB reduction in sound occurs.

The effectiveness of a barrier is a function of the difference in distance sound travels on a straight-line path from source to receptor versus the distance it must travel from source to barrier, then barrier to receptor. This difference is referred to as the "path length difference", and is used to calculate the Fresnel Number. A barrier's effectiveness is a function of the Fresnel number and frequency content of the source. In general, the more acute the angle of the sound path created by the introduction of a barrier, the greater the noise reduction provided by the barrier.

Because shielding of the noise-generating aspects of the project varies both by source and receptor location, this analysis includes a conservative approach of not applying any downward adjustments to the propagation of noise levels generated by the project.

Effects of Wind Gradients on Sound Propagation

During windy conditions over open level ground, wind gradients almost always exist. This is due to the friction between the moving air and the ground. Due to these gradients, the speed of sound varies with height above ground. This condition tends to refract, or bend, sound waves upward or downward, depending on whether the receptor is upwind or downwind from the source.

At locations upwind from the sound source, wind gradients bend sound rays upward, thereby reducing sound levels at the receptor. Conversely, downwind locations will experience higher sound levels due to wind gradients bending sound rays downward.

Effects of Temperature Inversions on Sound Propagation

Temperature gradients exist due to heat exchange between the ground and the atmosphere. As with wind gradients, temperature gradients tend to refract, or bend, sound waves upward or downward, depending on whether the gradient is positive or negative.

During normal temperature lapses, air temperature decreases with increasing elevation. During these conditions, such as would typically be present on a clear, calm day, warmer air near the ground can cause sound waves to bend upward, thus decreasing sound levels over distance. Conversely, on a clear calm night, air temperatures can become inverted, and sound will tend to focus and bend toward the ground.

It is widely recognized that temperature gradients can have a substantial effect on the propagation of sound over large distances, causing difference in sound levels of as much as 10 dB at distances in excess of 1,000 feet from the noise source.

Critical factors in estimating the effects of temperature inversions on sound propagation include the elevation of the top of the inversion (the point at which a normal temperature lapse resumes) and the intensity of the gradient (the change in temperatures between the ceiling of the inversion and the ground).

The elevation of the top, or ceiling, of the temperature inversion is important in that it is this boundary layer which is believed to be responsible for the reflection of sound back towards the ground. As the elevation of the inversion ceiling increases, the intensity of the sound incident upon the inversion boundary decreases (due to normal spherical spreading), and the angle of sound incidence is increased. As the angle of incidence is increased, a larger percentage of the sound is transmitted through the boundary layer, thus resulting in a smaller percentage being reflected back towards the ground.

The intensity of the temperature inversion is as important to the propagation of sound as the ceiling of the inversion. Inversions with greater differentials between the ground and the inversion ceiling will result in higher noise levels at larger distances from the sound source. This is because the intensity of the temperature gradient essentially defines the strength of the sound reflecting layer.

Vibration Fundamentals

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that noise is generally considered to be pressure waves transmitted through air, while vibration is usually associated with transmission through the ground or structures. As with noise, vibration consists of an amplitude and frequency. A person's

response to vibration will depend on their individual sensitivity as well as the amplitude and frequency of the source.

Vibration can be described in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities (inches/second). Standards pertaining to perception as well as damage to structures have been developed for vibration in terms of peak particle velocity.

As vibrations travel outward from the source, they excite the particles of rock and soil through which they pass and cause them to oscillate. Differences in subsurface geologic conditions and distance from the source of vibration will result in different vibration levels characterized by different frequencies and intensities. In all cases, vibration amplitudes will decrease with increasing distance. The maximum rate, or velocity of particle movement, is the commonly accepted descriptor of the vibration “strength”.

Human response to vibration is difficult to quantify. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does the frequency of the event. Generally, as the duration and vibration frequency increase, the potential for adverse human response increases.

Existing Overall Ambient Noise Environment within the Project Area

To generally quantify the existing ambient noise environment in the rural areas of the County, BAC conducted continuous noise level measurements at five (5) locations from September 26-30, 2018. The long-term noise measurement sites are depicted on Figure 1, identified as Sites 1-5. A brief description of the noise measurement sites is provided below.

- Measurement Site 1 was located approximately 250 feet south of Valley View Cemetery in Covelo, CA.
- Measurement Site 2 was located approximately 50 feet south of Burris Lane in Potter Valley, CA.
- Measurement Site 3 was located approximately 25 feet west of a private road in Boonville, CA.
- Measurement Site 4 was located approximately 25 feet east of Old Toll Road in Hopland, CA.
- Measurement Site 5 was located approximately 25 feet north of Caspar Little Lake Road near Caspar, CA.

The ambient measurement surveys spanned the continuous 120-hour period of September 26-30, 2018. Weather conditions present during the monitoring program were typical for the season, with mild evening and morning temperatures, warm afternoons, variable skies, low to moderate relative humidity, and calm to moderate winds. There were no adverse weather conditions which would have anomalously affected the ambient noise survey results.

Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meters were used to conduct the noise level survey. The meters were calibrated before use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4). The sound level meters were programmed to log a variety of statistical acoustical data. For this analysis, the most pertinent data consist of baseline background (L₂₅ and L₅₀) and maximum (L_{max}) noise levels. The L₂₅ and L₅₀ noise level descriptors represent the average noise levels exceeded 25 and 50 percent of a given hour, respectively. The L_{max} noise level descriptor represents the highest root-square mean measured over a given period of time. The results of the measurements are shown numerically and graphically in Appendices B and C (respectively), and are summarized below in Table 1. Photographs of the long-term noise measurement sites are provided in Appendix D.

Upon analysis of the data, BAC determined that a battery malfunction occurred within the noise meters located at Sites 2, 4 and 5 during the monitoring period. As a result, the summarized data for these sites shown in Table 1 only show measurement data from certain days. The battery malfunctions did not affect the accuracy of the measurements for these meters/days shown in Table 1.

Table 1 Summary of Long-Term Noise Measurement Survey Results¹ Integrated Wildlife Damage Management Program EIR – Mendocino County, California 9/26/18 – 10/1/18								
Site	Date	L _{dn} , dBA	Average Measured Hourly Noise Levels, dBA					
			Daytime (7 a.m. to 10 p.m.)			Nighttime (10 p.m. to 7 a.m.)		
			L ₅₀	L ₂₅	L _{max}	L ₅₀	L ₂₅	L _{max}
1	9/26/18	56	35	37	55	39	41	49
	9/27/18	57	35	37	53	41	43	50
	9/28/18	57	40	43	57	44	46	57
	9/29/18	53	34	37	52	43	44	51
	9/30/18	55	34	37	59	42	43	53
2	9/26/18	41	29	32	54	28	29	46
	9/27/18	48	31	34	61	48	29	46
3	9/26/18	49	38	40	61	40	42	50
	9/27/18	49	38	41	61	41	42	50
	9/28/18	46	38	40	63	34	35	50
	9/29/18	48	38	41	63	40	41	46
	9/30/18	46	37	39	61	37	38	47
4	9/26/18	52	41	43	63	41	43	57
5	9/30 – 10/1	36	25	29	47	27	27	43

Notes:
¹ Long-term noise measurement locations shown on Figure 1, identified as Sites 1-5.
 *Low-High (Mean Average)
 Source: Bollard Acoustical Consultants, Inc. (2018)

As indicated in Table 1, measured existing ambient day-night noise levels were highest at Site 1 during the monitoring period (5 day average of 56 dB L_{dn}). Averaged measured background noise

levels (L_{50}) were approximately 36 and 42 dB during daytime and nighttime hours, respectively. Averaged measured background noise levels (L_{25}) were approximately 38 and 43 dB during daytime and nighttime hours, respectively. Finally, averaged measured maximum noise levels were 55 and 52 dB L_{max} during daytime and nighttime hours, respectively.

The averaged measured L_{dn} value for Site 2 over the two (2) day monitoring period was 45 dB. Averaged measured L_{50} noise levels were approximately 30 and 38 dB during daytime and nighttime hours, respectively. Averaged measured L_{25} levels were approximately 33 and 29 dB during daytime and nighttime hours, respectively. Finally, the averaged measured maximum noise levels were 58 and 46 dB L_{max} during daytime and nighttime hours, respectively.

The averaged measured L_{dn} for Site 3 over the five (5) day monitoring period was 48 dB. Averaged measured L_{50} noise levels during daytime and nighttime hours were consistent (38 and 39 dB, respectively). The averaged measured L_{25} noise level during both daytime and nighttime hours was approximately 40 dB. Finally, the averaged maximum noise levels measured at Site 3 were 62 and 49 dB L_{max} during daytime and nighttime hours, respectively.

The measured L_{dn} at Site 4 was 48 dB over the monitoring period. The measured L_{50} noise level was approximately 41 dB during both daytime and nighttime hours. Similarly, the measured L_{25} level was approximately 43 dB during both daytime and nighttime hours. Finally, the averaged maximum noise levels at Site 4 were approximately 63 and 57 dB L_{max} during daytime and nighttime hours, respectively.

The measured day-night noise level of 36 dB L_{dn} at Site 5 was the lowest of all of the monitoring sites. This was most likely due to a combination of the rural nature of the site and infrequency of vehicle passbys during the monitoring period. The measured L_{50} noise levels during daytime and nighttime hours were fairly consistent (25 and 27 dB, respectively). Similarly, the measured L_{25} noise levels during daytime and nighttime hours were also fairly consistent (29 and 27 dB, respectively). Finally, the averaged maximum noise levels at Site 5 were approximately 47 and 43 dB L_{max} during daytime and nighttime hours, respectively.

The significance of the measured ambient noise levels within the project area is presented later in this section.

Existing Vibration Environment within the Project Area

During site visits on September 26, 2018, vibration levels were below the threshold of perception at the noise monitoring sites within the project area. However, the existing vibration environment within the overall project area is highly dependent upon proximity to vibration sources (e.g., vehicle traffic, heavy equipment, etc.), and is thereby difficult to quantify. Thus, it is expected that the vibration environment within close proximity to roadways or heavy equipment operations would be elevated when compared to locations more rural in nature. As a result, the existing vibration environment in the overall project area is highly variable.

Regulatory Setting

Federal Regulations

United States Department of Agriculture – United States Forest Service (USFS)

The County of Mendocino contains land that is managed by the United States Forest Service (USFS), which is an agency within the United States Department of Agriculture (USDA). The USDA Forest Service is subject to regulations established in Title 36 (Parks, Forests, and Public Property) of the Code of Federal Regulations (CFR). Should APHIS-WS-CA staff implement the IWDM Program on USFS land, the program would be subject to CFR criteria. The CFR criteria applicable to the project has been reproduced and is provided below:

36 CFR 261.1a – Special use authorizations, contracts and operating plans.

The Chief, each Regional Forester, each Forest Supervisor, and each District Ranger or equivalent officer may issue special-use authorizations, award contracts, or approve operating plans authorizing the occupancy or use of a road, trail, area, river, lake or other part of the National Forest System in accordance with authority which is delegated elsewhere in this chapter or in the Forest Service Manual. These Forest Officers may permit in the authorizing document or approved plan an act or omission that would otherwise be a violation of a subpart A or subpart C regulation or a subpart B order. In authorizing such uses, the Forest Officer may place such conditions on the authorization as that officer considers necessary for the protection or administration of the National Forest System, or for the promotion of public health, safety, or welfare.

36 CFR 261.10 – Occupancy and use.

The following are prohibited:

- (d) Discharging a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:
 - (1) In or within 150 yards of a residence, building, campsite, developed recreation site, or occupied area, or
 - (2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any person or property is exposed to injury or damage as a result in such discharge.
 - (3) Into or within any cave.
- (i) Operating or using in or near a campsite, developed recreation site, or over an adjacent body of water without a permit, any device which produces noise, such as a radio, television, musical instrument, motor or engine in such manner and at such a time so as to unreasonably disturb any person.
- (k) Use or occupancy of National Forest System land or facilities without special-use authorization when such authorization is required.
- (l) Violating any term or condition of a special-use authorization, contract or approved operating plan.

- (p) Use or occupancy of National Forest System lands or facilities without an approved operating plan when such authorization is required.

36 CFR 261.16 – Developed recreation sites.

The following are prohibited:

- (j) Bringing in or possessing an animal, other than a service animal, unless it is crated, caged, or upon a leash not longer than six feet, or otherwise under physical restrictive control.
- (k) Bringing in or possessing in a swimming area an animal, other than a service animal.

United States Department of Defense – United States Army Corps of Engineers (USACE)

The County of Mendocino contains public land that is managed by the United States Army Corps of Engineers (USACE), which is an agency within the United States Department of Defense (DOD). The DOD USACE is subject to regulations established in Title 36 (Parks, Forests, and Public Property) of the Code of Federal Regulations (CFR). Should APHIS-WS-CA staff implement the IWDMM Program on USACE land, the program would be subject to CFR criteria. The CFR criteria applicable to the project has been reproduced and is provided below:

36 CFR 327.11 – Control of animals.

- (a) No person shall bring or allow dogs, cats, or other pets into developed recreation areas or adjacent waters unless penned, caged, on a leash under six feet in length, or otherwise physically restrained. No person shall allow animals to impede or restrict otherwise full and free use of project lands and waters by the public. No person shall allow animals to bark or emit other noise which unreasonably disturbs other people. Animals and pets, except properly trained animals assisting those with disabilities (such as seeing-eye dogs), are prohibited in sanitary facilities, playgrounds, swimming beaches, and any other areas so designated by the District Commander. Abandonment of any animal on project lands or waters is prohibited. Unclaimed or unattended animals are subject to immediate impoundment and removal in accordance with state and local laws.

36 CFR 327.12 – Restrictions.

- (b) Quiet shall be maintained in all public use areas between the hours of 10 p.m. and 6 a.m., or those hours designated by the District Commander. Excessive noise during such times which unreasonably disturbs persons is prohibited.
- (d) The operation or use of any sound producing or motorized equipment, including but not limited to generators, vessels or vehicles, in such a manner as to unreasonably annoy or endanger persons at any time or exceed state or local laws governing noise levels from motorized equipment is prohibited.

36 CFR 327.13 – Explosives, firearms, other weapons and fireworks.

- (a) The possession of loaded firearms, ammunition, loaded projectile firing devices, bows and arrows, crossbows, or other weapons is prohibited unless:

- (1) In the possession of a Federal, state or local law enforcement officer; or
 - (4) Written permission has been received from the District Commander.
- (b) Possession of explosives or explosive devices of any kind, including fireworks or other pyrotechnics, is prohibited unless written permission has been received from the District Commander.

United States Department of the Interior – Bureau of Land Management (BLM)

The County of Mendocino contains public land that is managed by the Bureau of Land Management (BLM), which is an agency within the United States Department of the Interior (DOI). The DOI BLM is subject to regulations established in Title 43 (Public Land: Interior) of the Code of Federal Regulations (CFR). Should APHIS-WS-CA staff implement the IWDM Program on BLM land, the program would be subject to CFR criteria. The CFR criteria applicable to the project has been reproduced and is provided below:

43 CFR 8365.2-5 – Public health, safety and comfort.

On developed recreation sites and areas, unless otherwise authorized, no person shall:

- (a) Discharge or use firearms, other weapons, or fireworks;
- (b) Bring an animal, except as Seeing Eye or Hearing Ear dog, to a swimming area.

43 CFR 8365.2-2 – Audio devices.

On developed recreation sites, or areas, unless otherwise authorized, no person shall:

- (a) Operate or use any audio device such as a radio, television, musical instrument, or other noise producing device or motorized equipment in a manner that makes unreasonable noise that disturbs other visitors;

State of California Regulations

California Department of Parks and Recreation

The County of Mendocino contains land that is managed by the California Department of Parks and Recreation (CA State Parks), which is an agency of the State of California. The CA State Parks is subject to regulations established in Division 3 of Title 14 (Department of Parks and Recreation) of the California Code of Regulations (CCR). Should APHIS-WS-CA staff implement the IWDM Program on CA State Parks land, the program would be subject to CCR criteria. The CCR criteria applicable to the project has been reproduced and is provided below:

14 CCR 4309 – Special Permits.

The Department may grant a permit to remove, treat, disturb, or destroy animals or geological, historical, archaeological or paleontological materials; and any person who has been properly granted such a permit shall to that extent not be liable for prosecution for violation of the foregoing.

14 CCR 4312 – Control of Animals.

- (a) No person shall permit a dog to run loose, or turn loose any animal in any portion of a unit, except upon written authorization by the District Superintendent.
- 37 No person shall bring a dog into, permit a dog to enter or remain, or possess a dog in units under control of Department of Parks and Recreation unless the dog is on leash of no more than six feet in length and under the immediate control of a person or confined in a vehicle.
- 38 No person shall bring a dog into, permit a dog to enter or remain, or possess a dog:
 - 1. Beyond the limits of campgrounds, picnic areas, roads, structures or in posted portions of units except as provided elsewhere in this section.
 - 2. On any beach adjacent to any body of water in any unit except in portions of units designated for dogs.
- 39 In state recreation areas open to hunting pursuant to Public Resources Code Section 5003.1, dogs may be used to assist in hunting. Such dogs shall not be permitted to pursue or take wildlife other than that being hunted.

14 CCR 4313 – Weapons and Traps.

- (a) No person shall carry, possess or discharge across, in or into any portion of any unit any weapon, firearm, spear, bow and arrow, trap, net, or device capable of injuring, or killing any person or animal, or capturing any animal, or damaging any public or private property, except in underwater parks or designated archery ranges where the Department of Parks and Recreation finds that it is in its best interests.

14 CCR 4320 – Peace and quiet.

- (c) No person shall, at any time, use outside machinery or electronic equipment including electrical speakers, radios, phonographs, televisions, or other devices, at a volume which is, or is likely to be, disturbing to others without specific permission of the Department.

California Department of Transportation (Caltrans)

The California Department of Transportation (Caltrans) does not have noise level limits that would be directly applicable to the project. However, because the County of Mendocino does not have adopted standards for groundborne vibration, vibration criteria established by Caltrans was applied to this project. The Caltrans 2013 publication, *Transportation and Construction Vibration Guidance Manual*, contains criteria for the assessment of human response to vibration. Human and structural response to different vibration levels is influenced by a number of factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. The Caltrans criteria applicable to human responses to vibration are shown below in Table 2.

Table 2 Human Response to Transient Vibration	
Human Response/Structure	Peak Particle Velocity (in/sec)
Severe	2.0
Strongly Perceptible	0.9
Distinctly Perceptible	0.24
Barely Perceptible	0.035
Source: Caltrans Transportation and Construction Vibration Guidance Manual, September 2013	

Local Regulations

County Jurisdiction – Mendocino County General Plan

The Development Element (Chapter 3) of the Mendocino County General Plan contains goals, policies, and actions to ensure that county residents are not subjected to noise beyond acceptable levels. Noise impacts associated with this project would occur if projected noise levels associated with implementation of the IWDM Program would exceed county noise standards at nearby receptors within the project area, or if the project would result in a substantial increase in ambient noise levels at nearby receptors within the project area. The General Plan goals, policies and actions which are applicable to the assessment of these impacts are reproduced below.

GOAL DE-5: A county in which existing residential and other sensitive uses are protected from excessive noise and in which noise-intensive uses are protected from encroachment by residential and other noise-sensitive uses.

Policy DE-98: The County will protect residential areas and other noise-sensitive uses from excessive noise by doing the following:

- 1) Requiring that new land uses, new roadways, and other new noise sources do not create unacceptable noise levels on adjacent parcels.
- 3) Requiring that County decisions which would cause or allow an increase in noise created by stationary or mobile sources be informed by a noise analysis and accompanied by noise reduction measures to keep noise at acceptable levels.

Policy DE-99: To implement Policy DE-98, the following shall apply:

- 1) No new use regulated by the County shall be permitted to generate noise that would cause the ambient noise on any adjacent parcel to exceed the “completely compatible” 24-hour guidelines shown in Policy DE-101 or the 30-minute noise standards in Policy DE-100.
- 2) The County shall ensure that noise mitigation to achieve a “completely compatible” 24-hour exterior noise level and conformance with the 30-minute

exterior noise standard is provided in conjunction with any decision it makes that would cause a violation of item 1) above.

Action Item DE-99-2: Require acoustical studies for:

- 1) Significant new noise generators;

If information on the noise environment at a project site is not available, a measurement of the noise environment by a qualified acoustical engineer may be needed to make a determination whether or not a proposed project complies with the guidelines and standards in Policy DE-100 or DE-101.

Policy DE-100: The following are the County’s standards for maximum exterior noise levels for residential land uses.

Table 3 (General Plan Table 3-J)		
Exterior Noise Level Standards (Levels Not to Be Exceeded More Than 30 Minutes in Any Hour)		
Land Use Type	Time Period	Maximum Noise Level, dBA
Single-Family Homes and Duplexes	10 p.m. to 7 a.m.	50
	7 a.m. to 10 p.m.	60
Multiple Residential 3 or More Units Per Building (Triplex +)	10 p.m. to 7 a.m.	55
	7 a.m. to 10 p.m.	60

- Where existing ambient noise levels exceed these standards, the ambient noise level shall be the highest allowable noise level as measured in dBA L_{eq} (30 minutes).
- The noise levels specified above shall be lowered by 5 dB for simple tonal noises (such as hammering sounds), noises consisting primarily of speech or music, or for recurring impulsive noises (such as pile drivers, punch presses, and similar machinery).
- The County may impose exterior noise standards which are less restrictive than those specified above, provided that:
 - 1) The noise impact on the residential or other noise-sensitive use is addressed in an environmental analysis,
 - 2) A finding is made by the approving body stating the reasons for accepting a higher exterior noise standard, and
 - 3) Interior noise standards will comply with those identified in Policy DE-103.

Policy DE-103: The following are the County’s standards for acceptable indoor intermittent noise levels for various types of land uses. These standards should receive special

attention when projects are considered in “Tentatively Compatible” or “Normally Incompatible” areas, and new uses shall incorporate design features to ensure that these standards are met.

Table 4 (General Plan Table 3-L) Maximum Acceptable Interior Noise Levels Created By Exterior Noise Sources	
Land Use Type	Acceptable Noise Level, L_{dn} or CNEL (dBA)
Residential Living and Sleeping Areas, Daytime	45
Private School Classrooms	55
Commercial, Educational, Office, Light and Heavy Industrial, Warehousing	Conform with applicable state and federal workplace safety standards

- Standards for public schools are set and enforced by the State of California and are not regulated by the County.
- Noise created inside a residential home, classroom, or library shall not count toward the acceptable noise levels to be maintained in accordance with this policy.

Policy DE-104: New or expanded uses shall comply with adopted noise standards to ensure minimal impact on established noise-sensitive uses.

Policy DE-105: A 5 dB increase in CNEL or L_{dn} noise levels shall be normally considered to be a significant increase in noise.

County Jurisdiction – Mendocino County Code of Ordinances

For the protection of noise-sensitive land uses, the County of Mendocino has adopted noise standards for determination of land use compatibility. These noise standards are identified in the county’s Inland Zoning Code (Title 20, Division I, Appendix C) and Coastal Zoning Code (Title 20, Division II, Appendix B). The County’s noise standards are summarized in Table 5, and are identified based on the receiving land use designation and time of day.

In addition, the Mendocino County Code of Ordinances also establishes criteria for noise on county-owned lands. Pursuant to Section 14.16.020, it shall be unlawful for any person, except personnel of law enforcement or governmental agencies acting in furtherance of a law enforcement or governmental objective, to willfully make, continue to make, or cause to be made, or continued, any loud, unusually penetrating or boisterous noise, disturbance or commotion which unreasonably interferes with County governmental operations and personnel, provided such noise is generated upon property owned or occupied by the County of Mendocino.

**Table 5
Exterior Noise Level Limit Standards
(Levels not to be exceeded more than 30 minutes in any hour)
Mendocino County Inland and Coastal Zoning Code**

Receiving Land Use Category ^{3,4}	Time Period	Noise Level Standard, dBA ^{1,2}	
		Rural/Suburban	Urban/Highways ⁵
One and Two Family Residential	10:00 pm – 7:00 am	40	50
	7:00 am – 10:00 pm	50	60
Multi-Family Public Spaces	10:00 pm – 7:00 am	45	55
	7:00 am – 10:00 pm	50	60
Limited Commercial, Some Multi-Family	10:00 pm – 7:00 am	55	
	7:00 am – 10:00 pm	60	
Commercial	10:00 pm – 7:00 am	60	
	7:00 am – 10:00 pm	55	
Light Industrial	Any Time	70	
Heavy Industrial	Any Time	75	
Adjustments to Noise Level Standard			
Duration	Time Period	Adjustment Factor	
L ₅₀	30 minutes per hour	No adjustment	
L ₂₅	15 minutes per hour	Standard +5 dB	
L ₀	Maximum permissible level	Standard +20 dB	
Character		Adjustment Factor	
Character: Tone, whine, screech, hum, or impulsive, hammering, riveting, or music or speech		Standard +5 dB	
Ambient Noise Level ¹ – Existing ambient L ₅₀ , L ₂₅		Standard +5 dB	
Ambient Noise Level ¹ – Existing ambient L ₀		Existing maximum	
Notes:			
1 When an acoustical study demonstrates that ambient levels exceed the noise standard, then the ambient levels become the standard.			
2 Higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected.			
3 County staff shall recommend which receiving land use category applies to a particular project, based on the mix of uses and community noise levels. Industrial noise limits intended to be applied at the boundary of industrial zones, rather than within industrial areas.			
4 The “rural/suburban” standards should be applied adjacent to noise-sensitive uses such as hospitals or convalescence homes.			
5 “Highways” apply to roads and highways where average daily traffic (ADT) exceeds 10,000.			
Source: Mendocino County Inland & Coastal Zoning Codes			

Incorporated City Jurisdictions – Fort Bragg Coastal General Plan

There are four incorporated cities located within the County of Mendocino. After a review of the noise related policies and ordinances associated with those jurisdictions, it was determined that the performance standards for non-transportation noise sources, which would be applicable to program operations, were generally similar (range of 5-10 dB). Further, the Fort Bragg Coastal General Plan was identified as having some of the strictest noise related criteria. To provide a conservative assessment of noise levels associated IWD Program operations, the noise related

criteria identified in the Fort Bragg Coastal General Plan were applied in the assessment of noise-generating program operations within the incorporated city jurisdictions of Mendocino County.

The Noise Element (Chapter 8) of the Fort Bragg Coastal General Plan contains goals, policies, and programs to ensure that the incorporated City of Fort Bragg residents are not subjected to noise beyond acceptable levels. Noise impacts associated with this project would occur if projected noise levels associated with implementation of the IWDM Program would exceed city noise standards or would result in a substantial increase in ambient noise levels at residential uses. The Fort Bragg Coastal General Plan goals, policies, and programs which are applicable to the assessment of these impacts are reproduced below.

GOAL N-1: Protect City residences from harmful and annoying effects of exposure to excessive noise.

Policy N-1.1: General Noise Levels: The maximum allowable noise levels are established in this Element.

Policy N-1.2: Reduce Noise Impacts: Avoid or reduce noise impacts first through site planning and project design. Barriers and structural changes may be used as mitigation techniques only when planning and design prove sufficient.

Program N-1.2.2: Consider requiring an acoustical study and mitigation measures for projects that would cause a “substantial increase” in noise as defined by the following criteria or would generate unusual noise which could cause significant adverse community response:

- a) cause the L_{dn} in existing residential areas to increase by 3 dB or more; or
- b) cause the L_{dn} in existing residential areas to increase by 2 dB or more if the L_{dn} would exceed 70 dB.

Program N-1.2.3: Consider requiring an acoustical study and mitigation measures for proposed projects that City staff finds may generate unusual noise that would cause significant adverse community response, such as, but not limited to, nighttime, single-event noise, or recurring impulsive noise.

Policy N-1.5: Non-Transportation Noise Generation: For new non-transportation noise generators, Table 6 (GP Table N-5) describes the maximum noise level at the nearest residential property line:

Table 6 (General Plan Table N-5)		
Noise Level Performance Standards for New Projects Affected by or Including Non-Transportation Noise Sources		
Noise Level Descriptor	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 a.m.)
Hourly L_{eq} , dB	55	45
Maximum level, dB	75	65

Impacts and Mitigation Measures

Noise Impacts Resulting from the Proposed Project and Non-Lethal Program Alternative

The IWDM Program provides assistance to protect livestock, crops, human health and safety and property from wildlife damage. The target species for the IWDM Program include coyote, raccoon, striped skunk, spotted skunk, badger, Virginia opossum, bobcat, feral dog, gray fox, red fox, black bear, mountain lion, feral swine, black-tailed deer, California ground squirrel/other squirrels, and avian species including rock dove and European starling.

As mentioned previously, the proposed project would include implementation of a variety of wildlife control methods by APHIS-WS-CA staff. Based on information obtained from APHIS-WS-CA, the following IWDM Program wildlife control methods have been identified as noise-generating:

Firearms

The use of firearms (shooting) as a wildlife control method is typically conducted with hand guns, rifles, and shotguns. Shooting is frequently performed in conjunction with calling particular predators such as coyotes, bobcats, and fox. Shooting is considered to be an essential control method used by the IWDM Program, and is most commonly implemented in situations where human safety is threatened (i.e., deer near airport runways, or threatening feral swine). This control method is limited to locations where it is legal and safe to discharge firearms.

Electronic Distress Sounds

This wildlife control method involves the playback of distress and alarm calls (often in digital format) from either fixed or mobile equipment in the immediate or surrounding problem area. Calls may be played for short (few second) bursts, for longer periods, or even continually, depending on the severity of damage and duration effectiveness.

Tracking Dogs

This wildlife control method involves the use of trained dogs to locate, pursue, or decoy animals. Dogs commonly used for these tasks include breeds of hounds such as blue tick, red-bone, and

Walker. Tracking dogs are trained to locate the target species tracks, pursue, and howl once the target is found.

Frightening Devices

Frightening devices may use sound, lights, pursuit or other methods to disperse animals from the area to be protected. These methods are best suited for short-term protection of relatively small areas. Propane cannons are one type of method designed to produce loud explosions at controllable intervals. They are strategically located in areas of high wildlife use to frighten wildlife from the problem site. Pyrotechnics are another form of frightening device that range from shell crackers or scare cartridges fired from shotguns to noise and whistle bombs fired from flare pistols. According to information obtained from APHIS-WS-CA, the use of propane cannons and pyrotechnics for the purposes of wildlife control have not been implemented by APHIS-WS-CA in Mendocino County within the past 10 years. Nonetheless, this report includes an evaluation of noise from these control methods in the event wildlife specialists deem them appropriate for implementation.

Livestock Protection Dogs

This wildlife control method involves the integration of specific large breeds of dogs with livestock for the purposes of disrupting predatory behavior. Livestock protection dogs are working dogs that stay with or near livestock most of the time, and are most commonly used with sheep. Dogs commonly used for these roles include Great Pyrenees, Anatolian Shepherds (Akbash), Komondors, and Maremmas.

California Environmental Quality Act (CEQA) Impact Criteria

According to Appendix G of the California Environmental Quality Act (CEQA) guidelines, a significant noise or vibration impact could occur if the project would result in:

- A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards;
- B. Generation of excessive groundborne vibration or groundborne noise levels; or
- C. For a project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

It should be noted that audibility is not a test of significance according to CEQA. If this were the case, any project which added any audible amount of noise to the environment would be considered unacceptable according to CEQA. Because every physical process creates noise, the use of audibility alone as significance criteria would be unworkable. CEQA requires a

substantial increase in noise levels before noise impacts are identified, not simply an audible change.

Thresholds of Significance – Project-Related Noise Level Increase Criteria

County of Mendocino Jurisdiction

According to Policy DE-105 of the Mendocino County General Plan, a 5 dB increase in CNEL or L_{dn} noise levels shall be normally considered to be a significant increase in noise. As a result, a 5 dB CNEL/ L_{dn} increase was applied in the assessment of project-related noise level increases at sensitive receptors located within the jurisdiction of Mendocino County.

Incorporated City Jurisdictions

As mentioned in the Regulatory Setting, the noise criteria identified in the Fort Bragg Coastal General Plan was conservatively applied in the assessment of noise-generating program operations within incorporated city jurisdictions of Mendocino County. According to Policy N-1.2 (Program N-1.2.2) of the Fort Bragg Coastal General Plan, a substantial increase is determined if a project were to cause the L_{dn} in existing residential areas to increase by 3 dB or more, or 2 dB or more if the L_{dn} would exceed 70 dB.

State and Federal Jurisdictions

The code sections of the identified state and federal agencies do not contain numerical noise level standards that would be directly applicable to the noise-generating wildlife control methods proposed by the project. As a result, it is difficult to quantify the thresholds of significance for project-related noise level increases within these jurisdictions. Based on the character and implementation techniques, the noise-generating wildlife control methods proposed by the project can be categorized as temporary in nature. Further, the noise generating from the proposed project wildlife control methods are similar to those noise sources already occurring within the County of Mendocino, and could be interpreted as being a part of the existing ambient environment.

Due to the variability of allowable uses on state and federal lands within the County of Mendocino, the significance of project-related noise level increases on County state and federal lands are qualitatively evaluated separately in the following assessment.

Thresholds of Significance – Noise Level Standards

United States Forest Service (USFS)

Implementation of the IWDM Program on National Forest Service managed land (by APHIS-WS-CA staff) would be subject to Code of Federal Regulations (CFR) criteria. Specifically, code sections 36 CFR 261.1(a), 36 CFR 261.10, and 36 CFR 261.16 have been identified as applicable to the noise-generating wildlife control methods proposed by the APHIS-WS-CA program on National Forest Service land.

United States Army Corps of Engineers (USACE)

Implementation of the IWDM Program on USACE managed land (by APHIS-WS-CA staff) would be subject to Code of Federal Regulations (CFR) criteria. Specifically, code sections 36 CFR 327.11, 36 CFR 327.12, and 36 CFR 327.13 have been identified as applicable to the noise-generating wildlife control methods proposed by the APHIS-WS-CA program on USACE land.

Bureau of Land Management (BLM)

Implementation of the IWDM Program on BLM managed land (by APHIS-WS-CA staff) would be subject to Code of Federal Regulations (CFR) criteria. Specifically, 43 CFR 8365.2-5 and 43 CFR 8365.2-2 have been identified as applicable to the noise-generating wildlife control methods proposed by the APHIS-WS-CA program on BLM land.

California Department of Parks and Recreation

Implementation of the IWDM Program on CA State Parks managed land would be subject to California Code of Regulations (CCR) criteria. Specifically, 14 CCR 4309, 14 CCR 4313, and 14 CCR 4320 have been identified as applicable to the noise-generating wildlife control methods proposed by the APHIS-WS-CA program on CA State Parks land.

County Jurisdiction – Mendocino County Zoning Code

Implementation of the IWDM Program on lands within the jurisdiction of the County of Mendocino would be subject to the noise criteria identified in the Mendocino County General Plan and Zoning Code.

The Mendocino County General Plan contains noise level limits that are expressed in terms of L_{dn}/C_{NEL} and L_{50} . The Mendocino County Zoning Code also contains noise level limits that are expressed in terms of L_{50} , but include adjustments to the standards based on duration and character of the noise source. The noise-generating wildlife control methods identified above consist of noise sources that are impulsive or short-term in nature. Because the General Plan L_{dn}/C_{NEL} noise level descriptors do not correlate well with impulsive or short-term noise sources affecting humans, the assessment of noise impacts due to the proposed wildlife control methods are more appropriately subject to the short-term noise level descriptors identified in the County Zoning Code. Satisfaction with the short-term noise level limits of the County Zoning Code would ensure for satisfaction of the less strict short-term noise level limits of the County General Plan.

As noted in Table 5, there are various adjustments to the County Zoning Code noise limits which are applied based on duration, character, and ambient noise level. The adjustment criteria from Table 5 has been reproduced below:

Duration

If the duration of a noise source occurs for 30 minutes per hour or more (L_{50}), no adjustment to the standard is applied. If the noise source occurs for 15 minutes per hour (L_{25}), a +5 dB adjustment is applied. If the noise source is instantaneous in nature, an

adjustment of +20 dB is applied to the standard (maximum permissible noise level limit, L₀ or L_{max}).

Character

If the character of the noise source consists of a tone, whine, screech, hum, or impulsive, hammering, riveting, or music or speech, a +5 dB adjustment is applied.

Ambient Noise Level

When measured existing ambient L₅₀ or L₂₅ noise levels exceed the standard, a +5 dB adjustment is applied. When measured existing ambient L_{max} noise levels exceed the standard, the measured maximum noise level becomes the standard.

After analysis of the ambient noise level data, in no case did the measured ambient noise level exceed the standards. As a result, adjustments to the County Zoning Code noise level limits were only applied based on noise source duration and character, as indicated above. Tables 7 and 8 provide summaries of the adjusted noise standards applied to all noise-generating program wildlife control methods.

<p align="center">Table 7 Adjusted Mendocino County Exterior Noise Limits Applied to Project Firearms, Electronic Distress Devices, Tracking Dogs, and Frightening Devices</p>							
Land Use	Time Period	Unadjusted County Standards, dB (L ₅₀)		Adjustments, dB ¹		Adjusted County Standards, dB (L _{max})	
		Rural	Urban	Duration	Character	Rural	Urban
One and Two Family Residential	10 pm – 7 am	40	50	+20	+5	65	75
	7 am – 10 pm	50	60			75	85
Multi-Family Public Spaces	10 pm – 7 am	45	55			70	80
	7 am – 10 pm	50	60			75	85
Limited Commercial Some Multi-Family	10 pm – 7 am	55				80	
	7 am – 10 pm	60				85	
Commercial	10 pm – 7 am	60				85	
	7 am – 10 pm	65				90	
Light Industrial	10 pm – 7 am	70				95	
Heavy Industrial	7 am – 10 pm	75				100	

Notes:

¹ Noise from tracking dogs typically occurs when the target animal is located and/or cornered (accompanied with its handler), and would occur for a relatively short duration. Because these noise sources are instantaneous or short-term in duration (L_{max}), these sources would be subject to an adjustment of +20 dB. Because the character of these noise sources are either impulsive or consist of a whine, music, or speech, an adjustment +5 dB would be applicable.

**Table 8
Adjusted Mendocino County Exterior Noise Limits Applied to Project
Livestock Protection Dogs**

Land Use	Time Period	Unadjusted County Standards, dB (L ₅₀)		Adjustments, dB ¹		Adjusted County Standards, dB (L ₂₅)	
		Rural	Urban	Duration	Character	Rural	Urban
One and Two Family Residential	10 pm – 7 am	40	50	+5	+5	50	60
	7 am – 10 pm	50	60			60	70
Multi-Family Public Spaces	10 pm – 7 am	45	55			55	65
	7 am – 10 pm	50	60			60	70
Limited Commercial Some Multi-Family	10 pm – 7 am	55				65	
	7 am – 10 pm	60				70	
Commercial	10 pm – 7 am	60				70	
	7 am – 10 pm	65				75	
Light Industrial	10 pm – 7 am	70				80	
Heavy Industrial	7 am – 10 pm	75				85	

Notes:

¹ Noise from livestock protection dogs would occur when alerted to a nearby predator. Based on this information, it is reasonably assumed that noise from livestock protection dogs would occur infrequently, for short durations at a time. For the purposes of this analysis, the noise level descriptor corresponding to a 15 minute duration of an hour (L₂₅) was conservatively applied to program livestock protection dog noise levels – which would be subject to an adjustment of +5 dB. Additionally, because a dog bark could be considered an impulsive noise source, this noise source would be subject to an adjustment of +5 dB.

As mentioned previously, the County of Mendocino also establishes criteria for noise on county-owned lands (Section 14.16.020). However, this code section provides for an exemption for personnel of law enforcement or governmental agencies acting in furtherance of a law enforcement or governmental objective. Because the IWDM Program would be implemented on county-owned land by APHIS-WS-CA staff (a federal government program), noise related to the implementation of the program would be exempt. As a result, the noise criteria contained in Section 14.16.020 was not applied in this analysis.

Incorporated City Jurisdictions – Fort Bragg Coastal General Plan

As mentioned in the Regulatory Setting, the noise criteria identified in the City of Fort Bragg Coastal General Plan was conservatively applied in the assessment of noise-generating program operations within incorporated city jurisdictions of Mendocino County. As a result, the noise related performance standards for non-transportation noise sources identified in Table 6 (GP Table N-5) were applied to IDWM Program operations within incorporated city jurisdictions within Mendocino County.

Impact Assessment Methodology

The proposed project would include implementation of a variety of wildlife control methods by APHIS-WS-CA staff (with IWDM Program oversight), some of which would result in the creation of noise. The non-lethal program alternative would involve the use of wildlife control methods that would be implemented under the proposed project, with the exception of the lethal control

methods. However, a variation to the non-lethal program alternative is also under consideration, which would include the limited use of lethal control methods in instances where wildlife poses a threat to public health or safety.

Noise impacts due to the implementation of wildlife control methods of the proposed IWDM Program and non-lethal program alternative (with variation) are assessed relative to the applicable local, state, federal, and CEQA Appendix G checklist noise criteria. Specifically, noise impacts due to the project would occur if project or project alternative-generated wildlife control methods would cause a substantial temporary or permanent increase in noise levels relative to the noise level increase significance criteria outlined in the Thresholds of Significance – Project-Related Noise Level Increase Criteria section of this report. Noise impacts would also occur if project or program alternative-generated wildlife control methods would exceed applicable federal, state or local noise-related criteria, as identified in the Thresholds of Significance – Noise Level Standards section of this report. Lastly, impacts would occur if project or project alternative-generated wildlife control methods would result in the generation of excessive groundborne vibration or groundborne noise levels relative to the recommended vibration criteria established by Caltrans (Table 2).

It should be noted that there are a total of 10 tribal nations located within the County of Mendocino – all of which are federally recognized as sovereign nations. Federally recognized tribal sovereignty grants the inherent authority of tribal nations to govern themselves within the United States. Because sovereign tribal nations are recognized as “domestic dependant nations”, the tribal lands located within the County of Mendocino would be subject to only federal and tribal laws. This assessment reasonably assumes that IWDM Program operations on the sovereign tribal nations within the County of Mendocino would be required to comply with all applicable federal and individual tribal nations laws. As a result, an evaluation of noise impacts associated with the implementation of IWDM Program operations on sovereign nation lands within the County of Mendocino are not included in this assessment.

Impact 1: Program Firearms Noise Exposure within Mendocino County Jurisdiction

Proposed Project

The project proposes the use of firearms as one of the wildlife control methods to be implemented by APHIS-WS-CA staff. The primary noise source associated with this method is the discharge of firearms.

To quantify project firearms noise generation, BAC utilized a combination of file data and published measured noise level data for the firearms proposed to be utilized by APHIS-WS-CA staff. According to the list of proposed firearms (provided by APHIS-WS-CA staff), suppressors are used with at least one model (AR-10 rifle). According to the non-profit organization Americans for Responsible Solutions (ARS), the average suppression level, according to independent tests done on a variety of commercially available suppressors, is around 30 dB.

Table 9 shows the noise levels associated with these firearms models (based on BAC file data and published measurement data), and associated calculated noise contours for each model – which are also the adjusted Mendocino County Zoning Code L_{max} noise standards identified in Table 7. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Because APHIS-WS-CA implements the use of suppressors, for the purposes of this study, the Table 9 data also show the noise levels associated with the use of suppressed project firearms based on the cited average noise reduction achieved with the implementation of a suppressor (30 dB). According to APHIS-WS-CA staff, the implementation of a suppressor with a shotgun would not be utilized.

Table 9										
Program Firearms Model Noise Contours Relative to										
Adjusted Mendocino County Zoning Code Noise Criteria										
Integrated Wildlife Damage Management Program EIR – Mendocino County, California										
Model	Type	L_{max} , dB At 150 feet ¹	Noise Contours/Adjusted County Standards, L_{max} (dBA) and Associated Distance from Source, feet							
			65	70	75	80	85	90	95	100
12 gauge shotgun	Unsuppressed	115	9,403	7,432	5,668	4,146	2,894	1,924	1,221	745
.357 pistol	Unsuppressed	115	9,403	7,432	5,668	4,146	2,894	1,924	1,221	745
	Suppressed	85	1,221	745	442	256	147	83	47	26
.204 rifle	Unsuppressed	112	8,198	6,346	4,723	3,361	2,278	1,472	912	546
	Suppressed	82	912	546	319	183	104	59	33	18
22-250 rifle	Unsuppressed	110	7,432	5,668	4,146	2,894	1,924	1,221	745	442
	Suppressed	80	745	442	256	147	83	47	26	15
.22 rifle LR	Unsuppressed	109	7,062	5,343	3,873	2,677	1,763	1,110	673	397
	Suppressed	79	673	397	229	131	74	42	23	13
AR-10 .308	Suppressed	90	1,924	1,221	745	442	256	147	83	47

Notes:

¹ Unsuppressed firearms reference noise levels based on a combination of firearms measurements conducted by BAC and published measurement noise levels. Suppressed firearms reference noise levels include a 30 dB noise level reduction based on published conclusions from independent testing of commercial suppression equipment.

Source: Bollard Acoustical Consultants, Inc. (2019)

Footnote 2 of Table 5 (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature and character of the noise source, project firearms discharges could be considered temporary, short-term or intermittent.

The utilization of project firearms within close proximity to sensitive receptors could occur in instances where wildlife poses a threat to public health or safety, or in situations where it is generally not feasible to maintain the distances indicated in Table 9. Further, the Table 9 data

indicate that project firearms could still exceed the applicable noise level standards with the use of suppressors.

The use of firearms for recreational shooting and hunting purposes is permitted (and actively occurs) on both public and private lands within the County of Mendocino. Further, the firearms models proposed to be utilized by the APHIS-WS-CA program are models commonly used for recreational shooting and hunting purposes. Thus, it is reasonable to infer that discharges emitted from project firearms and those generated from recreation and hunting purposes already occurring within the County of Mendocino could sound similar. Therefore, it could be difficult to determine the difference between project firearms discharges and those that already occur within the existing noise environment. Nonetheless, should a sensitive receptor be located within the noise contours identified in Table 9, project-related firearms (suppressed or unsuppressed) could exceed the adjusted Mendocino County Zoning Code noise level standards.

Recommendations for Impact 1:

In order to reduce the potential for an exceedance of the Mendocino County Zoning Code noise level criteria, the following recommendations are identified for IWDM Program staff in the implementation of firearms usage within the jurisdiction of Mendocino County:

1A: To the extent feasible, project firearms discharges should occur outside of the Table 9 noise contours as applicable to the corresponding time period and land use category of the receptor in Table 7.

OR

1B: To the extent feasible, a non-noise-generating wildlife control method should be utilized by IWDM Staff as an alternative to the use of firearms if sensitive receptors are located within the distances shown in Table 9 for the selected firearm.

Non-Lethal Program Alternative Variation

The methodology and related noise exposure associated with the implementation of firearms proposed by the project and non-lethal program alternative variation within the County of Mendocino are synonymous. Therefore, the recommendations identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 2: Program Firearms Noise Exposure within Incorporated City Jurisdictions

Proposed Project

To quantify project firearms noise generation, BAC utilized a combination of file data and published measured noise level data for the firearms proposed to be utilized by APHIS-WS-CA staff. According to the list of proposed firearms (provided by APHIS-WS-CA staff), suppressors can be used with all models, with the exception of 12-gauge shotgun. According to the non-profit

organization Americans for Responsible Solutions (ARS), the average suppression level, according to independent tests done on a variety of commercially available suppressors, is around 30 dB.

Because noise levels generated from project firearms discharges are categorized as instantaneous, noise exposure associated with this wildlife control method has been assessed relative to the Fort Bragg Coastal General Plan maximum (L_{max}) noise level limits (Table 6). Table 10 shows the noise levels associated with project firearms models (based on BAC file data and published measurement data), and associated calculated noise contours for each model – which are also the Fort Bragg Coastal General Plan L_{max} noise standards identified in Table 6. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Because APHIS-WS-CA implements the use of suppressors, for the purposes of this study, the Table 10 data also show the noise levels associated with the use of suppressed project firearms based on the cited average noise reduction achieved with the implementation of a suppressor (30 dB). As mentioned above, according to APHIS-WS-CA staff, the implementation of a suppressor with a shotgun would not be utilized.

Table 10 Program Firearms Model Noise Contours Relative to Fort Bragg Coastal General Plan Noise Criteria Integrated Wildlife Damage Management Program EIR – Mendocino County, California				
Model	Type	L_{max} , dB At 150 feet ¹	Noise Contours/City Standards, L_{max} (dBA) and Associated Distance from Source, feet	
			65	75
12 gauge shotgun	Unsuppressed	115	9,403	5,668
.357 pistol	Unsuppressed	115	9,403	5,668
	Suppressed	85	1,221	442
.204 rifle	Unsuppressed	112	8,198	4,723
	Suppressed	82	912	319
22-250 rifle	Unsuppressed	110	7,432	4,146
	Suppressed	80	745	256
.22 rifle LR	Unsuppressed	109	7,062	3,873
	Suppressed	79	673	229
AR-10 .308	Suppressed	90	1,924	745

Notes:

¹ Unsuppressed firearms reference noise levels based on a combination of firearms measurements conducted by BAC and published measurement noise levels. Suppressed firearms reference noise levels include a 30 dB noise level reduction based on published conclusions from independent testing of commercial suppression equipment.

Source: Bollard Acoustical Consultants, Inc. (2019)

The utilization of project firearms within close proximity to residential uses could occur in instances where wildlife poses a threat to public health or safety, or in situations where it is generally not feasible to maintain the distances indicated in Table 10. Further, the Table 10 data indicate that

project firearms could still exceed the applicable noise level standards with the use of suppressors.

Based on the nature of program operations, it is expected that implementation of program wildlife control methods would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor be located within the noise contours identified in Table 10, project-related firearms (suppressed or unsuppressed) could exceed the Fort Bragg Coastal General Plan noise level standards. This analysis for the urban/incorporated areas of the County is conservative from the standpoint that the Fort Bragg Coastal General Plan noise level standards are more restrictive than the noise level standards of the other incorporated cities within the County. Thus, compliance with the Table 10 setback distances in all jurisdictions would ensure compliance with the less restrictive noise level standards in the remaining incorporated cities.

Recommendations for Impact 2:

In order to reduce the potential for an exceedance of noise criteria established by incorporated cities within Mendocino County, the following recommendations are identified for IWDM Program staff in the implementation of firearms usage within incorporated city limits:

2A: To the extent feasible, project firearms discharges should occur outside of the Table 10 noise contours if a sensitive receptor is located within those distances.

OR

2B: To the extent feasible, a non-noise-generating wildlife control method should be utilized by IWDM Staff as an alternative to the use of firearms if a sensitive receptor is located within the distances shown in Table 10 for the selected firearm.

Non-Lethal Program Alternative Variation

The methodology and related noise exposure associated with the implementation of firearms proposed by the project and non-lethal program alternative variation within the incorporated cities of Mendocino County are synonymous. Therefore, the recommendations identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 3: Program Firearms Noise Exposure within USFS Jurisdiction

Proposed Project

Pursuant to 36 CFR 261.10(d), the following are prohibited on National Forest Service land:

(d) Discharging of a firearm or any other implement capable of taking human life, causing injury, or damaging property as follows:

(1) In or within 150 yards of a residence, building, campsite, developed recreation site or occupied area, or

- (2) Across or on a National Forest System road or a body of water adjacent thereto, or in any manner or place whereby any person or property is exposed to injury or damage as a result in such discharge.
- (3) Into or within any cave.

The use of firearms for recreational shooting and hunting purposes is permitted (and actively occurs) on USFS lands within the County of Mendocino. Further, the firearms models proposed to be utilized by the APHIS-WS-CA program are models commonly used for recreational shooting and hunting purposes. Thus, it is reasonable to infer that discharges emitted from project firearms and those generated from recreation and hunting purposes already occurring on USFS lands within the County of Mendocino could sound similar. Therefore, it could be difficult to determine the difference between project firearms discharges and those that already occur within the existing noise environment.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 36 CFR 261.10(d) while on National Forest Service land. In addition, code section 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans – which would be applicable to APHIS-WS-CA program firearm operations on National Forest Service land. According to APHIS-WS-CA, all wildlife control methods proposed for use on USFS lands would be discussed and approved prior to implementation.

In conclusion, program operations would be required to comply with the above-mentioned sections, and noise generated from project firearms discharges on USFS lands within Mendocino County would be similar to those that already legally occur on these lands.

Non-Lethal Program Alternative Variation

The methodology and related noise exposure associated with the implementation of firearms proposed by the project and non-lethal program alternative variation on National Forest Service land are synonymous. Therefore, the conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 4: Program Firearms Noise Exposure within USACE Jurisdiction

Proposed Project

There is no identified CFR code section that would be directly applicable to program firearms noise levels on USACE lands. However, code section 36 CFR 327.13(a)(4) states that the possession of loaded firearms, ammunition, loaded projectile firing devices, bows and arrows, crossbows, or other weapons is prohibited unless written permission is received from the District Commander.

The use of firearms for hunting purposes is permitted (and actively occurs) on USACE lands within the County of Mendocino, namely, Lake Mendocino.¹ Further, the firearms models proposed to be utilized by the APHIS-WS-CA program are models commonly used for recreational shooting and hunting purposes. Thus, it is reasonable to infer that discharges emitted from project firearms and those generated from recreation and hunting purposes already occurring on USACE lands within the County of Mendocino could sound similar. Therefore, it could be difficult to determine the difference between project firearms discharges and those that already occur within the existing noise environment.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 36 CFR 327.13(a)(4) while on USACE lands – including obtaining written permission from the District Commander. According to APHIS-WS-CA, all wildlife control methods proposed for use on USACE lands would be discussed and approved prior to implementation.

In conclusion, program operations would be required to comply with the above-mentioned sections, and noise generated from project firearms discharges on USACE lands within Mendocino County would be similar to those that already legally occur on these lands.

Non-Lethal Program Alternative Variation

The methodology and related noise exposure associated with the implementation of firearms proposed by the project and non-lethal program alternative variation on USACE lands are synonymous. Therefore, the conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 5: Program Firearms Noise Exposure within BLM Jurisdiction

Proposed Project

Pursuant to 43 CFR 8365.2-5(a), no person shall discharge or use firearms, other weapons, or fireworks on developed BLM recreation sites and areas, unless otherwise authorized.

The use of firearms for recreational shooting and hunting purposes is permitted (and actively occurs) on BLM lands within the County of Mendocino. Further, the firearms models proposed to be utilized by the APHIS-WS-CA program are models commonly used for recreational shooting and hunting purposes. Thus, it is reasonable to infer that discharges emitted from project firearms and those generated from recreation and hunting purposes already occurring on BLM lands within the County of Mendocino could sound similar. Therefore, it could be difficult to determine the difference between project firearms discharges and those that already occur within the existing noise environment.

¹ <https://www.spn.usace.army.mil/Missions/Recreation/Lake-Mendocino/Hunting/>; accessed March 25, 2019.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 43 CFR 8365.2-5(a) while on BLM lands – including obtaining the appropriate authorization.

In conclusion, program operations would be required to comply with the above-mentioned code section, and noise generated from project firearms discharges on BLM lands within Mendocino County would be similar to those that already legally occur on these lands.

Non-Lethal Program Alternative Variation

The methodology and related noise exposure associated with the implementation of firearms proposed by the project and non-lethal program alternative variation on BLM lands are synonymous. Therefore, the conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 6: Program Firearms Noise Exposure within CA State Parks Jurisdiction

Proposed Project

Pursuant to 14 CCR 4313(a), no person shall carry, possess or discharge across, in or into any portion of any unit any weapon, firearm, spear, bow and arrow, trap, net, or device capable of injuring, or killing any person or animal, or capturing any animal on CA State Parks land. However, code section 14 CCR 4309 states that the Department may grant a permit to remove, treat, disturb, or destroy animals – which would be applicable to APHIS-WS-CA program firearms operations on CA State Parks land.

In conclusion, there is no identified noise criteria that would be directly applicable to project firearms discharges on CA State Parks land. Further, program operations would be required to comply with the above-mentioned code sections, including obtaining a permit from the Department.

Non-Lethal Program Alternative Variation

The methodology and related noise exposure associated with the implementation of firearms proposed by the project and non-lethal program alternative variation on CA State Parks land are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 7: Program Electronic Distress Device Noise Exposure within Mendocino County Jurisdiction

Proposed Project

The project proposes the use of electronic distress sounds as one of the wildlife control methods to be implemented by APHIS-WS-CA staff. This wildlife control method involves the playback of distress and alarm calls from either fixed or mobile equipment in the immediate or surrounding problem area. The primary noise source associated with this wildlife control method is the electronic playback of distress and alarm calls. It is important to note for this analysis that WS-

CA would not be involved in the routine use of electronic distress devices as part of the IWDM Program. At most, at the request of the landowner, APHIS-WS-CA may provide limited field demonstration of such equipment to the landowner. After demonstration, the ongoing use of the electronic distress device would be the sole responsibility of the landowner. Since Program funds would only be used for the short-term field demonstration by APHIS-WS-CA, and not ongoing use of such equipment by the landowner, this noise analysis can be focused on the very limited instances of APHIS-WS-CA field demonstrations.

To quantify project electronic distress device noise generation, BAC utilized equipment manufacturer reference noise level data for a range of device models used in both homeowner and commercial (agricultural) applications. Table 11 shows the reference noise levels associated with these devices, and associated calculated noise contours for each model – which are also the adjusted Mendocino County Zoning Code noise standards identified in Table 7. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Table 11									
Program Electronic Distress Device Noise Contours Relative to									
Adjusted Mendocino County Zoning Code Noise Criteria									
Integrated Wildlife Damage Management Program EIR – Mendocino County, California									
Device Model	SPL (dB) at 3 feet^{1,2}	Noise Contours/Adjusted County Noise Standards, L_{max} (dBA) and Associated Distance from Source (feet)							
		65	70	75	80	85	90	95	100
Bird Gard Super Pro	125	2,232	1,440	890	533	311	179	102	58
Bird-X Mega Blaster Pro	125	2,232	1,440	890	533	311	179	102	58
Bird-X Birdxpeller Pro	110	533	311	179	102	58	33	19	11
Bird-X Broadband Pro	105	311	179	102	58	33	19	11	6
Bird B Gone Super Sonic	100	179	102	58	33	19	11	6	4
Source:									
¹ Device model reference noise level data obtained from equipment manufacturer literature.									
² SPL=Sound Pressure Level									

Footnote 2 of Table 5 (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature, character, and duration of the noise source, project electronic distress devices could be considered temporary, short-term or intermittent. However, should a sensitive receptor be identified within the Table 11 noise contours, project-related electronic distress devices could exceed the adjusted Mendocino County Zoning Code noise level standards.

Recommendations for Impact 7:

In order to reduce the potential for an exceedance of the Mendocino County Zoning Code noise level criteria, the following recommendations are identified for IWDM Program staff in the implementation of electronic distress devices within the jurisdiction of Mendocino County:

7A: To the extent feasible, project electronic distress devices should be located outside of the Table 11 noise contours as applicable to the corresponding time period and land use category of the receptor in Table 7.

OR

7B: To the extent feasible, a non-noise-generating wildlife control method should be utilized by IWDM Staff as an alternative to the use of electronic distress devices if sensitive receptors are located within the distances shown in Table 11 for the selected equipment.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of electronic distress devices proposed by the project and non-lethal program alternative within the County of Mendocino jurisdiction are synonymous. Therefore, the recommendations identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 8: Program Electronic Distress Device Noise Exposure within Incorporated City Jurisdictions

Proposed Project

To quantify project electronic distress device noise generation, BAC utilized equipment manufacturer reference noise level data for a range of device models used in both homeowner and commercial (agricultural) applications. Because project electronic distress devices would only be in operation for short durations during instances of field demonstrations for homeowners, noise exposure associated with this wildlife control method has been assessed relative to the City of Fort Bragg Coastal General Plan hourly (L_{max}) noise level limits (Table 6).

Table 12 shows the reference noise levels associated with these devices, and associated calculated noise contours for each model – which are also the Fort Bragg Coastal General Plan L_{max} noise standards identified in Table 6. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Table 12 Program Electronic Distress Device Noise Contours Relative to Fort Bragg Coastal General Plan Noise Criteria Integrated Wildlife Damage Management Program EIR – Mendocino County, California			
Device Model	SPL (dB) at 3 feet^{1,2}	Noise Contours/City Noise Standards, L_{max} (dBA) and Associated Distance from Source (feet)	
		65	75
Bird Gard Super Pro	125	2,232	890
Bird-X Mega Blaster Pro	125	2,232	890
Bird-X Birdxpeller Pro	110	533	179
Bird-X Broadband Pro	105	311	102
Bird B Gone Super Sonic	100	179	58

Source:
¹ Device model reference noise level data obtained from equipment manufacturer literature.
² SPL=Sound Pressure Level

Based on the nature of program operations, it is expected that implementation of program wildlife control methods would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor be located within the Table 12 noise contours, project-related electronic distress devices could exceed the Fort Bragg Coastal General Plan noise level standards. This analysis for the urban/incorporated areas of the County is conservative from the standpoint that the Fort Bragg Coastal General Plan noise level standards are more restrictive than the noise level standards of the other incorporated cities within the County. Thus, compliance with the Table 12 setback distances in all jurisdictions would ensure compliance with the less restrictive noise level standards in the remaining incorporated cities.

Recommendations for Impact 8:

In order to reduce the potential for an exceedance of noise criteria established by incorporated cities within Mendocino County, the following recommendations are identified for IWDM Program staff in the implementation of electronic distress devices within incorporated city limits:

8A: To the extent feasible, project electronic distress devices should be located outside of the Table 12 noise contours if a sensitive receptor is located within those distances.

OR

8B: To the extent feasible, a non-noise-generating wildlife control method should be utilized by IWDM Staff as an alternative to the use of electronic distress devices if a sensitive receptor is located within the distances shown in Table 12 for the selected equipment.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of electronic distress devices proposed by the project and non-lethal program alternative within the incorporated city jurisdictions of Mendocino County are synonymous. Therefore, the recommendations identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 9: Program Electronic Distress Device Noise Exposure USFS Lands

Proposed Project

Pursuant to 36 CFR 261.10(i), operating or using in or near a campsite, developed recreation site, or over an adjacent body of water without a permit, any device which produces noise, such as a radio, television, musical instrument, motor or engine in such a manner and at such a time so as to unreasonably disturb any person while on National Forest Service land is prohibited. Based on the nature of this wildlife control method, it is reasonable to assume that implementation of program distress devices on USFS lands would primarily occur within rural agricultural areas, as opposed to developed recreation areas. However, should implementation of these devices occur within or near developed recreation areas of USFS lands (e.g., campsites, recreation sites, etc.), program electronic distress device noise would comply with code section 36 CFR 261.10(i).

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 36 CFR 261.10(i) while on National Forest Service land. In addition, code section 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans – which would be applicable to APHIS-WS-CA program electronic distress device operations on National Forest Service land. According to APHIS-WS-CA, all wildlife control methods proposed for use on USFS lands would be discussed and approved prior to implementation

In conclusion, program operations would be required to comply with the above mentioned code sections, including obtaining the appropriate authorizations.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of electronic distress devices proposed by the project and non-lethal program alternative on National Forest Service land are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 10: Program Electronic Distress Device Noise Exposure USACE Lands

Proposed Project

Pursuant to 36 CFR 327.12(b), quiet shall be maintained in all public use areas between the hours of 10 p.m. and 6 a.m., or those hours designated by the District Commander. The code section

also states that excessive noise during such times which unreasonably disturbs persons is prohibited.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 36 CFR 32.12(b) while on USACE land. Additionally, APHIS-WS-CA staff has stated that all wildlife control methods proposed for use on USACE lands would be discussed and approved by the appropriate authority prior to implementation.

In conclusion, program operations would be required to comply with the above-mentioned code section, and obtain permission from the District Commander.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of electronic distress devices proposed by the project and non-lethal program alternative on USACE land are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 11: Program Electronic Distress Device Noise Exposure within BLM Jurisdiction

Proposed Project

Pursuant to 43 CFR 8365.2-2, no person shall operate or use any audio device such as a radio, television, musical instrument, or other noise producing device or motorized equipment in a manner that makes unreasonable noise that disturbs other visitors while on developed BLM recreation sites and areas, unless otherwise authorized. Based on the nature of this wildlife control method, it is reasonable to assume that implementation of program distress devices on BLM lands would primarily occur within rural areas, as opposed to developed recreation sites and areas. However, should implementation of these devices occur within or near these developed areas of BLM lands, program electronic distress device noise would be required to comply with code section 43 CFR 8365.2-2.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 43 CFR 8365.2-2 while on BLM lands – including obtaining the appropriate authorization. According to APHIS-WS-CA, all wildlife control methods proposed for use on BLM lands would be discussed and approved prior to implementation.

In conclusion, program operations would be required to comply with the above-mentioned code section, including obtaining the appropriate authorization.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of electronic distress devices proposed by the project and non-lethal program alternative on BLM lands are

synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 12: Program Electronic Distress Device Noise Exposure within CA State Parks Jurisdiction

Proposed Project

Pursuant to 14 CCR 4320(b), no person shall at any time, use outside machinery or electronic equipment including electrical speakers, radios, phonographs, televisions, or other devices, at a volume which is, or is likely to be, disturbing to others without specific permission of the Department while on CA State Parks land.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 14 CCR 4320(b) while on CA State Parks land. In addition, code section 14 CCR 4309 states that the Department may grant a permit to remove, treat, disturb, or destroy animals – which would be applicable to APHIS-WS-CA program electronic device operations on CA State Parks land. According to APHIS-WS-CA, all wildlife control methods proposed for use on CA State Parks land would be discussed and approved prior to implementation.

In conclusion, program operations would be required to comply with the above-mentioned code section, including obtaining specific permission of the Department.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of electronic distress devices proposed by the project and non-lethal program alternative on CA State Parks land are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 13: Program Tracking Dog Noise Exposure within Mendocino County Jurisdiction

Proposed Project

The project proposes the use of tracking dogs as one of the wildlife control methods to be implemented by APHIS-WS-CA staff. This wildlife control method involves the use of trained dogs to locate, pursue, or decoy animals. The primary noise source associated with this control method is dog howling upon the discovery of the target animal.

According to the project description, common tracking dogs include breeds of hounds such as blue tick, red-bone, and Walker. However, due to the lack of reliable dog bark noise level measurements available for these breeds, BAC utilized published noise level measurements for a Golden Retriever bark in order to quantify project tracking dog noise generation. According to

Guinness World Records, a Golden Retriever has the loudest measured bark by any dog breed.² Therefore, the noise level data used for a Golden Retriever bark in the assessment of project tracking dog noise exposure is considered to be conservative.

According to Guinness World Records, the loudest dog bark in the world was measured by a Golden Retriever (113 dB at a distance of 4 feet). Table 13 shows the dog bark reference noise level, and associated calculated noise contours – which are also the adjusted Zoning Code noise standards identified in Table 7. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Table 13 Program Tracking Dog Noise Contours Relative to Adjusted Mendocino County Zoning Code Noise Criteria Integrated Wildlife Damage Management Program EIR – Mendocino County, California									
Source	SPL (dB) at 4 feet^{1,2}	Noise Contours/Adjusted County Noise Standards, L_{max} (dB) with Associated Distance from Source (feet)							
		65	70	75	80	85	90	95	100
Golden Retriever bark	113	869	519	303	173	99	56	32	18
Source:									
¹ Reference noise level data obtained from Guinness World Records online library.									
² SPL=Sound Pressure Level									

Footnote 2 of Table 5 (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature and character of the noise source, project tracking dog noise levels could be considered temporary, short-term or intermittent. However, should a sensitive receptor be identified within the Table 13 noise contours, project-related electronic distress devices could exceed the adjusted Mendocino County Zoning Code noise level standards.

Recommendations for Impact 13:

In order to reduce the potential for an exceedance of the Mendocino County Zoning Code noise level criteria, the following recommendations are identified for IWDM Program staff in the implementation of tracking dogs within the jurisdiction of Mendocino County:

- 13A:** To the extent feasible, tracking dogs should be located outside of the Table 13 noise contours as applicable to the corresponding time period and land use category of the receptor in Table 7.

² <http://www.guinnessworldrecords.com/world-records/loudest-bark-by-a-dog>; accessed March 15, 2019.

OR

- 13B:** To the extent feasible, a non-noise-generating wildlife control method should be utilized by IWDM Staff as an alternative to the use of tracking dogs if sensitive receptors are located within the distances shown in Table 13.

Non-Lethal Program Alternative

According to the project description, program tracking dogs would be utilized to locate, pursue or decoy target animals that would subsequently be lethally euthanized. As a result, the implementation of program tracking dogs is not considered to be a method under the non-lethal program alternative.

Impact 14: Program Tracking Dog Noise Exposure within Incorporated City Jurisdictions

Proposed Project

To quantify project tracking dog noise generation, BAC utilized published noise level measurements for a Golden Retriever. As referenced in this assessment, a Golden Retriever has the loudest measured bark by any dog breed. Therefore, the noise level data used for a Golden Retriever bark in the assessment of project tracking dog noise exposure is considered to be conservative. According to Guinness World Records, the loudest dog bark in the world was measured by a Golden Retriever (113 dB at a distance of 4 feet).

Because noise from tracking dogs typically only occurs when the target animal is located and/or cornered with its handler, tracking dog noise levels generated from these events are expected to occur within a short duration. Further, dog barking noise is considered to be impulsive in character. Based on this information, noise exposure associated with program tracking dogs was determined to be most appropriately assessed relative to the Fort Bragg Coastal General Plan maximum (L_{max}) noise level limits (Table 6). Table 14 shows the dog bark reference noise level, and associated calculated noise contours – which are also the Fort Bragg Coastal General Plan noise standards identified in Table 6. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Table 14 Program Tracking Dog Noise Contours Relative to Fort Bragg Coastal General Plan Noise Criteria Integrated Wildlife Damage Management Program EIR – Mendocino County, California			
Source	SPL (dB) at 4 feet^{1,2}	Noise Contours/City Noise Standards, L_{max} (dB) with Associated Distance from Source (feet)	
		65	75
Golden Retriever bark	113	869	303
Source: ¹ Reference noise level data obtained from Guinness World Records online library. ² SPL=Sound Pressure Level			

Based on the nature of program operations, it is expected that implementation of program wildlife control methods would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor be located within the Table 14 noise contours, project-related tracking dog noise levels could exceed the Fort Bragg Coastal General Plan noise level standards. This analysis for the urban/incorporated areas of the County is conservative from the standpoint that the Fort Bragg Coastal General Plan noise level standards are more restrictive than the noise level standards of the other incorporated cities within the County. Thus, compliance with the Table 14 setback distances in all jurisdictions would ensure compliance with the less restrictive noise level standards in the remaining incorporated cities.

Recommendations for Impact 14:

In order to reduce the potential for an exceedance of noise criteria established by incorporated cities within Mendocino County, the following recommendations are identified for IWDM Program staff in the implementation of tracking dogs within incorporated city limits:

14A: To the extent feasible, tracking dogs should be located outside of the Table 14 noise contours if a sensitive receptor is identified within those distances.

OR

14B: To the extent feasible, a non-noise-generating wildlife control method should be utilized by IWDM Staff as an alternative to the use of tracking dogs if a sensitive receptor is located within the distances shown in Table 14.

Non-Lethal Program Alternative

According to the project description, program tracking dogs would be utilized to locate, pursue or decoy target animals that would subsequently be lethally euthanized. As a result, the implementation of program tracking dogs is not considered to be a method under the non-lethal program alternative.

Impact 15: Program Tracking Dog Noise Exposure within USFS Jurisdiction

Proposed Project

There is no identified noise related criteria that would be directly applicable to project tracking dog noise exposure on National Forest Service land. However, code section 36 CFR 261.16(j) states that bringing in or possessing an animal, other than a service animal, unless it is crated, caged, or upon a leash not longer than six feet, or otherwise under physical restrictive control while on National Forest Service land is prohibited. In addition, code section 36 CFR 26.16(k) states that bringing in or possessing an animal (other than a service animal) is prohibited.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 36 CFR 261.16(j) and 36 CFR 261.16(k) while on National Forest Service land. In addition, code section 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans – which would be applicable to APHIS-WS-CA program tracking dog operations on National Forest Service land. According to APHIS-WS-CA, all wildlife control methods proposed for use on USFS lands would be discussed and approved prior to implementation.

In conclusion, there is no identified noise related criteria that would be directly applicable to project tracking dog noise exposure on USFS lands, and program operations would be required to comply with the above-mentioned code sections, including obtaining the appropriate authorization.

Non-Lethal Program Alternative

According to the project description, program tracking dogs would be utilized to locate, pursue or decoy target animals that would subsequently be lethally euthanized. As a result, the implementation of program tracking dogs is not considered to be a method under the non-lethal program alternative.

Impact 16: Program Tracking Dog Noise Exposure within USACE Jurisdiction

Proposed Project

Pursuant to 36 CFR 327.11(a), no person shall bring dogs, cats, or other pets into developed recreation areas or adjacent waters unless penned, caged, on a leash under six feet in length, or otherwise physically restrained. Further, the code section also identifies that no person shall allow animals to bark or emit other noise which unreasonably disturbs other people.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 36 CFR 327.11(a) while on USACE land. It is further assumed that APHIS-WS-CA would obtain permission from the District Commander prior to conducting work on USACE land. According to APHIS-WS-CA, all wildlife control methods proposed for use on USACE lands would be discussed and approved prior to implementation.

In conclusion, there is no identified noise related criteria that would be directly applicable to project tracking dog noise exposure on USACE lands, and program operations would be required to

comply with the above-mentioned code section, and would obtain the appropriate authorization from the District Commander.

Non-Lethal Program Alternative

According to the project description, program tracking dogs would be utilized to locate, pursue or decoy target animals that would subsequently be lethally euthanized. As a result, the implementation of program tracking dogs is not considered to be a method under the non-lethal program alternative.

Impact 17: Program Tracking Dog Noise Exposure within BLM Jurisdiction

Proposed Project

There is no identified noise related criteria that would be directly applicable to project tracking dog noise exposure on BLM lands. However, code section 43 CFR 8365.2-5(b) states that, on developed recreation sites and areas, unless otherwise authorized, no person shall bring an animal, except a Seeing Eye or Hearing Ear dog, to a swimming area on BLM lands.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 43 CFR 8365.2-5(b) while on BLM lands – including obtaining the appropriate authorization. According to APHIS-WS-CA, all wildlife control methods proposed for use on BLM lands would be discussed and approved prior to implementation.

In conclusion, there is no identified noise criteria that would be directly applicable to project tracking dogs on BLM lands. Further, program operations would be required to comply with the above-mentioned code section, including obtaining the appropriate authorization.

Non-Lethal Program Alternative

According to the project description, program tracking dogs would be utilized to locate, pursue or decoy target animals that would subsequently be lethally euthanized. As a result, the implementation of program tracking dogs is not considered to be a method under the non-lethal program alternative.

Impact 18: Program Tracking Dog Noise Exposure within CA State Parks Jurisdiction

Proposed Project

There is no identified noise related criteria that would be directly applicable to project tracking dog noise exposure on CA State Parks land. However, code section 14 CCR 4312 establishes criteria pertaining to the control of animals on CA State Parks land.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 14 CCR 4312 while on CA State Parks land – including obtaining the appropriate authorization. In addition, code section 14 CCR 4309 states that the Department may grant a permit to remove, treat,

disturb, or destroy animals – which would be applicable to APHIS-WS-CA program dog tracking operations on CA State Parks land. Lastly, pursuant to code section 14 CCR 4309(g), dogs may be used to assist in hunting in state recreation areas open to hunting, provided that such dogs do not pursue or take any wildlife other than that being hunted.

In conclusion, there is no identified noise criteria that would be directly applicable to project tracking dogs on CA State Parks land. Further, program operations would be required to comply with the above-mentioned code sections, including obtaining the appropriate authorization.

Non-Lethal Program Alternative

According to the project description, program tracking dogs would be utilized to locate, pursue or decoy target animals that would subsequently be lethally euthanized. As a result, the implementation of program tracking dogs is not considered to be a method under the non-lethal program alternative.

Impact 19: Program Frightening Device Noise Exposure within Mendocino County Jurisdiction

Proposed Project

The project proposes the use of frightening devices as one of the wildlife control methods to be implemented by APHIS-WS-CA staff. This wildlife control method involves the use of equipment that includes the creation of impulsive bursts of sound to disperse animals from the area to be protected. It is important to note for this analysis that APHIS-WS-CA would not be involved in the routine use of frightening devices as part of the IWDM Program. At most, at the request of the landowner, APHIS-WS-CA may provide limited field demonstration of such equipment to the landowner. After demonstration, the ongoing use of the frightening devices would be the sole responsibility of the landowner. Since Program funds would only be used for the short-term field demonstration by APHIS-WS-CA, and not ongoing use of such equipment by the landowner, this noise analysis can be focused on the very limited instances of APHIS-WS-CA field demonstrations.

To quantify project frightening device noise generation, BAC utilized equipment information and reference noise level data for devices commonly used by APHIS-WS-CA. Table 15 shows the reference noise levels associated with these devices, and associated calculated noise contours for each device – which are also the adjusted Zoning Code noise standards identified in Table 7. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Table 15 Program Frightening Device Noise Contours Relative to Adjusted Mendocino County Zoning Code Noise Criteria Integrated Wildlife Damage Management Program EIR – Mendocino County, California									
Device	SPL (dB) At 3 feet^{1,2}	Noise Contours/Adjusted County Noise Standards, L_{max} (dB) and Associated Distance from Source (feet)							
		65	70	75	80	85	90	95	100
CAPA	150	10,178	8,139	6,294	4,678	3,324	2,250	1,452	898
Bird Banger EXP	130	3,324	2,250	1,452	898	537	314	180	103
Shell Cracker	130	3,324	2,250	1,452	898	537	314	180	103
M14 Propane Cannon	130	3,324	2,250	1,452	898	537	314	180	103
Guardian G2 Propane Cannon	120	1,452	898	537	314	180	103	58	33
Bird Banger	120	1,452	898	537	314	180	103	58	33
Screamer Siren	100	180	103	58	33	18	10	6	3

Source:

¹ Reference noise level information obtained from product manufacturers (Reed-Joseph International Company and Good Life).

² SPL=Sound Pressure Level

Footnote 2 of Table 5 (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature and character of the noise source, project frightening device noise levels could be considered temporary, short-term or intermittent. However, should a sensitive receptor be identified within the Table 15 noise contours, project-related frightening devices could exceed the adjusted Mendocino County Zoning Code noise level standards.

Recommendations for Impact 19:

In order to reduce the potential for an exceedance of the Mendocino County Zoning Code noise level criteria, the following recommendations are identified for IWDM Program staff in the implementation of frightening devices within the jurisdiction of Mendocino County:

19A: To the extent feasible, frightening devices should be located outside of the Table 15 noise contours as applicable to the corresponding time period and land use category of the receptor shown in Table 7.

OR

19B: To the extent feasible, a non-noise-generating wildlife control method should be utilized by IWDM Staff as an alternative to the use of frightening devices if sensitive receptors are located within the distances shown in Table 15.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of frightening devices proposed by the project and non-lethal program alternative within the County of Mendocino jurisdiction are synonymous. Therefore, the recommendations identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 20: Program Frightening Device Noise Exposure within Incorporated City Jurisdictions

Proposed Project

To quantify project frightening device noise generation, BAC utilized equipment information and reference noise level data for devices commonly used by APHIS-WS-CA. Because noise levels generated from project frightening devices are categorized as instantaneous, noise exposure associated with this wildlife control method has been assessed relative to the Fort Bragg Coastal General Plan maximum (L_{max}) noise level limits (Table 6).

Table 16 shows the reference noise levels associated with these devices, and associated calculated noise contours for each device – which are also the Fort Bragg Coastal General Plan noise standards identified in Table 6. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Table 16 Program Frightening Device Noise Contours Relative to Fort Bragg Coastal General Plan Noise Criteria Integrated Wildlife Damage Management Program EIR – Mendocino County, California			
Device	SPL (dB) At 3 feet ^{1,2}	Noise Contours/Adjusted City Noise Standards, L_{max} (dB) and Associated Distance from Source (feet)	
		65	75
CAPA	150	10,178	6,294
Bird Banger EXP	130	3,324	1,452
Shell Cracker	130	3,324	1,452
M14 Propane Cannon	130	3,324	1,452
Guardian G2 Propane Cannon	120	1,452	537
Bird Banger	120	1,452	537
Screamer Siren	100	180	58

Source:

¹ Reference noise level information obtained from product manufacturers (Reed-Joseph International Company and Good Life).

² SPL=Sound Pressure Level

Based on the nature of program operations, it is expected that implementation of program wildlife control methods would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor

be located within the Table 16 noise contours, project-related frightening devices could exceed the Fort Bragg Coastal General Plan noise level standards. This analysis for the urban/incorporated areas of the County is conservative from the standpoint that the Fort Bragg Coastal General Plan noise level standards are more restrictive than the noise level standards of the other incorporated cities within the County. Thus, compliance with the Table 16 setback distances in all jurisdictions would ensure compliance with the less restrictive noise level standards in the remaining incorporated cities.

Recommendations for Impact 20:

In order to reduce the potential for an exceedance of noise criteria established by incorporated cities within Mendocino County, the following recommendations are identified for IWDM Program staff in the implementation of frightening devices within incorporated city limits:

20A: To the extent feasible, frightening devices should be located outside of the Table 16 noise contours if a sensitive receptor is identified within those distances.

OR

20B: To the extent feasible, a non-noise-generating wildlife control method should be utilized by IWDM Staff as an alternative to the use of frightening devices if a sensitive receptor is located within the contours identified in Table 16.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of frightening devices proposed by the project and non-lethal program alternative within the incorporated city jurisdictions of Mendocino County are synonymous. Therefore, the recommendations identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 21: Program Frightening Device Noise Exposure within USFS Jurisdiction

Proposed Project

Pursuant to 36 CFR 261.10(i), operating or using in or near a campsite, developed recreation site, or over an adjacent body of water without a permit, any device which produces noise, such as a radio, television, musical instrument, motor or engine in such a manner and at such a time so as to unreasonably disturb any person while on National Forest Service land is prohibited.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 36 CFR 261.10(i) while on National Forest Service land. In addition, code section 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans – which would be applicable to APHIS-WS-CA program frightening device operations on National Forest Service land. According to APHIS-WS-CA, all wildlife control methods proposed for use on USFS lands would be discussed and approved prior to implementation.

In conclusion, program operations would be required to comply with the above-mentioned code sections, including obtaining the appropriate authorization.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of frightening devices proposed by the project and non-lethal program alternative on National Forest Service land are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 22: Program Frightening Device Noise Exposure within USACE Jurisdiction

Proposed Project

Pursuant to 36 CFR 327.12(b), quiet shall be maintained in all public use areas between the hours of 10 p.m. and 6 a.m., or those hours designated by the District Commander. The code section also states that excessive noise during such times which unreasonably disturbs persons is prohibited.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 36 CFR 32.12(b) while on USACE land. Additionally, APHIS-WS-CA staff has stated that all wildlife control methods proposed for use on USACE lands would be discussed and approved by the appropriate authority prior to implementation.

In conclusion, program operations would be required to comply with the above-mentioned code section, and obtain permission from the District Commander.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of frightening devices by the project and non-lethal program alternative variation on USACE lands are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 23: Program Frightening Device Noise Exposure within BLM Jurisdiction

Proposed Project

Pursuant to 43 CFR 8365.2-2, no person shall operate or use any audio device such as a radio, television, musical instrument, or other noise producing device or motorized equipment in a manner that makes unreasonable noise that disturbs other visitors while on developed BLM recreation sites and areas, unless otherwise authorized.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 43 CFR 8365.2-2 while on BLM lands – including obtaining the appropriate authorization. According to

APHIS-WS-CA, all wildlife control methods proposed for use on BLM lands would be discussed and approved prior to implementation.

In conclusion, program operations would be required to comply with the above-mentioned code section, including obtaining the appropriate authorization.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of frightening devices proposed by the project and non-lethal program alternative on BLM lands are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 24: Program Frightening Device Noise Exposure within CA State Parks Jurisdiction

Proposed Project

Pursuant to 14 CCR 4320(b), no person shall at any time, use outside machinery or electronic equipment including electrical speakers, radios, phonographs, televisions, or other devices, at a volume which is, or is likely to be, disturbing to others without specific permission of the Department while on CA State Parks land.

This analysis reasonably assumes that the APHIS-WS-CA program would comply with 14 CCR 4320(b) while on CA State Parks land. In addition, code section 14 CCR 4309 states that the Department may grant a permit to remove, treat, disturb, or destroy animals – which would be applicable to APHIS-WS-CA program frightening device operations on CA State Parks land. According to APHIS-WS-CA, all wildlife control methods proposed for use on CA State Parks land would be discussed and approved prior to implementation.

In conclusion, program operations would be required to comply with the above-mentioned code sections, including obtaining specific permission of the Department.

Non-Lethal Program Alternative

The methodology and related noise exposure associated with the implementation of frightening devices proposed by the project and non-lethal program alternative on CA State Parks land are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Impact 25: Program Livestock Protection Dog Noise Exposure within Mendocino County Jurisdiction

Proposed Project

According to the project description, the use of livestock protection dogs as a wildlife control method would not be directly implemented by APHIS-WS-CA staff, but rather only recommended

to private land owners for implementation. Should this wildlife control method be recommended and subsequently implemented, the private land owner would be financially responsible for all associated cost. Because this wildlife control method would not be directly implemented by the APHIS-WS-CA program, an evaluation of noise impacts associated with the use of livestock protection dogs under the proposed project was not included in this assessment.

Non-Lethal Program Alternative

The non-lethal program alternative is anticipated to include a cost-share/reimbursement mechanism for the use of livestock protection dogs by private land owners. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs on private lands within the Mendocino County jurisdiction is included in this assessment. This wildlife control method involves the use of dogs to aggressively repel predators, and would be integrated with livestock. The primary noise source associated with this control method is dog barking at predatory animals.

According to the project description, common livestock protection dog breeds include breeds such as Great Pyrenees, Anatolian Shepherds, Komondors and Maremmas. However, due to the lack of reliable dog bark noise level measurements available for these breeds, BAC utilized published noise level measurements for a Golden Retriever bark in order to quantify non-lethal program alternative livestock protection dog noise generation. As referenced earlier in this assessment, a Golden Retriever has the loudest measured bark by any dog breed. Therefore, the noise level data used for a Golden Retriever bark in the assessment of program tracking dog noise exposure is considered to be conservative.

According to Guinness World Records, the loudest dog bark in the world was measured by a Golden Retriever (113 dB at a distance of 4 feet). Table 17 shows the dog bark reference noise level, and associated calculated noise contours – which are also the adjusted Zoning Code noise standards identified in Table 8. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Table 17 Program Livestock Dog Noise Contours Relative to Adjusted Mendocino County Zoning Code Noise Criteria Integrated Wildlife Damage Management Program EIR – Mendocino County, California									
Source	SPL (dB) at 4 feet^{1,2}	Noise Contours/Adjusted County Noise Standards, L₂₅ (dB) with Associated Distance from Source (feet)							
		50	55	60	65	70	75	80	85
Golden Retriever bark	113	3,221	2,172	1,396	861	515	300	173	99
Source: ¹ Reference noise level data obtained from Guinness World Records online library. ² SPL=Sound Pressure Level									

Footnote 2 of Table 5 (Mendocino County Inland and Coastal Zoning Code Exterior Noise Level Limits) states that higher noise levels may be permitted for temporary, short-term or intermittent activities when no sensitive or residential uses will be affected. Based on the nature and character of the noise source, non-lethal program alternative livestock protection dog noise levels could be considered temporary, short-term or intermittent. However, should a sensitive receptor be identified within the Table 17 noise contours, non-lethal program alternative livestock protection dog noise levels could exceed the adjusted Mendocino County Zoning Code noise level standards.

Recommendations for Impact 25:

In order to reduce the potential for an exceedance of the Mendocino County Zoning Code noise level criteria, the following recommendations are identified for IWDM Program staff in the (indirect) implementation of livestock protection dogs within the jurisdiction of Mendocino County:

25A: To the extent feasible, IWDM Staff should recommend to private land owners to keep livestock protection dogs outside of the Table 17 noise contours as applicable to the corresponding time period and land use category of the receptor in Table 8.

OR

25B: To the extent feasible, a non-noise-generating wildlife control method should be utilized/recommended to private land owners by IWDM Staff as an alternative to the use of livestock protection dogs if sensitive receptors are located within the distances shown in Table 17.

Impact 26: Program Livestock Protection Dog Noise Exposure within Incorporated City Jurisdiction

Proposed Project

According to the project description, the use of livestock protection dogs as a wildlife control method would not be directly implemented by APHIS-WS-CA staff, but rather only recommended to private land owners for implementation. Should this wildlife control method be recommended and subsequently implemented, the private land owner would be financially responsible for all associated cost. Because this wildlife control method would not be directly implemented by the APHIS-WS-CA program, an evaluation of noise impacts associated with the use of livestock protection dogs under the proposed project was not included in this assessment.

Non-Lethal Program Alternative

The non-lethal program alternative is anticipated to include a cost-share/reimbursement mechanism for the use of livestock protection dogs by private land owners. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs within incorporated city jurisdictions of Mendocino County is included in this assessment.

To quantify non-lethal program alternative livestock protection dog noise generation, BAC utilized published noise level measurements for a Golden Retriever. As referenced earlier in this assessment, a Golden Retriever has the loudest measured bark by any dog breed. Therefore, the noise level data used for a Golden Retriever bark in the assessment of project tracking dog noise exposure is considered to be conservative. According to Guinness World Records, the loudest dog bark in the world was measured by a Golden Retriever (113 dB at a distance of 4 feet).

One of the purposes of livestock protection dogs is to alert (bark) in the event that a predator threatens the livestock. It is reasonable to assume that predators would not continuously be within close proximity of the protected livestock. Thus, noise from livestock protection dogs in the act of protecting the livestock would occur infrequently. It is further expected that those infrequent, impulsive barking events would be of relatively short duration. Based on this information, noise exposure associated with program livestock protection dogs was determined to be most appropriately assessed relative to the Fort Bragg Coastal General Plan hourly (L_{max}) noise level limits (Table 6). Table 18 shows the dog bark reference noise level, and associated calculated noise contours – which are also the Fort Bragg Coastal General Plan noise standards identified in Table 6. The calculated noise contours take into consideration a standard spherical spreading of sound (6 dB decrease per each doubling of distance from source), and includes an offset for atmospheric absorption of sound of -1.5 dB per thousand feet.

Table 18			
Program Livestock Protection Dog Noise Contours Relative to			
Fort Bragg Coastal General Plan Noise Criteria			
Integrated Wildlife Damage Management Program EIR – Mendocino County, California			
Source	SPL (dB) at 4 feet^{1,2}	Noise Contours/City Noise Standards, L_{max} (dB)	
		with Associated Distance from Source (feet)	
		65	75
Golden Retriever bark	113	869	303
Source:			
¹ Reference noise level data obtained from Guinness World Records online library.			
² SPL=Sound Pressure Level			

Based on the nature of program operations, it is expected that implementation of program wildlife control methods would primarily occur within rural agricultural areas of Mendocino County, and occur infrequently within incorporated city jurisdictions. Nonetheless, should a sensitive receptor be located within the Table 18 noise contours, non-lethal program alternative livestock protection dog noise levels could exceed the Fort Bragg Coastal General Plan noise level standards. This analysis for the urban/incorporated areas of the County is conservative from the standpoint that the Fort Bragg Coastal General Plan noise level standards are more restrictive than the noise level standards of the other incorporated cities within the County. Thus, compliance with the Table 18 setback distances in all jurisdictions would ensure compliance with the less restrictive noise level standards in the remaining incorporated cities.

Recommendations for Impact 26:

In order to reduce the potential for an exceedance of noise criteria established by incorporated cities within Mendocino County, the following recommendations are identified for IWDM Program staff in the implementation of livestock protection dogs within incorporated city limits:

26A: To the extent feasible, IWDM Staff should recommend to private land owners to keep livestock protection dogs outside of the Table 18 noise contours if a sensitive receptor is identified within those distances.

OR

26B: To the extent feasible, a non-noise-generating wildlife control method should be utilized/recommended to private land owners by IWDM Staff as an alternative to the use of livestock protection dogs if a sensitive receptor is located within the distances shown in Table 18.

Impact 27: Program Livestock Protection Dog Noise Exposure within USFS Jurisdiction

Proposed Project

The use of livestock protection dogs as a wildlife control method would not be directly implemented by APHIS-WS-CA staff, but rather only recommended to private livestock owners for implementation. Should this wildlife control method be recommended and subsequently implemented, the private livestock owners would be financially responsible for all associated cost. Because this wildlife control method would not be directly implemented by the APHIS-WS-CA program, an evaluation of noise impacts associated with the use of livestock protection dogs under the proposed project was not included in this assessment.

Non-Lethal Program Alternative

The non-lethal program alternative is anticipated to include a cost-share/reimbursement mechanism for the use of livestock protection dogs by private livestock owners. According to APHIS-WS-CA, private livestock owners are actively engaged in grazing leases on USFS lands within Mendocino County. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs on leased USFS lands within Mendocino County is included in this assessment.

There is no identified noise related criteria that would be directly applicable to livestock protection dog noise exposure on USFS lands. However, code section 36 CFR 261.16(j) states that bringing in or possessing an animal, other than a service animal, unless it is crated, caged, or upon a leash not longer than six feet, or otherwise under physical restrictive control while on National Forest Service land is prohibited. In addition, code section 36 CFR 26.16(k) states that bringing in or possessing an animal (other than a service animal) is prohibited. This analysis reasonably assumes that the program would comply with 36 CFR 261.16(j) and 36 CFR 261.16(k) while on

National Forest Service land. In addition, code section 36 CFR 261.1a establishes authorizations for special uses, contracts, and operating plans – which would be applicable to the indirect implementation of livestock protection dog operations on leased USFS land.

In conclusion, there is no identified noise related criteria that would be directly applicable to livestock protection dog noise exposure on USFS lands, and program operations would be required to comply with the above-mentioned code sections, including obtaining the appropriate authorization and contracts.

Impact 28: Program Livestock Protection Dog Noise Exposure within USACE Jurisdiction

Proposed Project

The use of livestock protection dogs as a wildlife control method would not be directly implemented by APHIS-WS-CA staff, but rather only recommended to private livestock owners for implementation. Should this wildlife control method be recommended and subsequently implemented, the private livestock owners would be financially responsible for all associated cost. Because this wildlife control method would not be directly implemented by the APHIS-WS-CA program, an evaluation of noise impacts associated with the use of livestock protection dogs under the proposed project was not included in this assessment.

Non-Lethal Program Alternative

The non-lethal program alternative is anticipated to include a cost-share/reimbursement mechanism for the use of livestock protection dogs by private livestock owners. According to APHIS-WS-CA, lands owned or managed by the Department of Defense are sometimes grazed. Based on this information, it is possible that private livestock owners could engage in grazing leases on USACE land. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs on leased USACE land within Mendocino County is included in this assessment.

Pursuant to 36 CFR 327.11(a), no person shall bring dogs, cats, or other pets into developed recreation areas or adjacent waters unless penned, caged, on a leash under six feet in length, or otherwise physically restrained. Further, the code section also identifies that no person shall allow animals to bark or emit other noise which unreasonably disturbs other people. This analysis reasonably assumes that the program would comply with 36 CFR 327.11(a) while on USACE land. It is further assumed that IWDM Staff would obtain permission from the District Commander prior to recommending the implementation of livestock protection dogs on USACE land.

In conclusion, program operations would be required to comply with the above-mentioned code section, and would obtain the appropriate authorization from the District Commander.

Impact 29: Program Livestock Protection Dog Noise Exposure within BLM Jurisdiction

Proposed Project

The use of livestock protection dogs as a wildlife control method would not be directly implemented by APHIS-WS-CA staff, but rather only recommended to private livestock owners for implementation. Should this wildlife control method be recommended and subsequently implemented, the private livestock owners would be financially responsible for all associated cost. Because this wildlife control method would not be directly implemented by the APHIS-WS-CA program, an evaluation of noise impacts associated with the use of livestock protection dogs under the proposed project was not included in this assessment.

Non-Lethal Program Alternative

The non-lethal program alternative is anticipated to include a cost-share/reimbursement mechanism for the use of livestock protection dogs by private livestock owners. According to APHIS-WS-CA, private livestock owners are actively engaged in grazing leases on BLM lands within Mendocino County. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs on leased BLM lands within Mendocino County is included in this assessment.

There is no identified noise related criteria that would be directly applicable to livestock protection dog noise exposure on BLM lands. However, code section 43 CFR 8365.2-5(b) states that, on developed recreation sites and areas, unless otherwise authorized, no person shall bring an animal, except a Seeing Eye or Hearing Ear dog, to a swimming area on BLM lands. This analysis reasonably assumes that the program would comply with 43 CFR 8365.2-5(b) while on BLM lands – including obtaining the appropriate authorization.

In conclusion, there is no identified noise related criteria that would be directly applicable to livestock protection dog noise exposure on BLM lands. Further, program operations would be required to comply with the above-mentioned code section, including obtaining the appropriate authorization.

Impact 30: Program Livestock Protection Dog Noise Exposure within CA State Parks Jurisdiction

Proposed Project

The use of livestock protection dogs as a wildlife control method would not be directly implemented by APHIS-WS-CA staff, but rather only recommended to private livestock owners for implementation. Should this wildlife control method be recommended and subsequently implemented, the private livestock owners would be financially responsible for all associated cost. Because this wildlife control method would not be directly implemented by the APHIS-WS-CA program, an evaluation of noise impacts associated with the use of livestock protection dogs under the proposed project was not included in this assessment.

Non-Lethal Program Alternative

The non-lethal program alternative is anticipated to include a cost-share/reimbursement mechanism for the use of livestock protection dogs by private livestock owners. According to APHIS-WS-CA, lands owned or managed by CA State Parks are sometimes grazed. Based on this information, it is possible that private livestock owners could engage in grazing leases on CA State Parks land. As a result, an evaluation of noise impacts associated with the (indirect) implementation of livestock protection dogs on leased CA State Parks land within Mendocino County is included in this assessment.

There is no identified noise related criteria that would be directly applicable to livestock protection dog noise exposure on CA State Parks land. However, code section 14 CCR 4312 establishes criteria pertaining to the control of animals on CA State Parks land. This analysis reasonably assumes that the program would comply with 14 CCR 4312 while on CA State Parks land – including obtaining the appropriate authorization.

In conclusion, there is no identified noise criteria that would be directly applicable to livestock protection dog noise exposure on CA State Parks land. Further, program operations would be required to comply with the above-mentioned code section, including obtaining the appropriate authorization.

Impact 31: Substantial Temporary or Permanent Increases in Ambient Noise Levels at Nearby Receptors within the County of Mendocino Jurisdiction

Proposed Project

The proposed project would include the implementation of the noise-generating wildlife control methods evaluated in this assessment. It is possible that the implementation of those control methods could occur on lands located within the County of Mendocino jurisdiction. The control methods are used for wildlife damage management purposes, and are expected to be implemented only when a problem with a target species presents itself. Further, the duration and character of the noise levels generated from the APHIS-WS-CA program wildlife control methods identified in this assessment are more closely categorized as temporary and short-term in duration, as opposed to long-term and continuous.

According to Policy DE-106 of the Mendocino County General Plan, a 5 dB increase in CNEL or L_{dn} noise levels above ambient conditions shall be normally considered to be a significant increase in noise. As indicated in the impact evaluations presented in this assessment, it is possible that noise levels associated with the implementation of the noise-generating wildlife controls methods proposed by the project could result in exceedances of the applicable Mendocino County L_{max} and L_{25} noise level standards at sensitive receptors. However, based on the impulsive character, short duration, and frequency of implementation, it is believed that noise levels associated with program wildlife control methods would have a relatively insignificant effect on a 24-hour averaged CNEL/ L_{dn} value. Thus, an increase of 5 dB CNEL or L_{dn} noise levels

above ambient conditions at nearby receptors attributed to program wildlife control methods is not expected.

In conclusion, given the character, duration, and frequency of implementation, it is expected that program-generated increases in CNEL or L_{dn} noise levels would not be substantial relative to the Mendocino County General Plan criteria.

Non-Lethal Program Alternative

The non-lethal program alternative would involve implementation of the same wildlife control methods proposed by the project with the exception of methods categorized as lethal (i.e., firearms and tracking dogs). Excluding consideration of lethal wildlife control methods, noise level increases at nearby receptors associated with the wildlife control methods of the proposed project and non-lethal program alternative within the County of Mendocino jurisdiction are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Non-Lethal Program Alternative Variation

Noise level increases at nearby receptors associated with the proposed project and non-lethal program alternative variation within the County of Mendocino jurisdiction are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 32: Substantial Temporary or Permanent Increases in Ambient Noise Levels at Nearby Receptors within Incorporated City Jurisdictions

Proposed Project

The proposed project would include the implementation of the noise-generating wildlife control methods evaluated in this assessment. Although it is expected that program operations would primarily occur in rural areas of the county, it is possible that the implementation program wildlife control methods could occur on lands located within incorporated city jurisdictions of Mendocino County. The control methods are used for wildlife damage management purposes, and are expected to be implemented only when a problem with a target species presents itself. Further, the duration and character of the noise levels generated from the APHIS-WS-CA program wildlife control methods identified in this assessment are more closely categorized as temporary and short-term in duration, as opposed to long-term and continuous.

According to Policy N-1.2 (Program N-1.2.2) of the Fort Bragg Coastal General Plan, a substantial increase is determined if a project were to cause the L_{dn} in existing residential areas to increase by 3 dB or more, or 2 dB or more if the L_{dn} would exceed 70 dB. As indicated in the impact evaluations presented in this assessment, it is possible that noise levels associated with the implementation of the noise-generating wildlife controls methods proposed by the project could result in exceedances of the Fort Bragg Coastal General Plan L_{max} noise standards at sensitive receptors – which, given the restrictiveness of the standards, could also exceed noise level limits

established by other incorporated cities within Mendocino County. However, based on the impulsive character, short duration, and frequency of implementation, it is believed that noise levels associated with program wildlife control methods would have a relatively insignificant effect on a 24-hour averaged L_{dn} value. Thus, an increase of 5 dB CNEL or L_{dn} noise levels above ambient conditions at nearby receptors attributed to program wildlife control methods is not expected.

In conclusion, given the character, duration, and frequency of implementation, it is expected that program-generated increases in L_{dn} noise levels would not be substantial relative to the Fort Bragg Coastal General Plan criteria. Further, it is also expected that program-generated increases in L_{dn} noise levels would not be substantial relative to increase significance criteria established by other incorporated cities within Mendocino County.

Non-Lethal Program Alternative

The non-lethal program alternative would involve implementation of the same wildlife control methods proposed by the project with the exception of methods categorized as lethal (i.e., firearms and tracking dogs). Excluding consideration of lethal wildlife control methods, noise level increases at existing residential uses associated with the wildlife control methods of the proposed project and non-lethal program alternative within the incorporated city jurisdictions of Mendocino County are synonymous. Therefore, the impact conclusion and associated recommendations identified for the proposed project would be applicable to the non-lethal program alternative.

Non-Lethal Program Alternative Variation

Noise level increases at nearby receptors associated with the proposed project and non-lethal program alternative variation within the incorporated city jurisdictions of Mendocino County are synonymous. Therefore, the impact conclusion and associated recommendations identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 33: Substantial Temporary or Permanent Increases in Ambient Noise Levels at Nearby Receptors on Federal Lands

Proposed Project

The proposed project would include the implementation of the noise-generating wildlife control methods evaluated in this assessment. It is possible that the implementation of those control methods could occur on federal lands. The control methods are used for wildlife damage management purposes, and are expected to be implemented only when a problem with a target species presents itself. Further, the duration and character of the noise levels generated from the APHIS-WS-CA program wildlife control methods identified in this assessment are more closely categorized as temporary and short-term in duration, as opposed to long-term and continuous.

This analysis reasonably assumes that the APHIS-WS-CA staff would comply with applicable code sections while on federal lands – including the obtaining of a special-use authorizations,

contracts, operating plans, and appropriate permissions prior to conducting any work on these lands. According to APHIS-WS-CA, all wildlife control methods proposed for use on federal land would be discussed and approved prior to implementation. There are no identified CFR code sections that contain noise level increase significance criteria that would be applicable to quantification of noise generated by project wildlife control methods on federal lands. However, noise generated from recreation activities that already occur legally on federal lands results in temporary increases in the ambient noise level environment. For example, the discharge of firearms for hunting purposes is permitted and actively occurs on USFS, BLM, and USACE lands within the County of Mendocino. Although code section 36 CFR 261.10(d)(1) prohibits the discharge of a firearm within 150 yards of a residence, building, campsite, developed recreation site or occupied area (i.e., sensitive receptors) on USFS lands, it is expected that a temporary increase in ambient noise levels at nearby receptors would still likely occur from firearms discharges at legal distances in excess of 150 yards. Similarly, although code section 43 CFR 8365.2-5(a) prohibits the discharge of firearms within developed recreation sites and areas on BLM lands, a temporary increase in ambient noise levels at nearby receptors would still likely occur should a firearms discharge occur within the nearby area.

It is expected that the implementation of project wildlife control methods on federal lands within the County of Mendocino would occur infrequently, and only in situations when requested by federal authorities. Further, it is acknowledged that noise generated from recreation activities that already legally occur on federal lands results in temporary increases in ambient noise levels at nearby receptors on these lands.

In conclusion, program operations would be required to comply with all applicable CFR code sections (including obtaining the appropriate authorizations), and increases in ambient noise levels generated from project wildlife control methods on federal lands with Mendocino County would be similar to those that already occur on these lands.

Non-Lethal Program Alternative

The implementation of lethal wildlife control methods (i.e., firearms and tracking dogs) on federal lands would not be used under the non-lethal program alternative. Rather, the non-lethal program alternative would include the implementation of non-lethal wildlife control methods such as electronic distress devices and frightening devices.

As discussed above, it is expected that the implementation of project wildlife control methods (both lethal and non-lethal) on federal lands would occur infrequently. Further, it is believed that noise generated from recreational activities that already legally occur on federal lands (i.e., firearms discharges) would be similar to or louder than noise that would be generated from the implementation of non-lethal program alternative wildlife control methods. It is likely that the noise levels generated from recreational activities that already occur results in temporary increases in ambient noise levels at nearby receptors on these lands.

In conclusion, program operations would be required to comply with all applicable CFR code sections (including obtaining the appropriate authorizations), and increases in ambient noise

levels generated from project wildlife control methods on federal lands with Mendocino County would be similar to those that already occur on these lands.

Non-Lethal Program Alternative Variation

Increases in ambient noise levels at nearby receptors associated with the proposed project and non-lethal program alternative variation on federal lands are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 34: Substantial Temporary or Permanent Increases in Ambient Noise Levels at Nearby Receptors on CA State Parks Land

Proposed Project

The proposed project would include the implementation of the noise-generating wildlife control methods evaluated in this assessment. It is possible that the implementation of those control methods could occur on CA State Parks land. The control methods are used for wildlife damage management purposes, and are expected to be implemented only when a problem with a target species presents itself. Further, the duration and character of the noise levels generated from the APHIS-WS-CA program wildlife control methods identified in this assessment are more closely categorized as temporary and short-term in duration, as opposed to long-term and continuous.

This analysis reasonably assumes that the APHIS-WS-CA staff would comply with applicable code sections while on CA State Parks land – including obtaining the appropriate approval, authorization, and special permits prior to conducting any work on CA State Parks land. According to APHIS-WS-CA, all wildlife control methods proposed for use on CA State Parks land would be discussed and approved prior to implementation. There is no identified CCR code section that contains noise level increase significance criteria that would be applicable to quantification of noise generated by project wildlife control methods on CA State Parks land. However, it is expected that the implementation of project wildlife control methods on CA State Parks land would occur infrequently, and only in situations when requested by CA State Parks authorities. In the event of this request, the APHIS-WS-CA staff would be performing work on CA State Parks land under a special permit – which pursuant to 14 CCR 4309, would exclude the program from violation of applicable code sections.

In conclusion, program operations would be required to comply with all applicable CCR code sections (including obtaining the appropriate approval of the Department), and would occur infrequently.

Non-Lethal Program Alternative

The non-lethal program alternative would involve implementation of the same wildlife control methods proposed by the project with the exception of methods categorized as lethal (i.e., firearms and tracking dogs). Excluding consideration of lethal wildlife control methods, noise level

increases at nearby receptors associated with the wildlife control methods of the proposed project and non-lethal program alternative on CA State Parks land are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Non-Lethal Program Alternative Variation

Noise level increases at nearby receptors associated with the proposed project and non-lethal program alternative variation on CA State Parks land are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 35: Aircraft Noise Exposure upon APHIS-WS-CA Staff

Proposed Project

The proposed project would include implementation of a variety of wildlife control methods by APHIS-WS-CA staff within the project area (Mendocino County). According to the project NOP, the implementation of these control methods can occur in close proximity to airports or airstrips. As an example, the use of firearms can be an effective wildlife control measure in cases where deer stray onto active airport runways and pose a significant threat to human health and safety. In such cases, APHIS-WS-CA staff would be exposed to aircraft noise. However, the duration of time a staff member would be exposed to elevated noise exposure from aircraft would be relatively temporary, and be inconsequential relative to a long-term noise level metric (e.g., 8-hour PEL, 24-hour CNEL, etc.). Further, it is expected that the APHIS-WS-CA safety program contains standard operating procedures that require utilization of personal protection equipment (PPE) in situations as appropriate.

In conclusion, the duration of time APHIS-WS-CA staff would be exposed to elevated aircraft noise exposure would be inconsequential relative to a long-term noise level metric, and program operations would be required to comply with safety program standard operating procedures applicable to working in elevated noise level environments.

Non-Lethal Program Alternative

The non-lethal program alternative would involve implementation of the same wildlife control methods proposed by the project with the exception of methods categorized as lethal (i.e., firearms and tracking dogs). Excluding consideration of lethal wildlife control methods, the aircraft noise impacts upon IWDM Staff associated with the wildlife control methods of the proposed project and non-lethal program alternative are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Non-Lethal Program Alternative Variation

The aircraft noise impacts upon IWDM Staff associated with the proposed project and non-lethal program alternative variation are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Impact 36: Generation of Excessive Groundborne Vibration or Groundborne Noise Levels

Proposed Project

The proposed project would include implementation of a variety of wildlife control methods by APHIS-WS-CA staff. After review of the equipment associated with these wildlife control methods, it was determined that they would not produce appreciable groundborne vibration or groundborne noise levels.

In conclusion, the project does not propose equipment that will generate appreciable groundborne vibration or groundborne noise levels.

Non-Lethal Program Alternative

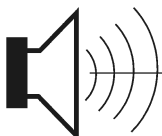
The non-lethal program alternative would involve implementation of the same wildlife control methods proposed by the project with the exception of methods categorized as lethal (i.e., firearms and tracking dogs). Excluding consideration of lethal wildlife control methods, groundborne vibration and groundborne noise levels associated with the wildlife control methods of the proposed project and non-lethal program alternative are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative.

Non-Lethal Program Alternative Variation

Groundborne vibration and groundborne noise levels associated with the proposed project and non-lethal program alternative variation are synonymous. Therefore, the impact conclusion identified for the proposed project would be applicable to the non-lethal program alternative variation.

Appendix A Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT₆₀	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.



B O L L A R D

Acoustical Consultants

Appendix B-1
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program EIR
Wednesday, September 26, 2018

Hour	Leq	Lmax	L50	L90
0:00	50	52	50	46
1:00	45	48	45	40
2:00	40	45	39	32
3:00	36	48	35	23
4:00	26	38	25	22
5:00	27	45	24	21
6:00	32	49	28	24
7:00	45	71	36	31
8:00	36	56	34	31
9:00	42	65	31	28
10:00	34	52	29	26
11:00	31	50	28	25
12:00	31	52	27	25
13:00	29	46	26	25
14:00	30	47	27	25
15:00	35	56	27	24
16:00	28	47	24	22
17:00	28	50	24	22
18:00	27	44	25	23
19:00	60	64	61	39
20:00	61	63	61	59
21:00	58	61	58	57
22:00	56	59	56	55
23:00	52	55	52	50

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	61	27	53	56	26	49
Lmax (Maximum)	71	44	55	59	38	49
L50 (Median)	61	24	35	56	24	39
L90 (Background)	59	22	31	55	21	35

Computed Ldn, dB	56
% Daytime Energy	81%
% Nighttime Energy	19%

Appendix B-2
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program
Thursday, September 27, 2018

Hour	Leq	Lmax	L50	L90
0:00	50	57	50	47
1:00	47	50	47	45
2:00	42	46	42	40
3:00	40	50	39	38
4:00	34	44	27	23
5:00	28	44	25	23
6:00	32	46	29	24
7:00	37	51	35	30
8:00	38	51	36	33
9:00	32	50	30	27
10:00	32	51	29	25
11:00	33	58	28	25
12:00	32	50	28	25
13:00	29	49	27	25
14:00	31	49	27	25
15:00	32	47	29	26
16:00	29	44	26	24
17:00	32	49	28	24
18:00	30	50	25	23
19:00	61	66	62	35
20:00	60	63	60	58
21:00	58	60	57	56
22:00	56	58	56	55
23:00	55	58	55	54

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	61	29	53	56	28	50
Lmax (Maximum)	66	44	53	58	44	50
L50 (Median)	62	25	35	56	25	41
L90 (Background)	58	23	31	55	23	39

Computed Ldn, dB	57
% Daytime Energy	75%
% Nighttime Energy	25%

Appendix B-3
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program
Friday, September 28, 2018

Hour	Leq	Lmax	L50	L90
0:00	54	57	54	51
1:00	51	67	51	47
2:00	47	68	47	45
3:00	45	71	43	42
4:00	38	48	35	28
5:00	31	42	31	25
6:00	30	45	28	24
7:00	39	64	34	29
8:00	38	57	33	30
9:00	32	49	30	27
10:00	31	50	28	25
11:00	31	54	28	25
12:00	31	49	28	26
13:00	41	52	38	33
14:00	47	67	44	36
15:00	52	62	50	45
16:00	44	58	36	29
17:00	37	57	32	28
18:00	48	53	48	40
19:00	59	62	59	51
20:00	58	61	58	57
21:00	56	58	56	55
22:00	54	56	53	52
23:00	52	55	52	50

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	59	31	52	54	30	50
Lmax (Maximum)	67	49	57	71	42	57
L50 (Median)	59	28	40	54	28	44
L90 (Background)	57	25	36	52	24	40

Computed Ldn, dB	57
% Daytime Energy	71%
% Nighttime Energy	29%

Appendix B-4
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program
Saturday, September 29, 2018

Hour	Leq	Lmax	L50	L90
0:00	49	51	49	47
1:00	47	51	47	45
2:00	46	49	46	45
3:00	46	52	46	45
4:00	44	48	44	41
5:00	36	44	36	29
6:00	27	41	24	19
7:00	34	56	30	24
8:00	33	49	30	22
9:00	28	47	25	22
10:00	30	51	26	23
11:00	32	54	28	24
12:00	34	53	30	26
13:00	43	58	33	25
14:00	37	56	30	25
15:00	34	52	31	27
16:00	35	52	33	29
17:00	32	48	31	28
18:00	35	48	33	29
19:00	50	54	50	42
20:00	51	53	51	50
21:00	51	52	51	50
22:00	49	52	49	48
23:00	49	68	48	47

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	51	28	44	49	27	46
Lmax (Maximum)	58	47	52	68	41	51
L50 (Median)	51	25	34	49	24	43
L90 (Background)	50	22	30	48	19	41

Computed Ldn, dB	53
% Daytime Energy	49%
% Nighttime Energy	51%

Appendix B-5
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program
Sunday, September 30, 2018

Hour	Leq	Lmax	L50	L90
0:00	48	71	48	47
1:00	47	49	47	46
2:00	45	49	45	43
3:00	39	47	38	32
4:00	35	52	34	31
5:00	33	60	30	27
6:00	27	42	26	24
7:00	33	55	27	24
8:00	40	62	32	26
9:00	43	72	28	24
10:00	32	54	27	24
11:00	36	57	30	27
12:00	45	72	30	26
13:00	33	59	28	25
14:00	33	55	27	25
15:00	31	56	27	24
16:00	30	51	26	23
17:00	29	51	26	23
18:00	38	62	33	25
19:00	57	60	57	50
20:00	57	59	56	55
21:00	56	58	56	55
22:00	54	56	53	52
23:00	53	55	52	51

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	57	29	50	54	27	48
Lmax (Maximum)	72	51	59	71	42	53
L50 (Median)	57	26	34	53	26	42
L90 (Background)	55	23	30	52	24	39

Computed Ldn, dB	55
% Daytime Energy	71%
% Nighttime Energy	29%

Appendix B-6
Ambient Noise Monitoring Results - Site 2
Integrated Wildlife Damage Management Program
Wednesday, September 26, 2018

Hour	Leq	Lmax	L50	L90
0:00	31	41	30	29
1:00	29	45	28	25
2:00	27	40	25	23
3:00	25	41	24	22
4:00	26	45	25	23
5:00	27	43	26	23
6:00	41	69	30	27
7:00	35	49	33	30
8:00	35	58	33	30
9:00	40	59	31	27
10:00	28	46	26	24
11:00	29	49	25	24
12:00	36	63	25	24
13:00	39	67	26	24
14:00	28	52	25	23
15:00	41	69	24	22
16:00	40	65	27	23
17:00	39	59	34	26
18:00	29	47	26	24
19:00	34	40	34	24
20:00	37	40	37	36
21:00	35	39	36	32
22:00	33	54	32	31
23:00	30	35	30	29

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	41	28	37	41	25	33
Lmax (Maximum)	69	39	54	69	35	46
L50 (Median)	37	24	29	32	24	28
L90 (Background)	36	22	26	31	22	26

Computed Ldn, dB	41
% Daytime Energy	79%
% Nighttime Energy	21%

Appendix B-7
Ambient Noise Monitoring Results - Site 2
Integrated Wildlife Damage Management Program
Thursday, September 27, 2018

Hour	Leq	Lmax	L50	L90
0:00	30	45	29	28
1:00	29	46	27	25
2:00	26	34	26	24
3:00	26	34	25	23
4:00	26	36	25	22
5:00	27	39	26	23
6:00	41	69	30	27
7:00	39	64	33	30
8:00	40	60	33	30
9:00	34	53	30	27
10:00	43	70	29	25
11:00	34	61	24	23
12:00	30	52	26	23
13:00	33	48	26	23
14:00	39	69	25	23
15:00	37	59	30	25
16:00	61	88	34	28
17:00	45	68	40	30
18:00	28	44	25	23
19:00	40	64	35	24
20:00	47	74	36	34
21:00	34	39	34	33
22:00	33	49	33	32
23:00	38	65	30	29

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	61	28	50	41	26	34
Lmax (Maximum)	88	39	61	69	34	46
L50 (Median)	40	24	31	33	25	28
L90 (Background)	34	23	27	32	22	26

Computed Ldn, dB	48
% Daytime Energy	98%
% Nighttime Energy	2%

Appendix B-8
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Wednesday, September 26, 2018

Hour	Leq	Lmax	L50	L90
0:00	41	51	41	40
1:00	41	49	41	38
2:00	41	46	41	38
3:00	39	45	39	34
4:00	38	48	36	32
5:00	37	50	35	32
6:00	39	51	37	33
7:00	41	62	39	36
8:00	46	67	39	37
9:00	41	60	38	35
10:00	40	66	35	31
11:00	41	66	33	30
12:00	40	63	33	29
13:00	35	57	31	28
14:00	38	66	32	29
15:00	37	52	36	32
16:00	40	64	36	33
17:00	41	65	37	34
18:00	37	59	35	33
19:00	49	62	48	34
20:00	51	56	50	48
21:00	50	53	50	47
22:00	47	50	47	45
23:00	47	59	46	44

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	51	35	45	47	37	43
Lmax (Maximum)	67	52	61	59	45	50
L50 (Median)	50	31	38	47	35	40
L90 (Background)	48	28	34	45	32	38

Computed Ldn, dB	49
% Daytime Energy	73%
% Nighttime Energy	27%

Appendix B-9
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Thursday, September 27, 2018

Hour	Leq	Lmax	L50	L90
0:00	46	49	46	44
1:00	45	47	45	42
2:00	43	46	43	41
3:00	43	48	43	41
4:00	40	52	41	35
5:00	36	48	34	31
6:00	39	58	37	33
7:00	42	60	39	36
8:00	41	58	39	36
9:00	49	73	37	34
10:00	44	64	36	31
11:00	41	65	35	32
12:00	40	63	34	30
13:00	38	63	34	31
14:00	44	66	37	33
15:00	39	60	37	33
16:00	43	68	37	34
17:00	35	50	33	31
18:00	43	65	34	31
19:00	49	63	49	34
20:00	48	51	47	45
21:00	46	51	46	44
22:00	44	50	43	40
23:00	40	50	39	38

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	49	35	44	46	36	43
Lmax (Maximum)	73	50	61	58	46	50
L50 (Median)	49	33	38	46	34	41
L90 (Background)	45	30	34	44	31	38

Computed Ldn, dB	49
% Daytime Energy	72%
% Nighttime Energy	28%

Appendix B-10
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Friday, September 28, 2018

Hour	Leq	Lmax	L50	L90
0:00	37	46	37	36
1:00	34	43	34	33
2:00	32	44	31	29
3:00	31	45	30	28
4:00	31	46	28	26
5:00	34	62	27	25
6:00	34	50	34	27
7:00	39	63	33	30
8:00	40	60	36	31
9:00	42	66	35	31
10:00	42	67	35	31
11:00	44	70	36	32
12:00	37	60	34	30
13:00	39	65	35	32
14:00	41	66	36	33
15:00	43	64	39	36
16:00	42	65	40	37
17:00	46	67	39	36
18:00	41	68	35	33
19:00	45	63	43	36
20:00	45	46	45	44
21:00	45	51	44	43
22:00	44	46	44	43
23:00	44	63	43	42

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	46	37	43	44	31	39
Lmax (Maximum)	70	46	63	63	43	50
L50 (Median)	45	33	38	44	27	34
L90 (Background)	44	30	34	43	25	32

Computed Ldn, dB	46
% Daytime Energy	81%
% Nighttime Energy	19%

Appendix B-11
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Saturday, September 29, 2018

Hour	Leq	Lmax	L50	L90
0:00	43	45	43	42
1:00	41	44	41	40
2:00	42	44	42	41
3:00	41	46	41	40
4:00	40	45	40	38
5:00	38	44	38	35
6:00	33	46	33	27
7:00	37	65	32	28
8:00	42	64	35	31
9:00	39	59	34	31
10:00	40	62	37	33
11:00	43	62	39	35
12:00	42	64	39	35
13:00	46	65	44	41
14:00	39	57	37	33
15:00	48	70	38	34
16:00	53	78	42	34
17:00	47	69	34	30
18:00	39	63	33	30
19:00	42	63	41	33
20:00	42	47	42	41
21:00	42	51	42	41
22:00	41	47	41	40
23:00	41	52	41	40

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	53	37	45	43	33	41
Lmax (Maximum)	78	47	63	52	44	46
L50 (Median)	44	32	38	43	33	40
L90 (Background)	41	28	34	42	27	38

Computed Ldn, dB	48
% Daytime Energy	82%
% Nighttime Energy	18%

Appendix B-12
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Sunday, September 30, 2018

Hour	Leq	Lmax	L50	L90
0:00	41	43	41	40
1:00	37	45	37	35
2:00	38	44	38	37
3:00	38	44	37	35
4:00	36	44	36	34
5:00	32	48	31	29
6:00	36	62	29	27
7:00	39	63	34	30
8:00	41	65	37	32
9:00	43	65	37	34
10:00	43	67	35	31
11:00	41	67	34	31
12:00	38	54	36	34
13:00	41	64	35	32
14:00	38	60	35	32
15:00	42	67	36	33
16:00	40	65	35	32
17:00	40	65	36	33
18:00	37	53	35	32
19:00	44	67	44	36
20:00	45	52	45	44
21:00	44	47	44	43
22:00	42	47	42	41
23:00	41	44	41	40

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	45	37	42	42	32	39
Lmax (Maximum)	67	47	61	62	43	47
L50 (Median)	45	34	37	42	29	37
L90 (Background)	44	30	34	41	27	35

Computed Ldn, dB	46
% Daytime Energy	76%
% Nighttime Energy	24%

Appendix B-13
Ambient Noise Monitoring Results - Site 4
Integrated Wildlife Damage Management Program
Wednesday, September 26, 2018

Hour	Leq	Lmax	L50	L90
0:00	46	53	45	43
1:00	43	53	43	40
2:00	40	53	40	37
3:00	39	62	37	33
4:00	39	49	37	33
5:00	39	64	35	32
6:00	43	66	37	34
7:00	45	68	39	36
8:00	43	65	40	36
9:00	40	60	38	36
10:00	45	61	43	41
11:00	51	65	44	41
12:00	58	65	59	43
13:00	43	61	41	37
14:00	36	63	31	28
15:00	37	62	29	28
16:00	38	61	31	29
17:00	38	63	33	30
18:00	40	63	34	31
19:00	52	65	53	32
20:00	53	64	53	51
21:00	50	64	50	49
22:00	49	56	49	47
23:00	48	56	48	47

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	58	36	50	49	39	45
Lmax (Maximum)	68	60	63	66	49	57
L50 (Median)	59	29	41	49	35	41
L90 (Background)	51	28	37	47	32	39

Computed Ldn, dB	52
% Daytime Energy	85%
% Nighttime Energy	15%

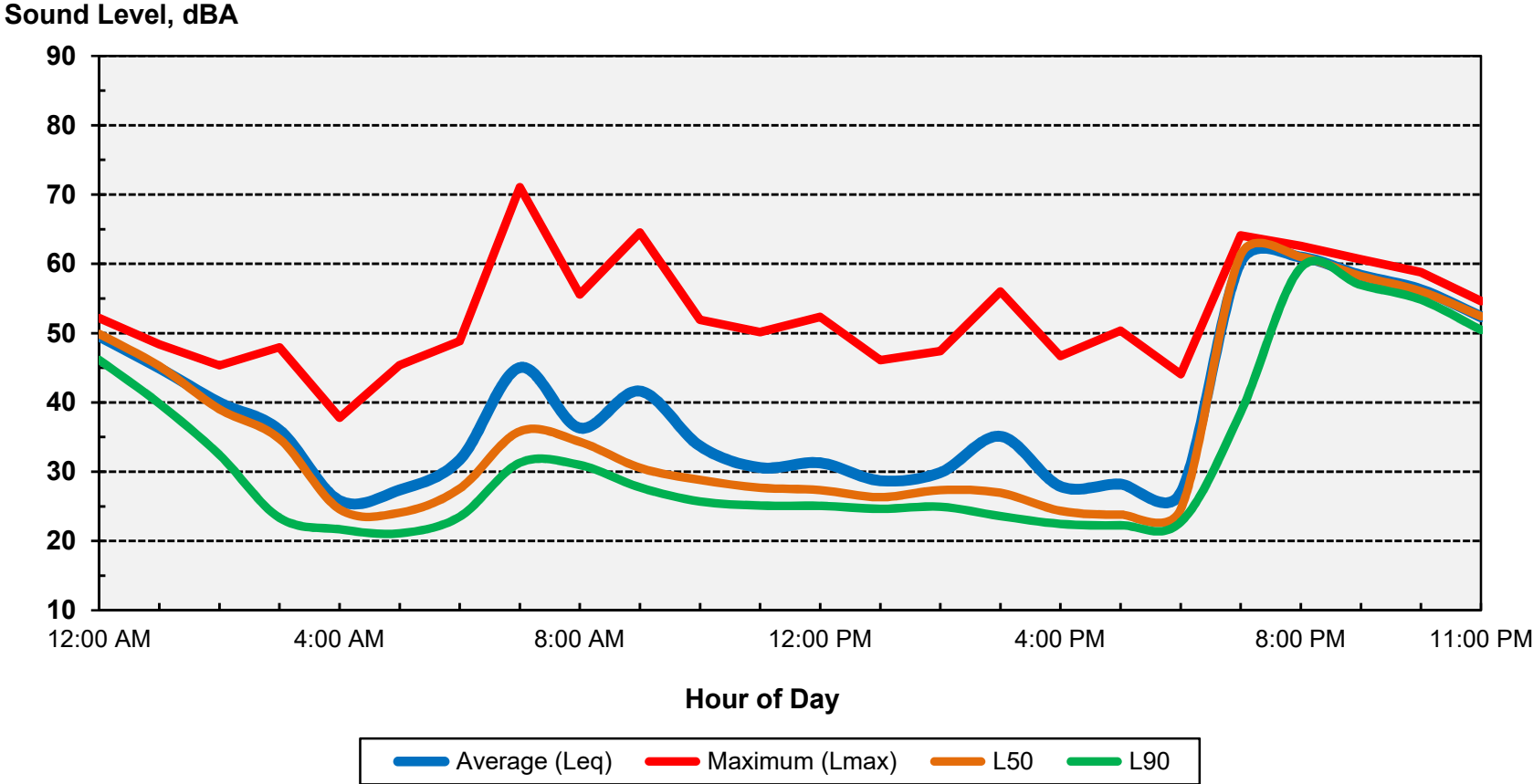
Appendix B-14
Ambient Noise Monitoring Results - Site 5
Integrated Wildlife Damage Management Program
9/30/2018 - 10/1/2018

Hour	Leq	Lmax	L50	L90
12:00	33	54	26	23
13:00	29	48	26	23
14:00	32	48	31	27
15:00	40	59	36	30
16:00	33	46	30	25
17:00	25	39	21	19
18:00	34	56	20	19
19:00	22	38	19	18
20:00	22	42	19	18
21:00	25	40	21	20
22:00	21	39	20	19
23:00	26	35	25	22
0:00	28	47	25	22
1:00	27	39	26	24
2:00	26	41	26	24
3:00	27	33	27	25
4:00	27	35	27	26
5:00	32	56	29	27
6:00	32	57	29	25
7:00	30	44	27	24
8:00	37	61	27	24
9:00	33	45	29	26
10:00	31	42	28	25
11:00	33	53	27	24

	Statistical Summary					
	Daytime (7 a.m. - 10 p.m.)			Nighttime (10 p.m. - 7 a.m.)		
	High	Low	Average	High	Low	Average
Leq (Average)	40	21	33	32	26	28
Lmax (Maximum)	61	38	47	57	33	43
L50 (Median)	36	19	25	29	25	27
L90 (Background)	30	18	23	27	22	24

Computed Ldn, dB	36
% Daytime Energy	83%
% Nighttime Energy	17%

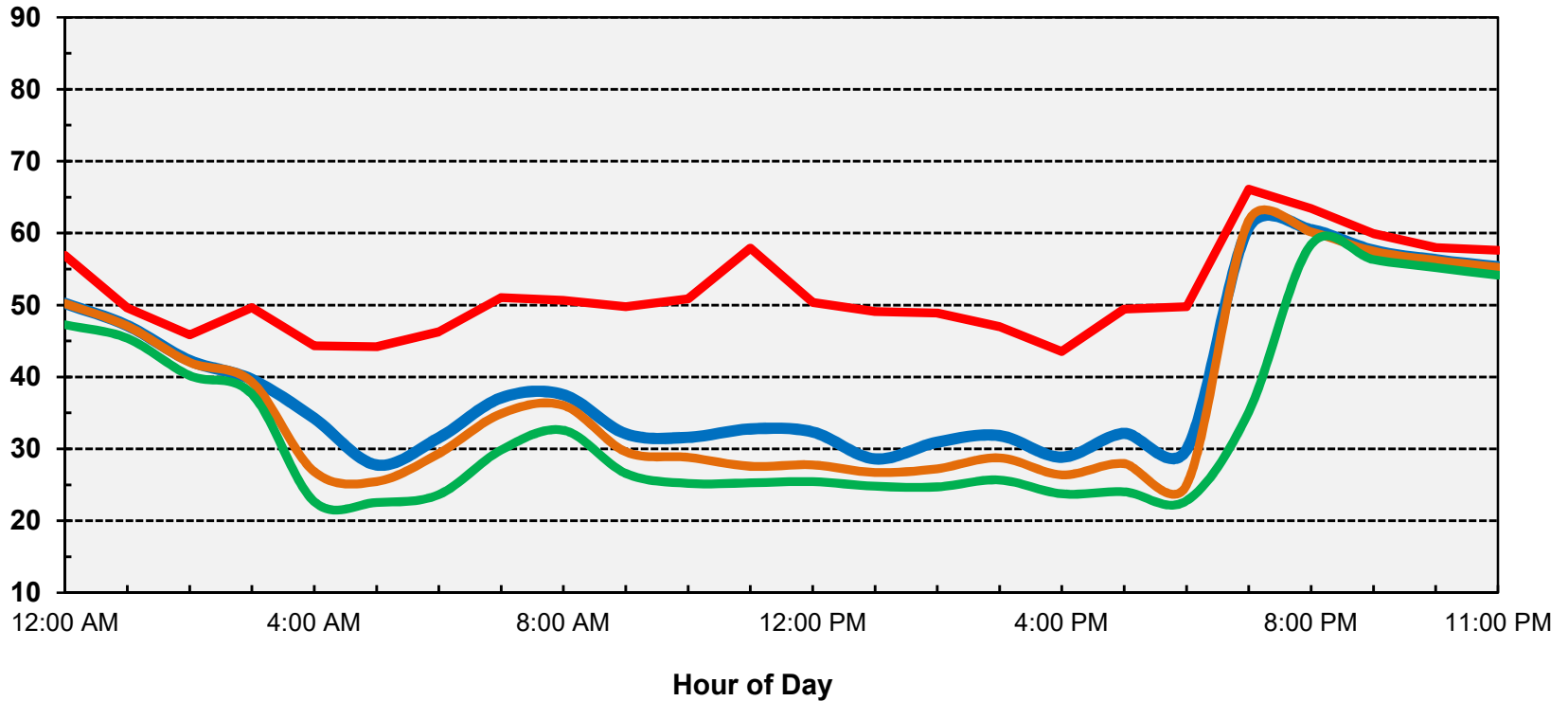
Appendix C-1
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program EIR
Wednesday, September 26, 2018



Ldn: 56 dB

Appendix C-2
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program
Thursday, September 27, 2018

Sound Level, dBA

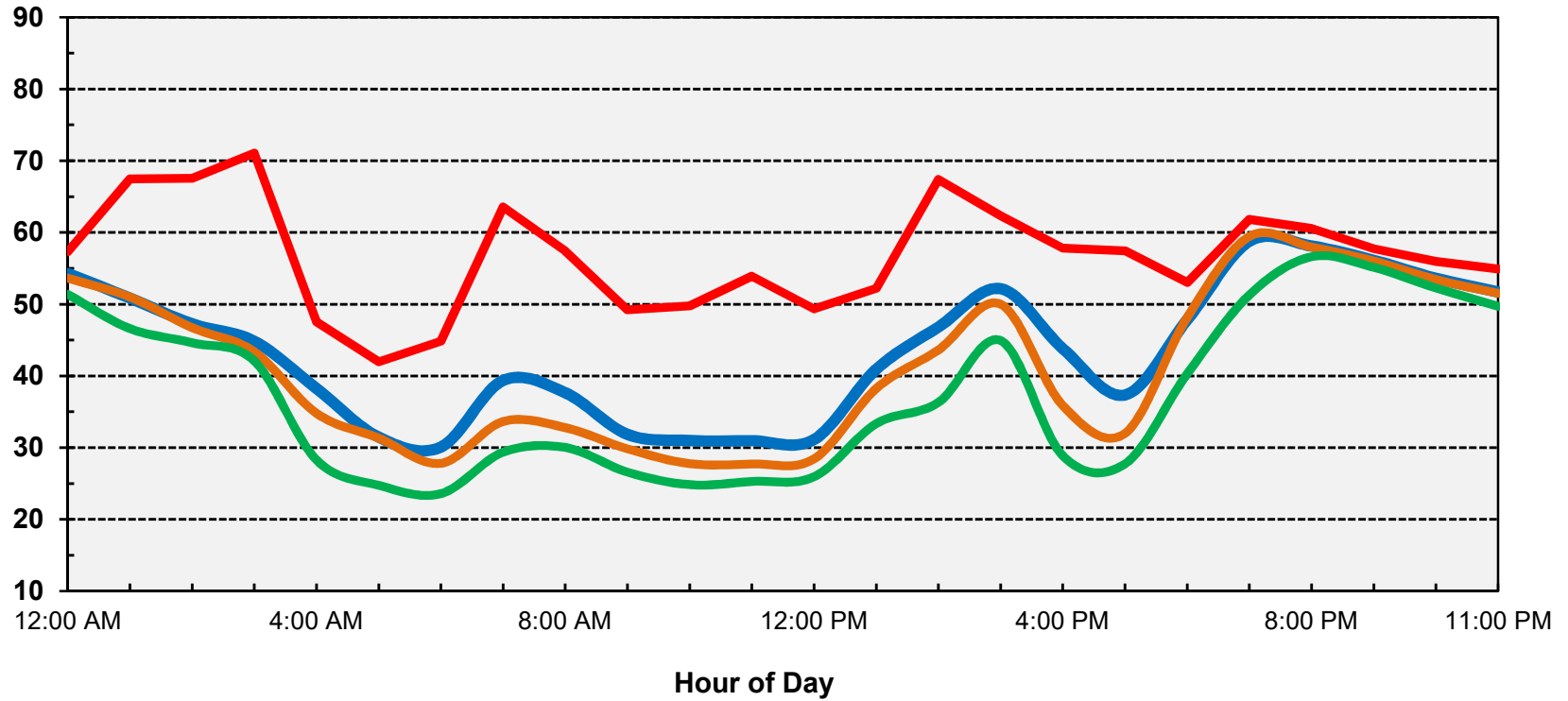


— Average (Leq) — Maximum (Lmax) — L50 — L90

Ldn: 57 dB

Appendix C-3
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program
Friday, September 28, 2018

Sound Level, dBA

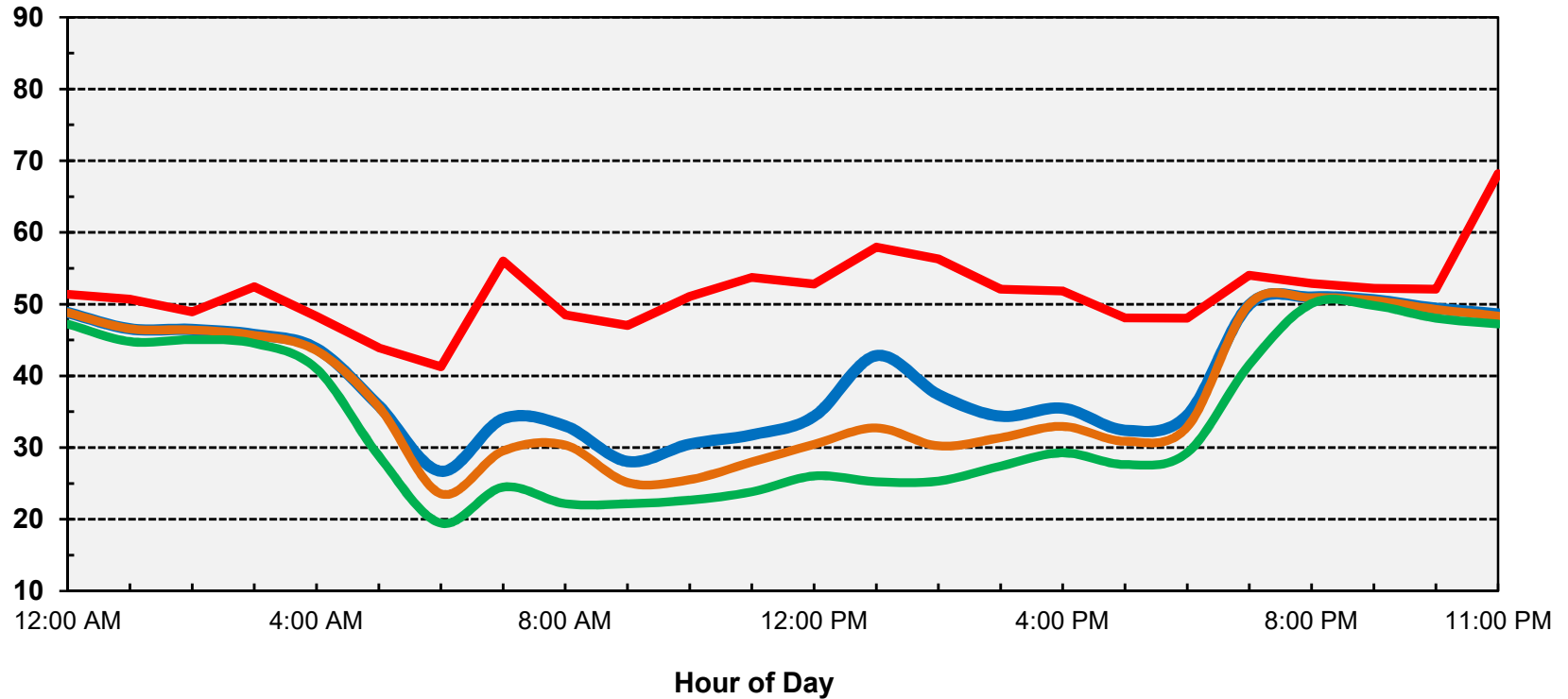


— Average (Leq) — Maximum (Lmax) — L50 — L90

Ldn: 57 dB

Appendix C-4
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program
Saturday, September 29, 2018

Sound Level, dBA

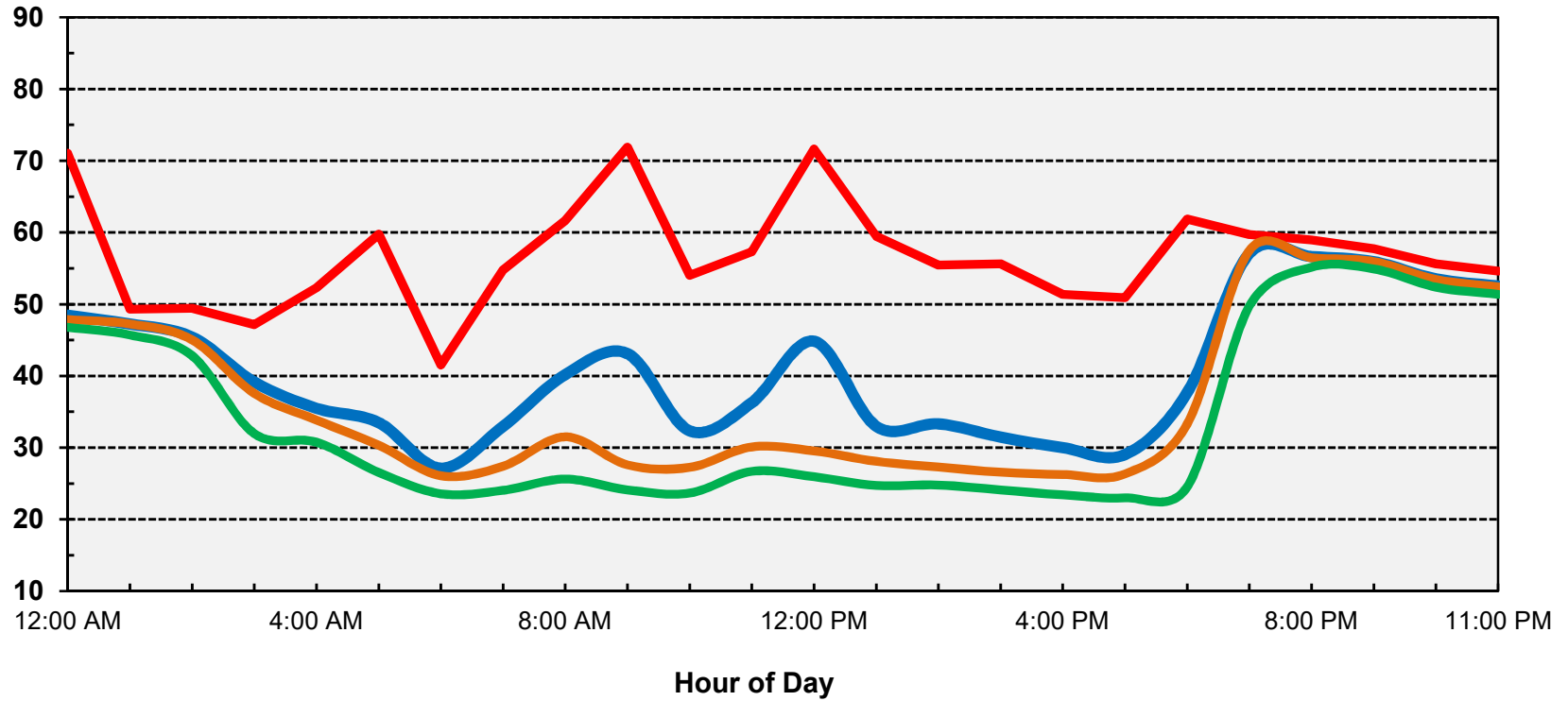


— Average (Leq) — Maximum (Lmax) — L50 — L90

Ldn: 53 dB

Appendix C-5
Ambient Noise Monitoring Results - Site 1
Integrated Wildlife Damage Management Program
Sunday, September 30, 2018

Sound Level, dBA

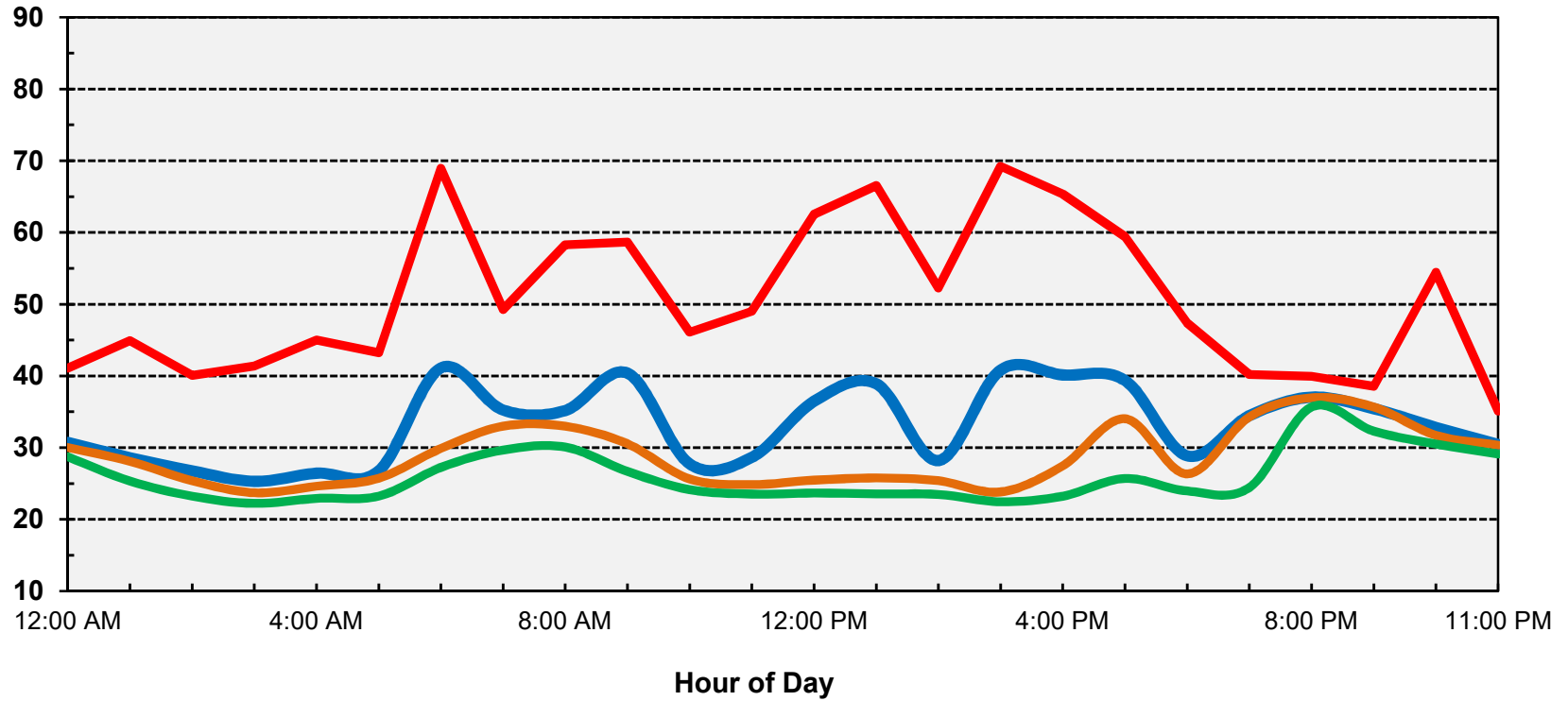


— Average (Leq) — Maximum (Lmax) — L50 — L90

Ldn: 55 dB

Appendix C-6
Ambient Noise Monitoring Results - Site 2
Integrated Wildlife Damage Management Program
Wednesday, September 26, 2018

Sound Level, dBA

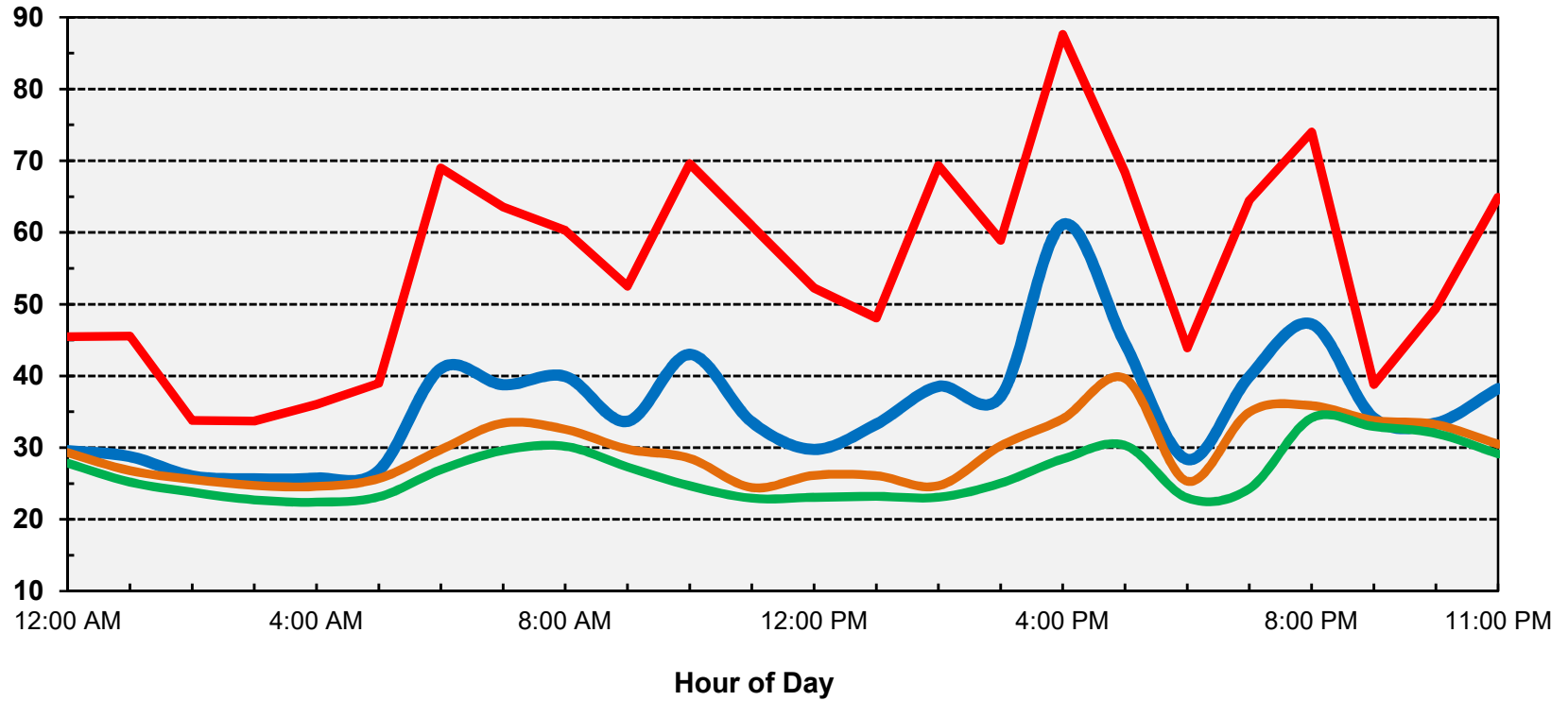


— Average (Leq) — Maximum (Lmax) — L50 — L90

Ldn: 41 dB

Appendix C-7
Ambient Noise Monitoring Results - Site 2
Integrated Wildlife Damage Management Program
Thursday, September 27, 2018

Sound Level, dBA

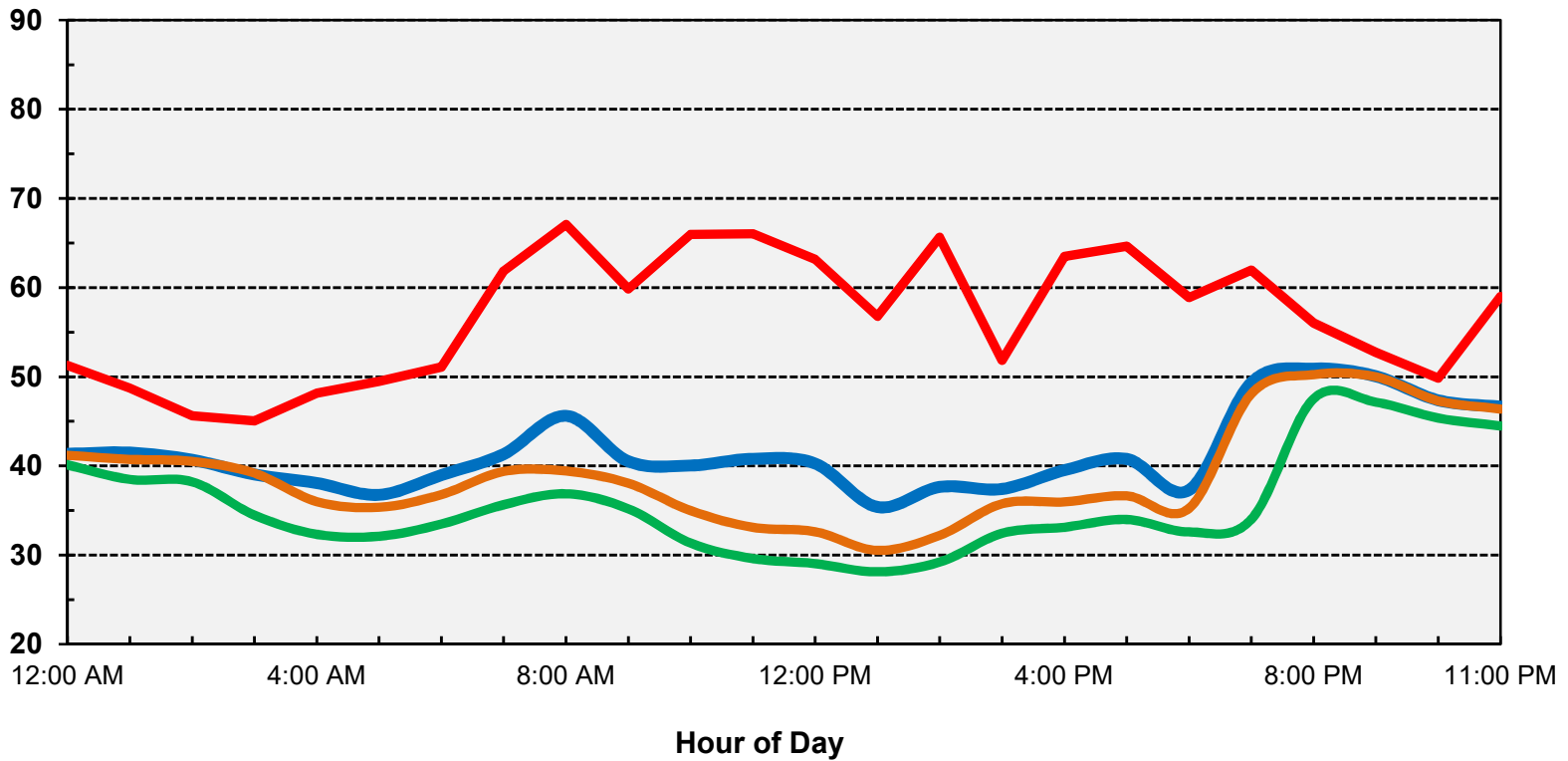


— Average (Leq) — Maximum (Lmax) — L50 — L90

Ldn: 48 dB

Appendix C-8
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Wednesday, September 26, 2018

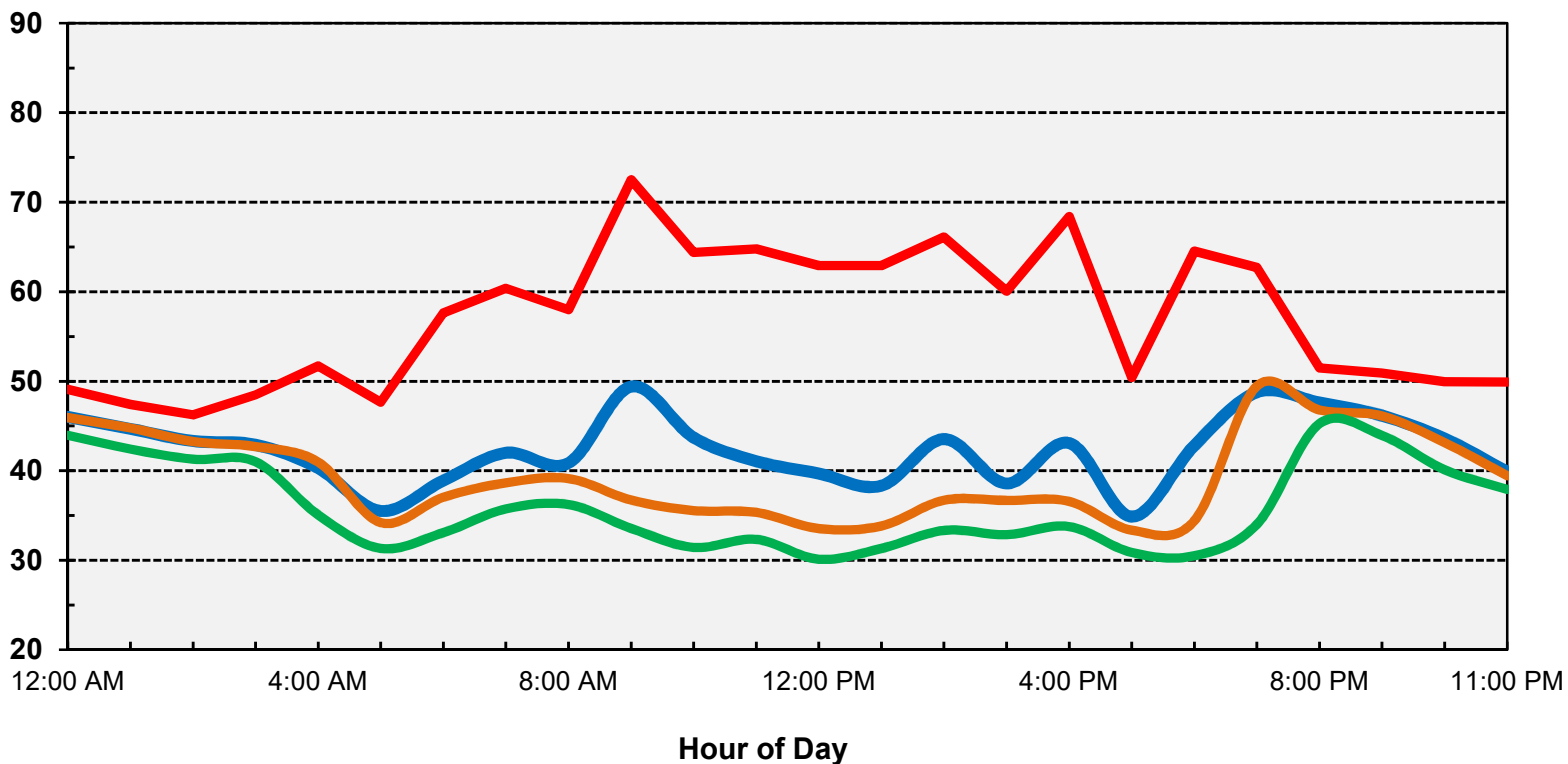
Sound Level, dBA



— Average (Leq) — Maximum (Lmax) — L50 — L90

Appendix C-9
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Thursday, September 27, 2018

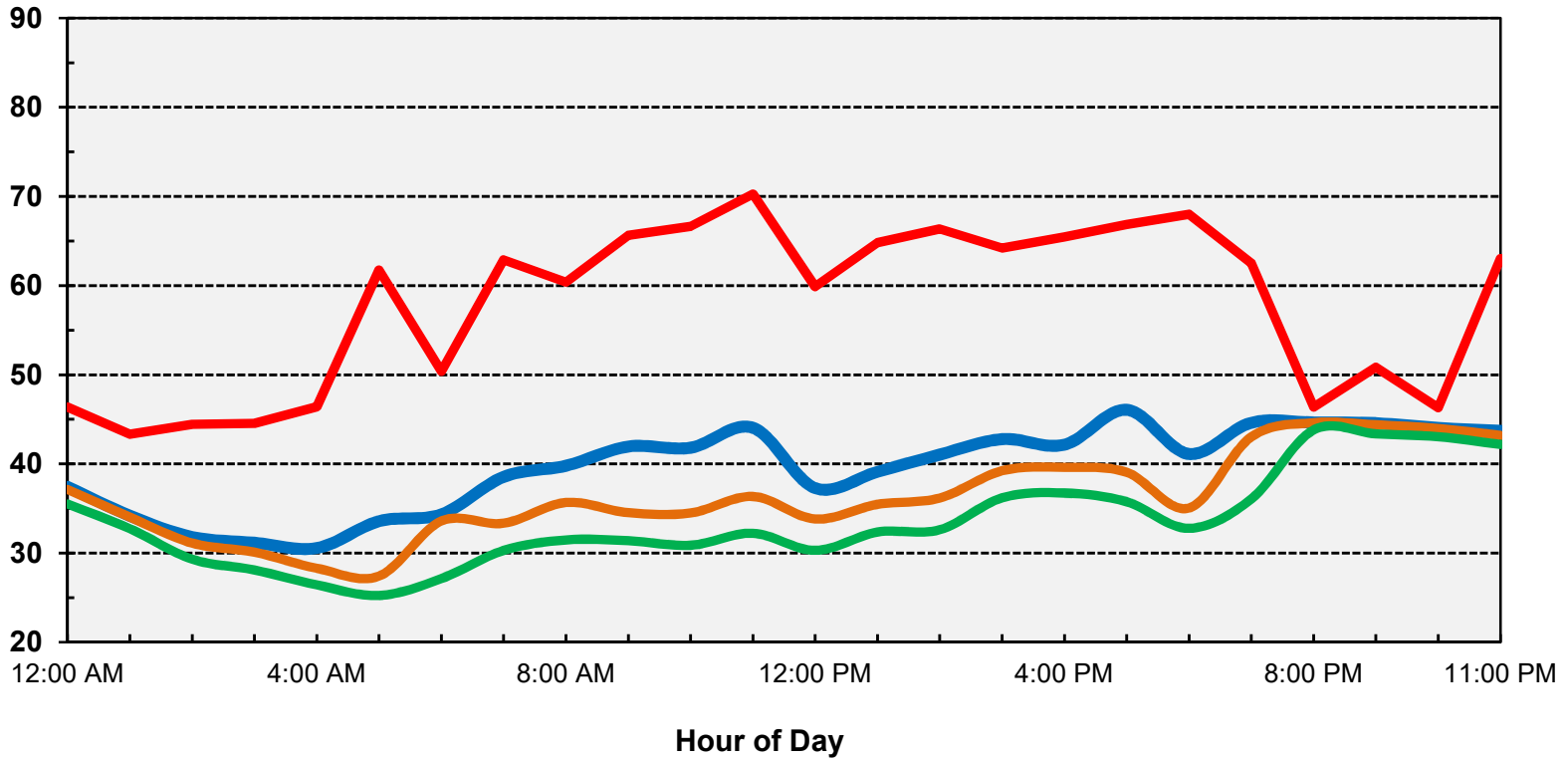
Sound Level, dBA



— Average (Leq) — Maximum (Lmax) — L50 — L90

Appendix C-10
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Friday, September 28, 2018

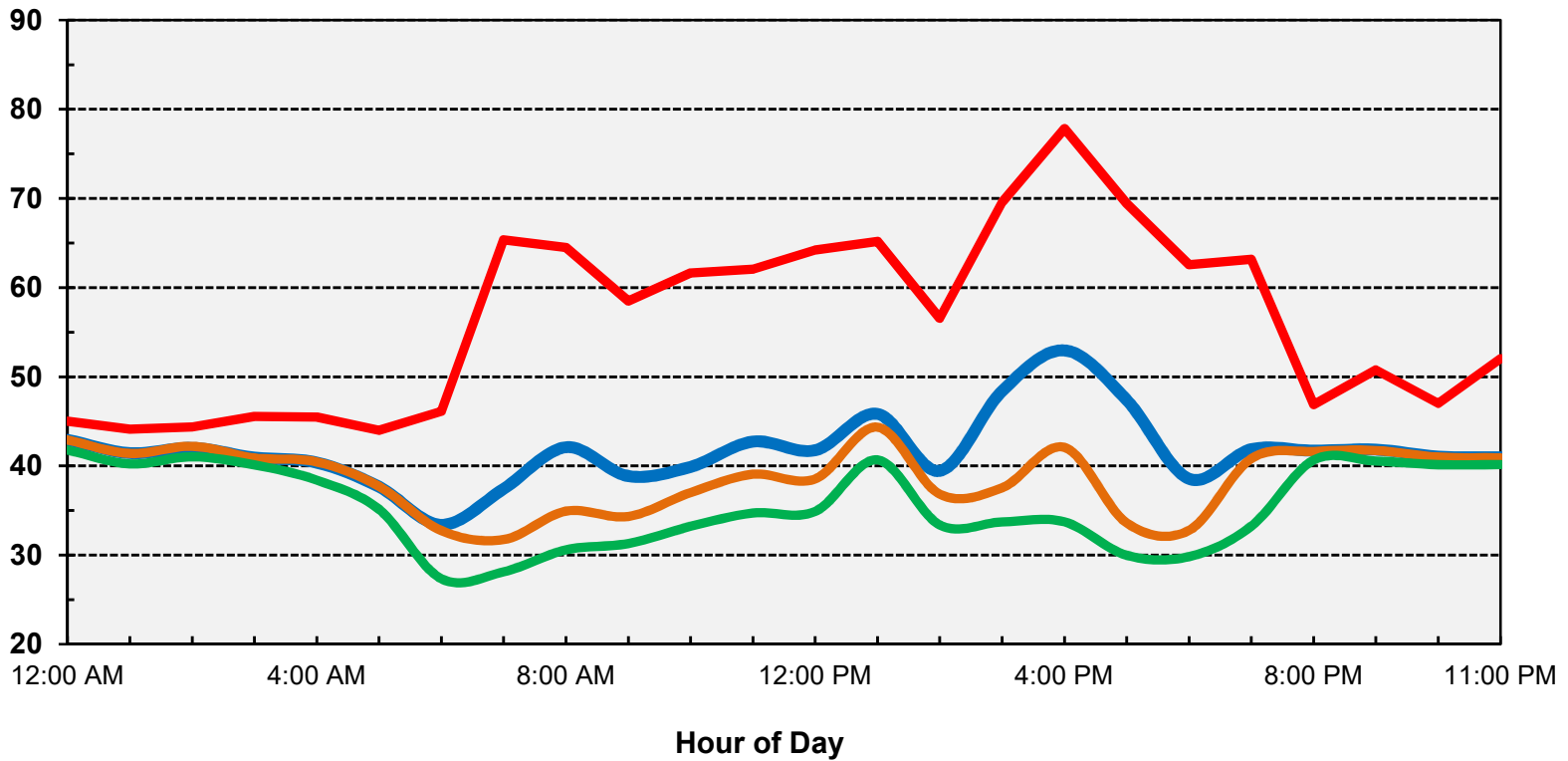
Sound Level, dBA



— Average (Leq) — Maximum (Lmax) — L50 — L90

Appendix C-11
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Saturday, September 29, 2018

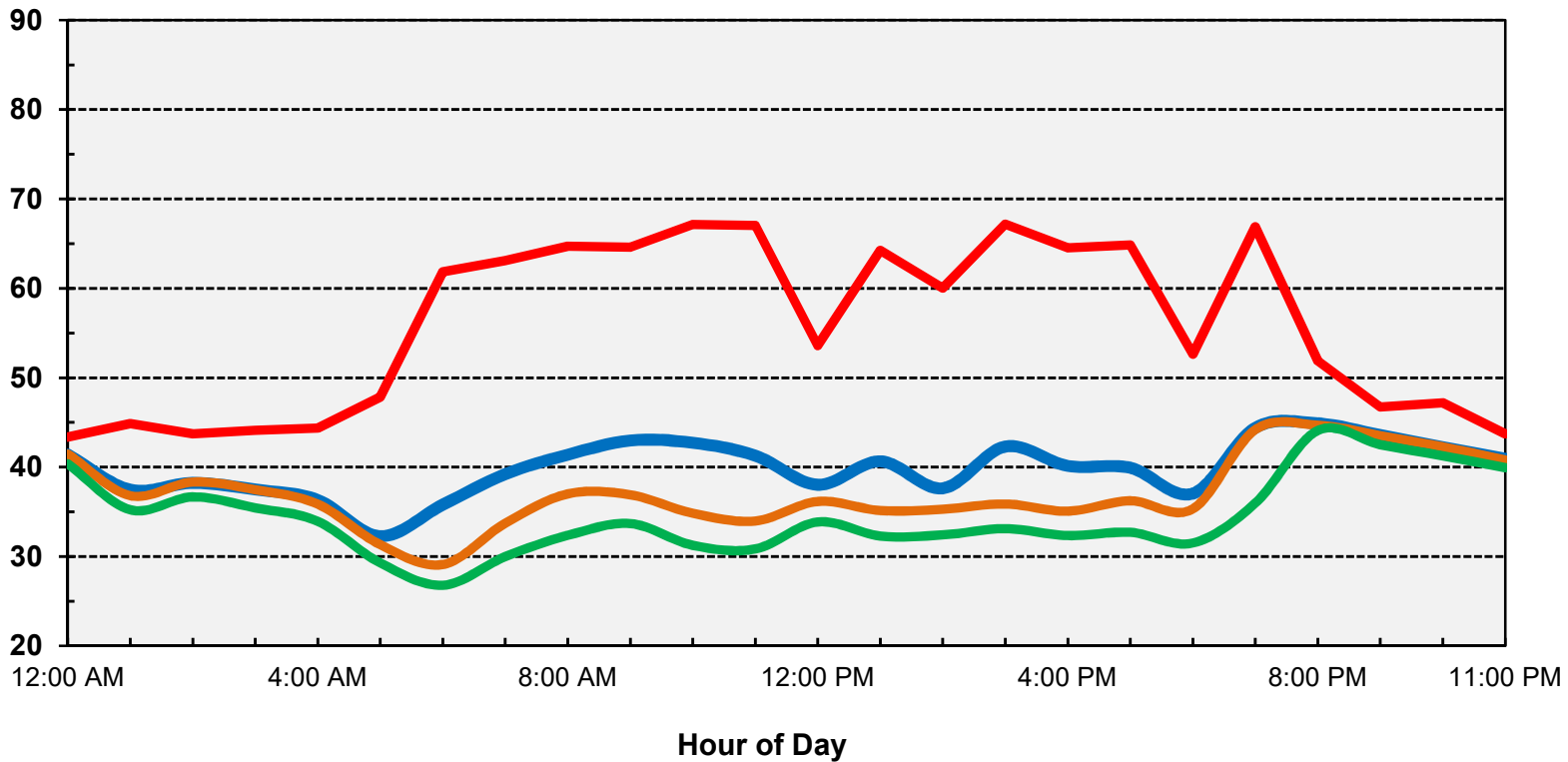
Sound Level, dBA



— Average (Leq) — Maximum (Lmax) — L50 — L90

Appendix C-12
Ambient Noise Monitoring Results - Site 3
Integrated Wildlife Damage Management Program
Sunday, September 30, 2018

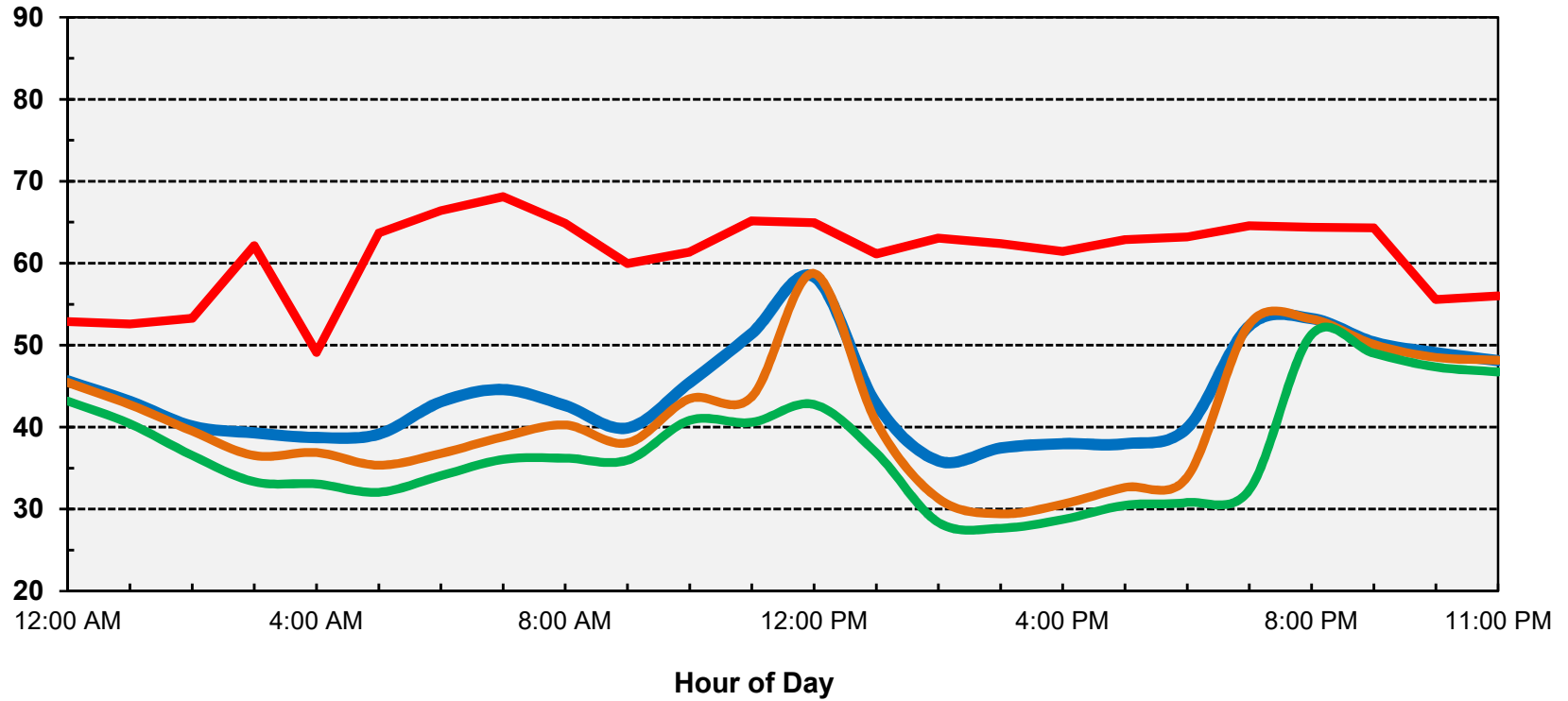
Sound Level, dBA



— Average (Leq) — Maximum (Lmax) — L50 — L90

Appendix C-13
Ambient Noise Monitoring Results - Site 4
Integrated Wildlife Damage Management Program
Wednesday, September 26, 2018

Sound Level, dBA

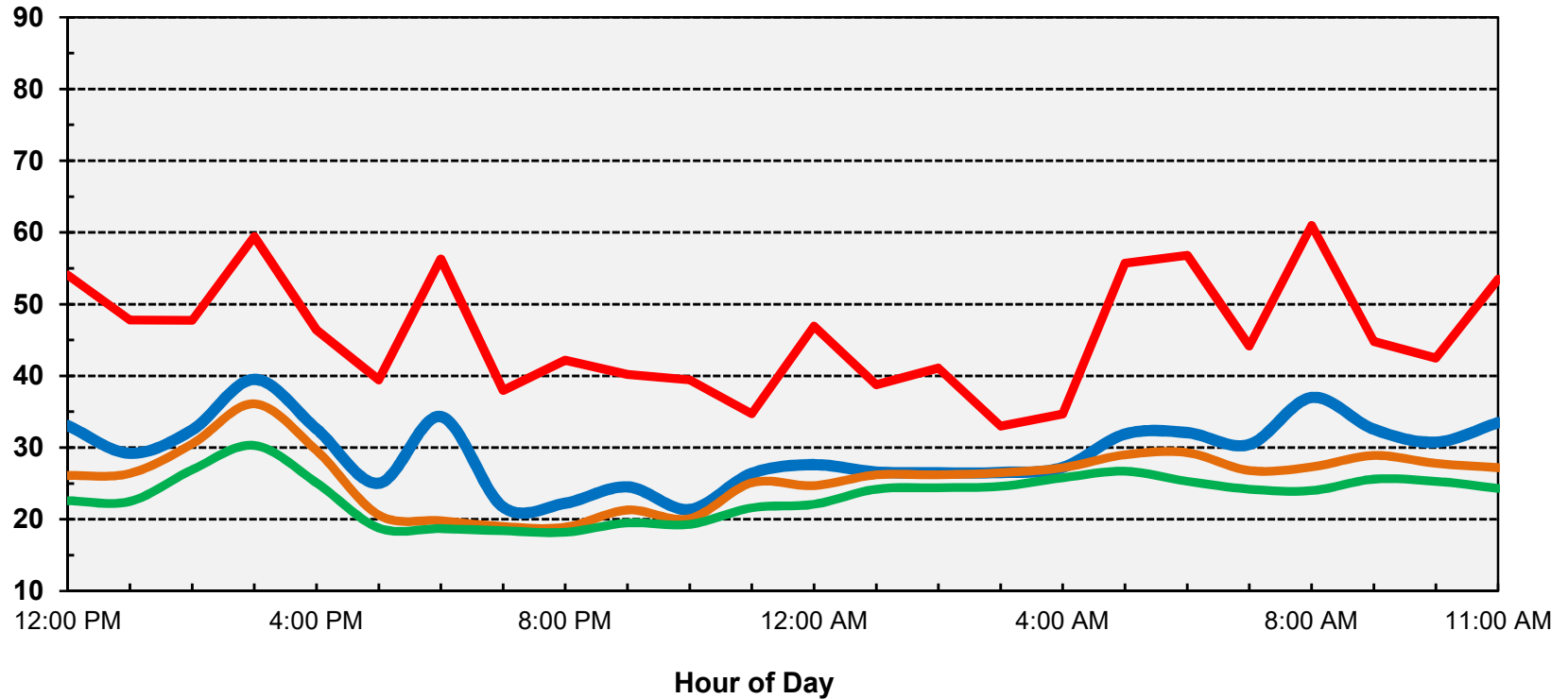


— Average (Leq) — Maximum (Lmax) — L50 — L90

Ldn: 52 dB

Appendix C-14
Ambient Noise Monitoring Results - Site 5
Integrated Wildlife Damage Management Program
9/30/2018 - 10/1/2018

Sound Level, dBA



— Average (Leq) — Maximum (Lmax) — L50 — L90

Ldn: 36 dB



Notes:

Left: Long-term noise measurement Site 1.
Center: Long-term noise measurement Site 2.
Right: Long-term noise measurement Site 3.

**Integrated Wildlife Damage
Management Program EIR**

Mendocino County, California

Noise Measurement Site Photos

Appendix D-1





Notes:

Left: Long-term noise measurement Site 4.
Right: Long-term noise measurement Site 5.

**Integrated Wildlife Damage
Management Program EIR**

Mendocino County, California

Noise Measurement Site Photos

Appendix D-2

