Biological Resources Reconnaissance Survey Report

Real Thorevilos
Unincorporated Napa County (APNs 021-320-022, -026, -028)

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Date:
May 2021

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EXECUTIVE SUMMARY

This report details the regulatory background, methods, results, and recommendations of a Biological Resources Reconnaissance Survey (BRRS) for the proposed development of two vineyard blocks comprising approximately 19 net acres of vines within approximately 23 acres of clearing limit (Project Area) for three parcels located on Mund Road in Napa County, California. WRA, Inc. performed primary field surveys on April 23, June 11, and July 17, 2020. The Project Area is composed primarily of Douglas fir forest and other forest/woodland and chaparral land covers. The findings presented herein pre-date the September 2020 Glass Fire, which severely impacted the site.

Approximately 10.9 acres, of a total 87.4 acres of developable oak woodlands across the property (12.5 percent), are proposed to be converted to vineyard and associated infrastructure. Oak woodlands are considered sensitive under Napa County General Plan Conservation Element Policy CON-24 which requires a ratio of 2:1 preservation for any impacts to oak woodlands. Additionally, Napa County Code (Chapter 18.108.020) requires the retention of 70 percent canopy cover and the preservation of oak and conifer trees at a minimum 3:1 ratio. The proposed project has been designed in part to achieve compliance with both the aforementioned policy and Code elements. Another sensitive land cover type present on-site, common manzanita chaparral, is being completely avoided by the project. The remainder of the vineyard blocks are situated within non-sensitive land cover types.

A protocol-level rare plant survey resulted in the detection of two special-status plants: Napa false indigo (*Amorpha californica* var. *napensis*, CRPR 1B) and narrow-anthered brodiaea (*Brodiaea leptandra*, CRPR 1B). Napa false indigo will be completely avoided by the project. Only a portion of the documented narrow-anthered brodiaea population (approximately 11 percent) will be permanently impacted by the Project.

Three special-status bats and three special-status birds, as well as non-status birds with baseline legal protections, have the potential to occur in the Project Area. Mitigation measures and best management practices have been developed and provided herein to avoid impacts to these resources.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

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DEFINITIONS

Subject Property: The area composing the two adjoining parcels of APN: 021-320-022, -026, and -028, totaling 299.0 acres.

Study Area: The area throughout which the land cover mapping and wildlife assessment was performed, the entire 299.0 acres of the Subject Property.

Botanical Survey Area: The area throughout which the protocol-level special-status plant survey was performed, encompassing the Project Area and substantial buffer, totaling 133.4 acres.

Project Area: The area encompassing the proposed project (vineyard blocks, grading limit); the area evaluated for direct potential impacts to sensitive biological resources

LIST OF ABBREVIATIONS & ACRONYMS

BGEPA	Bald and Golden Eagle Protection Act
BIOS	Biogeographic Information and Observation System
BRRS	Biological Resources Reconnaissance Survey
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
County	County of Napa
Corps	U.S. Army Corps of Engineers
CRLF	California Red-legged Frog
CSRL	California Soils Resources Lab
CTS	California Tiger Salamander
CWA	Clean Water Act
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	(Federal) Endangered Species Act
MSFMA	Magnuson-Stevens Fishery Conservation & Management Act
MBTA	Migratory Bird Treaty Act
NCBDR	Napa County Baseline Data Report
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OHWM	Ordinary High Water Mark
Rank	California Rare Plant Ranks
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
SFP	State Fully Protected Species
SWRCB	State Water Resource Control Board
TOB	Top of Bank
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WRA	WRA, Inc.

1.0 INTRODUCTION

On April 23, June 11, and July 17, 2020, WRA, Inc. (WRA) performed an assessment of biological resources and several species-specific surveys at three parcels (APNs 021-320-022, -026, -028) on Mund Road, Napa County (hereafter Study Area) (Figure A-1, Appendix A). The Study Area features two discontiguous properties, a northern property (APN -26) and a southern property (APNs -022, -028), separated by approximately 800 feet. The purpose of this study was to gather the information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA) to meet the guidelines outlined by Napa County in *Guidelines for Preparing Biological Resources Reconnaissance Surveys* (Napa County 2016a) and *Guidelines for Preparing Special-status Plant Studies* (Napa County 2016b).

A biological resources reconnaissance survey (BRRS) provides general information on the presence, or potential presence, of sensitive species and habitats. These survey(s) contain the results of a focused protocol-level survey for listed plant species in the Study Area; however, protocol-level surveys for wildlife may or may not be included as part of the survey. This survey is not a formal wetland delineation; in instances where such a delineation may be required for project approval by local, state, or federal agencies, results would be reported herein, but may be presented elsewhere in separate reports. This survey is based on information available at the time of the study and on-site conditions that were observed on the date(s) the site was visited.

This report describes the results of the site visits, which assessed the Project Area for (1) the presence of sensitive land cover types, (2) the potential for land cover types on the site to support special-status plant and wildlife species, and (3) the presence of any other sensitive natural resources protected by local, state, or federal laws and regulations. Special-status species observed during the site assessment were documented and their presence is discussed herein. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys or other studies be conducted; recommendations for additional studies are provided, if necessary.

The proposed project (Project) involves the installation of two vineyard blocks, i.e., the Ecotone North and Ecotone South blocks in the northern and southern properties respectively, totaling approximately 19.0 net acres (23.2 gross acres). Associated with the installation of the grape vines will be vineyard avenues, fences, irrigation lines, etc. Site preparation (ripping, installation of erosion control measures, seeding cover crop, and installation of irrigation pipelines and trellis) will occur during the grading window of April 1 through October 15. By October 15, the site will be winterized with placement of straw wattles, seeding of vineyard avenues and planting areas, and straw mulch spread over disturbed areas as required by the ECP prepared for the Project.

Note: The assessment results presented herein reflect on-site conditions prior to impacts from the Glass Fire that occurred in September 2020. See additional discussion in Sections 5.1 and 5.2.1.

2.0 REGULATORY BACKGROUND

This report is intended to facilitate conformance of the Project with the standards outlined in the Napa County Code and General Plan. In addition to the requirements of Napa County, the Project may also be

subject to several federal and state regulations designed to protect sensitive natural resources. Full analysis of these requirements in the context of the Project is addressed herein.

2.1 Federal and State Regulatory Setting

2.1.1 Sensitive Land Cover Types

Land cover types are herein defined as those areas of a particular vegetation type, soil or bedrock formation, aquatic features, and/or other distinct phenomenon. Typically, land cover types have identifiable boundaries that can be delineated based on changes in plant assemblages, soil or rock types, soil surface or near-surface hydroperiod, anthropogenic or natural disturbance, topography, elevation, etc. Many land cover types are not considered sensitive or otherwise protected under the environmental regulations discussed here. However, these land cover types typically provide essential ecological and biological functions for plants and wildlife, including, frequently, special-status species. Those land cover types that are considered or protected under one or more environmental regulations are discussed below.

Waters of the United States: The United States Army Corps of Engineers (Corps) regulates "Waters of the United States" under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the Corps Wetlands Delineation Manual (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as "other waters" and are often characterized by an ordinary high water mark (OHWM). Other waters, for example, generally include lakes, rivers, and streams. The placement of fill material into Waters of the United States generally requires an individual or nationwide permit from the Corps under Section 404 of the CWA.

Waters of the State: The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Regional Water Quality Control Board (RWQCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. RWQCB jurisdiction includes "isolated" wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Corps permit, or fall under other federal jurisdiction, and have the potential to impact Waters of the State, are required to comply with the terms of the Water Quality Certification determination. If a project does not require a federal permit, but does involve dredge or fill activities that may result in a discharge to Waters of the State, the RWQCB has the option to regulate the dredge and fill activities under its state authority in the form of Waste Discharge Requirements. The San Francisco Bay RWQCB, which has jurisdiction over projects in the Napa River watershed, recently adopted the General Permit for Vineyard Properties in the Napa River and Sonoma Creek Watersheds to comply with the WDRs for sediment and nutrient discharge from vineyards.

Streams, Lakes, and Riparian Habitat: Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations

to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term "stream", which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). In addition, the term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). "Riparian" is defined as "on, or pertaining to, the banks of a stream." Riparian vegetation is defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

Sensitive Natural Communities: Sensitive natural communities not discussed above include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" (CDFG 2010, CDFW 2018a) and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2018a). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2018) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). The Napa County Baseline Data Report (NCBDR) identifies sensitive Napa County natural communities, discussed further in Section 2.2 below (Napa County 2005).

2.1.2 Special-status Species

Plants: Special-status plants include taxa that have been listed as endangered or threatened, or are formal candidates for such listing, under the federal Endangered Species Act (ESA) and/or California Endangered Species Act (CESA). The California Native Plant Protection Act (CNPPA) lists 64 "rare" or "endangered" and prevents "take", with few exceptions, of these species. Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1, 2, and 3 are also considered special-status plant species and must be considered under CEQA. Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. A description of the CNPS Ranks is provided below in Appendices B and C. Additionally, any plant species listed as sensitive within the Napa County General Plan or NCBDR are likewise considered sensitive.

Wildlife: As with plants, special-status wildlife includes species/taxa that have been listed or are formal candidates for such under ESA and/or CESA. The federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America's eagle species (bald [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*)] that in some regards are similar to those provided by ESA. The CFGC designates some species as Fully Protected, which indicates that take of that species cannot be authorized through a state permit. Additionally, CDFW Species of Special Concern (species that face extirpation in California if current population and habitat trends continue) are given special consideration under CEQA, and are therefore considered special-status species. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or

destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA. Finally, wildlife species/taxa named as "locally rare" in the NCBDR (Napa County 2005) are also treated as special-status for purposes of this assessment.

Critical Habitat, Essential Fish Habitat, and Wildlife Corridors: Critical habitat is a term defined in the ESA as a specific and formally-designated geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. Note that designated critical habitat areas that are currently unoccupied by the species but which are deemed necessary for the species' recovery are also protected by the prohibition against adverse modification.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) provides for conservation and management of fishery resources in the U.S. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g. eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA. Additionally, the NCBDR (Napa County 2005) outlines important corridor resources within the County and encourages protection of these resources via Policy CON-18 (see section 2.2 below).

2.2 Napa County Regulatory Setting

Napa County General Plan and Napa County Code: Natural resource use in Napa County is regulated by the Napa County General Plan (Napa County 2008). Below are relevant policies from the General Plan pertaining to wetlands and biological resources which may be applicable to the Project.

Napa County Baseline Data Report

Specific sensitive Land Cover Types are identified in the NCBDR (Napa County 2005). In addition to those Land Cover Types identified by CDFW, the NCBDR also identifies biotic communities of limited distribution that "encompass less than 500 acres of cover within the County and are considered by local biological experts to be worthy of conservation" (Napa County 2005).

Natural Resource Goals and Policies

Policy CON-13: The County shall require that all discretionary residential, commercial, industrial, recreation, agricultural, and water development projects consider and address impacts to wildlife habitat and avoid impacts to fisheries and habitat supporting special-status species to the extent feasible. Where

impacts to wildlife and special-status species cannot be avoided, projects shall include effective mitigation measures and management plans including provisions to:

a) Maintain the following essentials for fish and wildlife resources:
    a. Sufficient dissolved oxygen in the water.
    b. Adequate amounts of proper food.
    c. Adequate amounts of feeding, escaping, and nesting habitat.
    d. Proper temperature through maintenance and enhancement of streamside vegetation volume flows, and velocity of water.
b) Employ supplemental planting and maintenance of grasses, shrubs and trees of like 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 and special-status species and maintain the watersheds, especially streams side areas, in good condition.
c) Provide protection for habitat supporting special-status species through buffering or other means.
d) Provide replacement habitat of like quantity and quality on- or off-site for special-status species to mitigate impacts to special-status species.
e) Enhance existing habitat values, particularly for special-status species, through restoration and replanting of native plant species as part of discretionary permit review and approval.
f) Require temporary or permanent buffers of adequate size (based on the requirements of the special-status species) to avoid nest abandonment of birds and raptors associated with construction and site development activities.
g) Demonstrate compliance with applicable provisions and regulations of recovery plans for listed species.

Policy CON-17: Preserve and protect native grasslands, serpentine grasslands, mixed serpentine chaparral, and other sensitive biotic communities and habitats of limited distribution. The County, in its discretion, shall require mitigation that results in the following standards:

a) Prevent removal or disturbance of sensitive natural plant communities that contain special-status plant species or provide critical habitat to special-status animal species.
b) In other areas, avoid disturbances to or removal of sensitive natural plant communities and mitigate potentially significant impacts where avoidance is infeasible.
c) Promote protection from overgrazing and other destructive activities.
d) Encourage scientific study and require monitoring and active management where biotic communities and habitats of limited distribution or sensitive natural plant communities are threatened by the spread of invasive non-native species.
e) Require no net loss of sensitive biotic communities and habitats of limited distribution through avoidance, restoration, or replacement where feasible. Where avoidance, restoration, or replacement is not feasible, preserve like habitat at a 2:1 ratio or greater within Napa County to avoid significant cumulative loss of valuable habitats.

Policy CON-18: To reduce impacts on habitat conservation and connectivity:

a) In sensitive domestic water supply drainages where new development is required to retain between 40 and 60 percent of the existing (as of June 16, 1993) vegetation onsite, the vegetation selected for retention should be in areas designed to maximize habitat value and connectivity.

b) Outside of sensitive domestic water supply drainages, streamlined permitting procedures should be instituted for new vineyard projects that voluntarily retain valuable habitat and connectivity, including generous setbacks from streams and buffers around ecologically sensitive areas.
c) Preservation of habitat and connectivity of adequate size, quality and configuration to support special-status species should be required within the project area. The size of habitat and connectivity to be preserved shall be determined based on the specific needs of the species.
d) The County shall require discretionary projects to retain movement corridors of adequate size and habitat quality to allow for continued wildlife use based on the needs of the species occupying the habitat.
e) The County shall require new vineyard development to be designed to minimize the reduction of wildlife movement to the maximum extent feasible. In the event the County concludes that such development will have a significant impact on wildlife movement, the County may require the applicant to relocate or remove existing perimeter fencing installed on or after February 16, 2007 to offset the impact cause by the new vineyard development.

Policy CON-19: The County shall encourage the preservation of critical habitat areas and habitat connectivity through the use of conservation easements or other methods as well as through continued implementation of the Napa County Conservation Regulations associated with vegetation retention and setbacks from waterways.

Policy CON-24: Maintain and improve oak woodland habitat to provide for slope stabilization, soil protection, species diversity, and wildlife habitat through appropriate measures including one or more of the following:

a) Preserve, to the extent feasible, oak trees and other significant vegetation that occur near the heads of drainages or depressions to maintain diversity of vegetation type and wildlife habitat as part of agriculture projects.
b) Comply with the Oak Woodlands Preservation Act regarding oak woodland preservation to conserve the integrity and diversity of oak woodlands, and retain, to the maximum extent feasible, existing oak woodland and chaparral communities and other significant vegetation as part of the residential, commercial, and industrial approvals.
c) Provide replacement of lost oak woodlands or preservation of like habitat at a 2:1 ratio [effectively 3:1 ratio[1]] when retention of existing vegetation is found to be infeasible. Removal of oak species limited in distribution shall be avoided to the maximum extent feasible.
d) Support hardwood cutting criteria that require retention of adequate stands of oak trees sufficient for wildlife, slope stabilization, soil production be left standing.
e) Maintain, the extent feasible, a mixture of oak species which is needed to ensure acorn production. Black, canyon, live, and brewer oaks as well as blue, white, scrub and live oaks are common associations.

General Provisions – Stream and Wetland Setbacks

Napa County Code 18.108.025 requires stream setbacks for new land clearings for agricultural purposes. "Stream" is defined by Napa County (18.108.030) as: (1) a watercourse designated by a solid line or dash and three dots symbol on the largest scale of the United State Geological Survey (USGS) maps most

[1] Amendments to Napa County Ordinance 18.180 require a 3:1 ratio for preservation/replacement; see "Water Quality and Tree Protection Ordinance" on page 8.

recently published, or any replacement to that symbol (i.e., USGS "blue-line"); (2) any watercourse which has a well-defined channel with a depth greater than four feet and banks steeper than 3:1 and contains hydrophilic vegetation, riparian vegetation or woody-vegetation including tree species greater than ten feet in height; or (3) those watercourses listed in Resolution No. 94-19. No clearing of land for new agricultural uses as defined by Section 18.08.040 shall take place within the following setbacks from streams:

Table 1. Napa County Stream Setbacks

Slope (Percent)	Required Setback
< 1	35 feet
1--5	45 feet
5--15	55 feet
15--30	65 feet
30--40	85 feet
40--50	105 feet
50--60	125 feet
60--70	150 feet

In 2020, Napa County added to Code Section 18.108.025 the requirement of a 35-foot setback for ephemeral or intermittent streams not meeting Napa County's criteria for a stream. Likewise, 18.108.026 was added to the Napa County Code to include the requirement of a 50-foot setback from the delineated edge of wetland boundaries. Ordinance No. 1438 adopted by the Board of Supervisors allowed for a one-time exemption from the Ordinance (and therefore the updated stream and wetland setbacks) for projects that are less than 30 percent slope and less than 5 acres.

Vegetation Preservation and Replacement

Napa County Code 18.108.100 requires the following conditions when granting a discretionary permit for activities within an erosion hazard area (slopes greater than 5 percent):

Existing vegetation shall be preserved to the maximum extent consistent with the project. Vegetation shall not be removed if it is identified as being necessary for erosion control in the approved erosion control plan or if necessary for the preservation of threatened or endangered plant or animal habitats as designated by state or federal agencies with jurisdiction and identified on the County's environmental sensitivity maps.

Existing trees six inches in diameter or larger, measured at diameter breast height (DBH), or tree stands of trees six inches DBH or larger located on a site for which either an administrative or discretionary permit is required shall not be removed until the required permits have been approved by the decision-making body and tree removal has been specifically authorized.

- Trees to be retained or designated for retention shall be protected through the use of barricades or other appropriated methods to be placed and maintained at their outboard drip line during the

construction phase. Where appropriate, the director may require an applicant to install and maintain construction fencing around the trees to ensure their protection during earthmoving activities. Where removal of vegetation is necessitated or authorized, the director or designee may require the planting of replacement vegetation of an equivalent kind, quality and quantity.

Water Quality and Tree Protection Ordinance

In 2020, the Napa County Board of Supervisors adopted the Water Quality and Tree Protection Ordinance (WQTPO) modifying Chapter 18.108 Conservation Regulations to provide additional protections to trees and water quality. As noted above, additional setbacks were added for ephemeral and intermittent drainages and wetlands (Chapters 18.108.025 and 18.108.026). In addition, the tree retention required by Chapter 18.108.027 in sensitive domestic water supply drainages was increased from 60 percent to 70 percent retention based on vegetation that existed within the parcel in 1993. In addition, Chapter 18.108.020 subsections C and D were added to the Code that respectively require a minimum of 70 percent retention of canopy cover based on the vegetation that existed within the parcel in 2016, and the preservation or mitigation of trees (within oak woodland and coniferous forest land covers) at a minimum 3:1 ratio. Ordinance No. 1438 allowed for a one-time exemption from the Ordinance (and therefore the updated stream setbacks, wetland setbacks, and vegetation retention requirements) for projects that are less than 30 percent slope and less than 5 acres.

3.0 ENVIRONMENTAL SETTING

The approximately 21-acre Study Area is set across a portion of three parcels (Appendix A). It is located in northwestern Napa County, approximately two aerial miles southeast of downtown Calistoga. It is situated on the western flank of Howell Mountain, leading into Napa Valley to the southwest. Detailed descriptions of the local setting are below.

3.1 Topography and Soils

The overall topography of the Study Area moderately- to steeply-sloped, ranging from approximately 600 to 900 feet above sea level. According to the *Soil Survey of Napa County* (USDA 1978), the Study Area is underlain by five soil mapping units: Aiken loam, 2 to 15 percent slopes; Boomer gravelly loam, volcanic bedrock, 14 to 60 percent slopes; Forward silt loam, 3 to 26 percent slopes; Forward silt loam, 12 to 57 percent slopes; and Rock outcrop-Kidd complex, 50 t 75 percent slopes. The parent soil series of all the Study Area's mapping units are summarized below.

Aiken Series: This series consists of very deep loamy soils that formed in residuum weathered from volcanic rock situated on upland hillsides at elevations ranging from 1,200 to 5,000 feet (CSRL 2021, USDA 1978). These soils are not hydric, and are well drained with slow to rapid runoff, and moderately slow permeability. Native and naturalized vegetation associated with this series consists of coniferous and hardwood forests of ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), incense cedar (*Calocedrus decurrens*), white fir (*Abies concolor*), California black oak (*Quercus kelloggii*), and Pacific madrone (*Arbutus menziesii*). Typical land uses are timber, orchards, watershed protection, and open space (USDA 1978).

Boomer Series: This consists of deep to very deep loam soils that formed in residuum from metavolcanic rock situated on upland hills and mountains at elevations ranging from 500 to 5,000 feet (CSRL 2021, USDA

1978). These soils are not considered hydric, and are well-drained with slow to very rapid runoff, and moderately slow permeability (USDA 1978). Native and naturalized plants associated with this series are composed of ponderosa pine (*Pinus ponderosa*), sugar pine (*P. lambertiana*), Douglas fir (*Pseudotsuga menziesii*), California black oak (*Quercus kelloggii*), incense cedar (*Calocedrus decurrens*), manzanitas (*Arctostaphylos* spp.), toyon (*Heteromeles arbutifolia*), buck brush (*Ceanothus cuneatus*), and grasses, while land use is primarily forestry and watershed protection (USDA 1978).

Forward Series: This series consists of moderately deep sandy loam soils of residuum weathered from rhyolitic tuff on hillslopes at elevations ranging from 400 to 4,500 feet (CSRL 2021, USDA 1978). These soils are not considered hydric, and are well drained, with medium runoff and moderately rapid permeability above the tuff bedrock (USDA 2014, USDA 1978). Native vegetation consists of coniferous forest composed of ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*), incense cedar (*Calocedrus decurrens*), California black oak (*Quercus kelloggii*), manzanitas (*Arctostaphylos* spp.), and pine mat (*Ceanothus prostratus*). Typical land uses include timbering, watershed protection, and open space (USDA 1978).

Kidd Series: This series consists of very shallow gravelly loam soils formed from weathered rhyolitic tuff and rhyolite situated on upland hillslopes at elevations ranging from 500 to 4,300 feet. These soils are not considered hydric, and are well- to excessively drained with medium to very rapid runoff, and moderately rapid to rapid permeability (CSRL 2021, USDA 1972). Native and naturalized vegetation include hoary manzanita (*Arctostaphylos canescens*), chamise (*Adenostoma fasciculatum*), ceanothus (*Ceanothus* spp.), scrub oak (*Quercus berberidifolia*), knobcone pine (*Pinus attenuata*), ponderosa pine (*P. ponderosa*), and mixed herbs. Typical land use is for watershed, recreation, and limited grazing.

3.2 Climate and Hydrology

The Study Area is located above the valley fog incursion zone of Napa County. The average monthly maximum temperature of Calistoga (Station ID: 041312) is 92.5 degrees Fahrenheit, while the average monthly minimum temperature is 36.2 degrees Fahrenheit. Precipitation falls as rain with an annual average of 37.55 inches. Precipitation-bearing weather systems are predominantly from the west and south with the majority of rainfalls between November and March, with a combined average of 31.52 inches (USDA 2021).

The local watershed is Middle Napa Valley (HUC 12: 180500020202) and the regional watershed is Napa River (HUC 8: 18050002). The Study Area is situated in the Napa County Planning Watershed of Bell Canyon Reservoir. There is a one named dashed blue line stream, Canon Creek mapped on the Saint Helena 7.5-minute quadrangle (USGS 2012). Likewise, this stream is mapped in the National Wetlands Inventory (NWI; USFWS 2021a) and the California Aquatic Resources Inventory (CARI; SFEI 2020), while several other streams are mapped in CARI, but not in the NWI. The primary hydrologic sources are direct precipitation and consequent surface sheet flow and subsurface flow into channels (streams). Precipitation in the majority of the Study Area infiltrates quickly due to rocky loam soils. Detailed descriptions of aquatic resources are in Section 5.1 below.

3.3 Land Cover and Land Use

The Study Area is predominantly undeveloped forest, woodland, and open grassland, with a portion of existing development. The developed areas in the Study Area include two residences, vineyard buildings, vineyard blocks, access roads, and associated infrastructure and landscaping. Detailed land cover

descriptions are included in Section 5.1 below, and all observed plants are included in Appendix B. Regional land uses include rural residential, wineries, vineyards, watershed protection, and open space (Google Earth 2021). Historically, land uses in the region were timbering, rural residential, vineyards, and orchards. There is no history of quarrying or mining, in the Study Area; however, timbering was likely in the late 19th or early 20th Century, and vineyards have been within a portion of the Study Area for over thirty years (Historic Aerials 2021).

4.0 ASSESSMENT METHODS

Prior to the site visit, WRA biologists reviewed the following literature and performed database searches to assess the potential for sensitive natural communities (e.g., wetlands) and special-status species (e.g., endangered plants):

- *Soil Survey of Napa County, California* (USDA 1978)
- Saint Helena 7.5-minute quadrangle (USGS 2012)
- Contemporary aerial photographs (Google Earth 2021)
- Historical aerial photographs (Historical Aerials 2021)
- National Wetlands Inventory (USFWS 2021a)
- California Aquatic Resources Inventory (SFEI 2021)
- California Natural Diversity Database (CNDDB, CDFW 2021a)
- California Native Plant Society Electronic Inventory (CNPS 2021a)
- Consortium of California Herbaria (CCH 2021)
- USFWS List of Federal Endangered and Threatened Species (USFWS 2021b)
- *eBird* Online Database (eBird 2021)
- CDFW Publication, *California Bird Species of Special Concern in California* (Shuford and Gardali 2008)
- CDFW and University of California Press publication *California Amphibian and Reptile Species of Special Concern* (Thomson et al. 2016)
- *Breeding Birds of Napa County, California* (Smith 2003)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)
- *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009)
- *A Manual of California Vegetation Online* (CNPS 2021b)
- *Preliminary Descriptions of the Terrestrial Natural Communities* (Holland 1986)
- Napa County Land Cover (NCLC) map (Thorne et al. 2004)
- *California Natural Community List* (CDFW 2018a)

Database searches (i.e., CNDDB, CNPS) focused on the Detert Reservoir, Aetna Springs, Walter Springs, Calistoga, Saint Helena, Chiles Valley, Kenwood, Rutherford, and Yountville USGS 7.5-minute quadrangles for special-status plants. The special-status wildlife evaluation was based on database searches for the entirety of Napa County. Appendix A contains observations of special-status species documented within a five-mile radius of the Study Area.

Following the remote assessment, a botanist with 40-hour Corps wetland delineation and wildlife biologist training traversed the entire Study Area on foot to document: (1) land cover types (e.g., terrestrial communities, aquatic resources), (2) if and what type of aquatic natural communities (e.g., wetlands) are

present, (3) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, and (4) if special-status species are present[2].

4.1 Land Cover Types

4.1.1 Terrestrial Land Cover Types

Terrestrial land cover types were mapped across the entire Subject Property, but they were only evaluated to determine if such areas have the potential to support special-status plants or wildlife within in the Study Area. In most instances, communities are delineated based on distinct shifts in plant assemblage (vegetation), and follow the *California Natural Community List* (CDFW 2018a), *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and *A Manual of California Vegetation, Online Edition* (CNPS 2021b). In some cases, it may be necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature; should an undescribed variant be used, it will be noted in the description.

Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled (S1/G1), imperiled (S2/G2), or vulnerable (S3/G3), were evaluated as sensitive as part of this evaluation.[3] Additionally, any sensitive natural communities as described in the Napa County Baseline Data Report (NCBDR; Napa County 2005) or General Plan (Napa County 2008) were considered.

4.1.2 Aquatic Resources

Aquatic resources include Waters of the U.S., Waters of the State, and Streams, Lakes, and Riparian Habitat as defined in the CWA, Porter-Cologne Act, and CFGC, respectively. Napa County mandates setbacks from these aquatic resources, and therefore requires mapping of the outward extent of such features.

This site assessment does not constitute a formal wetland delineation; however, the surveys looked for superficial indicators of wetlands such as hydrophytic vegetation (i.e., plant communities dominated by wetland species), evidence of inundation or flowing water, saturated soils and seepage, and topographic depressions/swales. If sample points were taken, WRA followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps 2008).

If streams potentially jurisdictional under the CWA and/or the CFGC are noted on a site, they are delineated using a mix of surveyed topography data, high resolution aerial photographs, and a sub-meter GPS unit. The ordinary high water mark would be used to determine the extent of potential Section 404 jurisdiction, while the top-of-bank would be used to determine the extent of CFGC Section 1602 and 401. Streams with associated woody vegetation were assessed to determine if these areas would be considered riparian habitat by the CDFW following *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994). Finally, all streams were assessed to determine if they meet the Napa County definition of "stream" pursuant to Napa County Code 18.108.030.

[2] Due to the timing of the assessment, it may or may not constitute protocol-level species surveys; see Section 4.2 if the site assessment would constitute a formal or protocol-level species survey.

[3] Ranking of CDFW List of Vegetation Alliances is based on NatureServe Rankings (NatureServe 2018)

4.2 Special-status Species

4.2.1 General Assessment

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the greater vicinity through a literature and database review. Database searches for known occurrences of special-status species focused on the 7.5-minute USGS quadrangles mentioned above for special-status plants and the entirety of Napa County for special-status wildlife.

A preliminary site visit was made on April 23, 2020 to evaluate the presence of suitable habitat for special-status species. Suitable habitat conditions are based on physical and biological conditions of the site, as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Study Area was then determined according to the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site in the recent past.

If a more thorough assessment was warranted, a targeted or protocol-level assessment or survey was conducted or recommended as a future study. Methods for the assessments are described below. If a special-status species was observed during the site visit, its presence was recorded and discussed below in Section 5.2.

4.2.2 Special-status Plants

To determine the presence or absence of special-status plant species, focused surveys were conducted within a portion of the Study Area, denoted as the Botanical Survey Area, on April 23, June 11, and July 17, 2020. The surveys corresponded to the period sufficient to observe and identify those special-status plants determined to have the potential to occur. The field surveys were conducted by botanists familiar with the flora of Napa and surrounding counties. The surveys were performed in accordance with those outlined by Napa County (2016b), which follow those described by resource experts and agencies (CNPS 2001, CDFW 2018b, USFWS 1996). Plants were identified using *The Jepson Manual, 2nd Edition* (Baldwin et. al. 2012) and Jepson Flora Project (eFlora 2020), to the taxonomic level necessary to determine whether or not they were sensitive. Plant names follow those of Jepson Flora Project (eFlora 2021), unless otherwise noted.

4.2.3 Special-status Wildlife

A general wildlife assessment was performed on April 23, 2020. This assessment consisted of traversing the entirety of the Study Area as well as substantial portions of the Subject Property. Habitat elements required or associated with certain species (e.g., northern spotted owl) or species groups (e.g., bats, anadromous fish) were searched for and noted. Such habitat elements include, but are not limited to: plant assemblages and vegetation structure; stream depth, width, hydro-period, slope, and bed-and-bank structure; rock outcrops, caves, cliffs, overhangs, and substrate texture and rock content; history of site alteration and contemporary disturbances; etc.

A protocol-level survey effort for the federal and state listed northern spotted owl (NSO; *Strix occidentalis caurina*) was performed, following the methodology outlined in *Protocol for Surveying Proposed Management Activities that May Impact Northern Spotted Owls* by the USFWS (2012). Six surveys through the spring and summer of 2020 were performed within the property, with a focus on the Study Area, to determine if NSO utilize the site. Three survey stations were established, two in the western parcel and one in the eastern parcel. All formal surveys occurred at night (while dark), with additional opportunistic calling and visual searches of forest stands during daytime site visits. During each survey the surveyors spent a minimum of ten minutes at each station, alternating between periods of passive listening and active NSO calling approximately every one to three minutes. For active calling, both recorded NSO vocalizations and enhanced vocal imitations of these calls (by surveyors) were employed. Recorded vocalizations were broadcast using a FOXPRO Inferno digital game calling device (FOXPRO, Inc.; Lewistown, Pennsylvania). Vocal imitations used "The Hooter Owl Call" calling devices (Hunters Specialties; Grand Prairie, TX). Spotted owl vocalizations used were the standard four-note call, the agitated (eight-plus-note) call, the contact call ("contact whistle"), and other barking/squawking calls. All surveys were performed by WRA biologists Aaron Arthur and Jason Yakich, each of whom have several years of experience performing such surveys.

4.2.4 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

Prior to the site visit the USFWS Critical Habitat Mapper (USFWS 2021b) and the NMFS Essential Fish Habitat Mapper (NMFS 2021) were queried to determine if critical habitat for any species or EFH, respectively, occurs within the Study Area. To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010), habitat connectivity data available through the CDFW Biogeographic Information and Observation System (BIOS) (CDFW 2021b), and the NCBDR (Napa County 2005). Additionally, aerial imagery (Google 2021) for the local area was referenced to assess if local core habitat areas were present within, or connected to the Study Area. This assessment was refined based on observations of on-site physical and/or biological conditions.

5.0 ASSESSMENT RESULTS

5.1 Land Cover Types

Land cover types observed within the Study Area by WRA are shown in Figure A-2 (Appendix A). As noted in Section 1.0, land cover was mapped in the spring and summer of 2020 prior to the Glass Fire. At that time, eleven such land cover types were observed: developed areas, non-native grassland, coyote brush

scrub, common manzanita chaparral, chamise chaparral, blue oak woodland, California black oak woodland, coast live oak woodland, Pacific madrone forest, Douglas fir forest, and streams. The intensity of the Glass Fire within the Study Area resulted in substantial impacts there, killing numerous trees and shrubs and severely damaging much of the remaining vegetation. The Project Area (vineyards and clearing limits) has been intentionally sited to avoid all of the streams and to reduce the impacts to sensitive terrestrial land covers, particularly oak woodlands, as these resources were mapped in 2020.

5.1.1 Terrestrial Land Cover Types

Developed Area (no vegetation alliance). CDFW Rank: None. Within the Study Area, developed portions are composed of vineyards, paved access roads, parking areas, three residences, winery buildings, landscaping, and other small outbuildings. The vegetation is highly altered, consisting of overhanging native trees, landscape species, and disturbance tolerant herbs. Species include Douglas fir (*Pseudotsuga menziesii*), California bay (*Umbellularia californica*), English ivy (*Hedera helix*), field marigold (*Calendula arvensis*), common sow thistle (*Sonchus oleraceus*), bur medic (*Medicago polymorpha*), and lily-of-the-Nile (*Agapanthus praecox*). Developed areas total 16.4 acres within the Study Area, of which 0.2 acre are situated within the Project Area (1.2 percent of the total land cover type in the Study Area). This community is synonymous with the Urban/Built-up biotic community in the NCLC (Thorne et al. 2004). This community is not considered sensitive by Napa County, CDFW, or any other regulatory entity.

Non-native Annual Grassland – Wild Oat Grassland (*Avena barbata* Semi-Natural Herbaceous Stands). CDFW Rank: None: Non-native grasslands occur throughout cismontane California, particularly in the Sierra Foothills, Coast Range, Transverse Range, and Peninsular Ranges (Sawyer et al. 2009, CNPS 2021b). These grasslands situated on a variety of landscapes including coastal terraces, valley bottoms, and foothills underlain by a variety of soil types. The Study Area contains 9.2 acres, of which 8.8 acres is situated in the Project Area (95.6 percent of the total land cover type in the Study Area).

The dominant cover is the herbaceous layer, but there are scattered trees and shrubs including blue oak (*Quercus douglasii*), coast live oak (*Quercus agrifolia*), coyote brush (*Baccharis pilularis*), and common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*). The herbaceous layer is dominated by non-native grasses of wild oat (*Avena barbata*), big rattlesnake grass (*Briza maxima*), soft chess (*Bromus hordeaceus*), dogtail grass (*Cynosurus echinatus*), and Italian rye grass (*Festuca perennis*). Native wildflowers are common in portions of the grassland including sky lupine (*Lupinus nanus*), California poppy (*Eschscholzia californica*), common soap plant (*Chlorogalum pomeridianum*), purple sanicle (*Sanicula bipinnatifida*), winecup clarkia (*Clarkia purpurea* ssp. *quadrivulnera*), and harvest brodiaea (*Brodiaea elegans* ssp. *elegans*).

This community is synonymous with the California Annual Grasslands Alliance biotic community in the NCLC (Thorne et al. 2004). These grasslands provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status species associated with grasslands. These grasslands are not considered sensitive by the CDFW or Napa County.

Coyote brush scrub (*Baccharis pilularis* Shrubland Alliance). CDFW Rank: G5 S5. Coyote brush scrub is known from the outer Coast Ranges and Sierra Nevada Foothills from Del Norte County south to San Diego County. These scrubs are typically located on river mouths, riparian areas, terraces, stabilized dunes, coastal bluffs, open hillsides, and ridgelines on all aspects underlain by variable substrate of sand to clay (Sawyer et al. 2009, CNPS 2021b). The Study Area contains 1.6 acres of coyote brush scrub, of which none are situated in the Project Area.

The tree layer is minimal in this community with isolated individuals of California bay (*Umbellularia californica*) and coast live oak (*Quercus agrifolia*) trees. The dominant cover element is the shrub layer, with the dominant species of coyote brush (*Baccharis pilularis*), with contributing infrequent cover of common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), Himalayan blackberry (*Rubus armeniacus*), and poison oak (*Toxicodendron diversilobum*). The herbaceous layer is dominated by non-native herbs including wild oat (*Avena barbata*), false brome (*Brachypodium distachyon*), soft chess (*Bromus hordeaceus*), dog-tail grass (*Cynosurus echinatus*), Italian thistle (*Carduus pycnocephalus*), and woolly-pod vetch (*Vicia villosa*).

This community is synonymous with the Coyote Brush-California Sagebrush NFD Super Alliance biotic community in the NCLC (Thorne et al. 2004). These scrubs provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status plants associated with grasslands within these scrubs openings. These scrubs are not considered sensitive by the CDFW or Napa County.

Common Manzanita Chaparral (*Arctostaphylos manzanita* ssp. *manzanita* Provisional Shrubland Alliance). CDFW Rank: G3 S3. Common manzanita chaparrals occur in the Coast Ranges and the Sierra Nevada Foothills from Del Norte County to Santa Cruz County (Sawyer et al. 2009, CNPS 2021b). These chaparrals are typically situated on mid to upper steep slopes underlain by sandstone, serpentine, or metavolcanics (CNPS 2021b). The Study Area contains 4.6 acres of common manzanita chaparral, of which none are situated in the Project Area.

The dominant stratum is the shrub layer which is dominated by common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), with secondary shrubs of Stanford's manzanita (*A. stanfordiana* ssp. *stanfordiana*), coyote brush (*Baccharis pilularis*), and poison oak (*Toxicodendron diversilobum*). The substrate appears to be partially of mine tailings and consequently, there is depauperate herbaceous layer, which is composed of climbing bedstraw (*Galium porrigens*), California milkwort (*Polygala californica*), goldwire (*Hypericum concinnum*), and gold back fern (*Pentagramma triangularis*).

This land cover type is synonymous with the Mixed Manzanita West County NFD Alliance biotic community in the NCLC (Thorne et al. 2004). These chaparrals provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status species associated with such arid scrubby vegetation. The CDFW considers these chaparrals as a sensitive natural community, but are not specifically noted by Napa County. This chaparral is entirely outside of the Study Area; therefore, there will be no impacts to such.

Chamise Chaparral (*Adenostoma fasciculatum* Shrubland Alliance). CDFW Rank: G5 S5: Chamise chaparral occurs in the Coast Ranges, Transverse Ranges, Sierra Nevada Foothills, and Peninsular Range from Humboldt County south to San Diego County (Sawyer et al. 2009, CNPS 2021b). These shrublands are situated on varied topography, rarely flats underlain by shallow colluvial soils derived from a variety of parent materials (CNPS 2021b). The Study Area contains 20.6 acres of chamise chaparral, of which 0.4 acre is situated in the Project Area (1.9 percent of the total land cover type in the Study Area).

The dominant cover type is shrubs with scattered trees. The woody layer is dominated by chamise (*Adenostoma fasciculatum*), with other woody species that include coast live oak (*Quercus agrifolia*), California bay (*Umbellularia californica*), toyon (*Heteromeles arbutifolia*), sticky monkey (*Diplacus aurantiacus*), common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), and poison oak (*Toxicodendron diversilobum*). The herbaceous layer is dominated by non-native annual grasses and

native perennial forbs including common soap plant (*Chlorogalum pomeridianum*), common yarrow (*Achillea millefolium*), golden globe lily (*Calochortus amabilis*), California helianthella (*Helianthella californica* var. *californica*), harvest brodiaea (*Brodiaea elegans* ssp. *elegans*), and narrow-anthered brodiaea (*Brodiaea leptandra*).

This community is synonymous with the Chamise Alliance biotic community in the NCLC (Thorne et al. 2004). Some associations of these shrublands are considered sensitive by the CDFW and Napa County; however, the association within the Study Area is common throughout Napa County and California and is therefore not afforded protection.

Blue Oak Woodland (*Quercus douglasii* Woodland Alliance). CDFW Rank G4 S4: Blue oak woodland is known from the interior North Coast Range, South Coast Range, southern Cascade Range, and Sierra Nevada Foothills from Humboldt County south to Ventura County (Sawyer et al. 2009, CNPS 2020b). These woodlands are typically situated on valley bottoms, foothills, and rocky outcrops underlain by moderately to excessively drained shallow, rocky, low-fertility substrate (CNPS 2021b). The Study Area contains 23.2 acres of blue oak woodland, of which 6.5 acres are situated in the Project Area (28.0 percent of the total land cover type in the Study Area).

The dominant tree is blue oak (*Quercus douglasii*), with scattered cover of coast live oak (*Q. agrifolia*), Pacific madrone (*Arbutus menziesii*), and California bay (*Umbellularia californica*). Predominant understory species include poison oak (*Toxicodendron diversilobum*), pink honeysuckle (*Lonicera hispidula*), soap plant (*Chlorogalum pomeridianum*), hedge parsley (*Torilis arvensis*), Pacific sanicle (*Sanicula crassicaulis*), Pacific hound's-tongue (*Cynoglossum grande*), and numerous non-native annual grasses.

This community is synonymous with the Blue Oak Alliance biotic community in the NCLC (Thorne et al. 2004). These woodlands provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status species associated with woodlands. The CDFW does not consider blue oak woodland a sensitive natural community. Conversely, these woodlands are considered sensitive Napa County under the General Plan Conservation Element Policy CON-24 (oak woodland retention).

California Black Oak Woodland (*Quercus kelloggii* Woodland Alliance). CDFW Rank: G4 S4: California black oak woodlands occur in the Klamath and Cascade ranges, Coast Ranges, Transverse Ranges, and lower elevation Sierra Nevada from northern Del Norte County south to San Diego County (Sawyer et al. 2009, CNPS 2021b). These woodlands can be situated on all aspects and topographic settings, underlain by moderately to excessively drained soils (Sawyer et al. 2009). The Study Area contains 5.2 acres of California black oak woodland, of which 3.2 acres are situated within the Project Area (61.5 percent of the total land cover type in the Study Area).

The dominant tree is California black oak (*Quercus kelloggii*), with scattered cover of blue oak (*Q. douglasii*), Pacific madrone (*Arbutus menziesii*), and Douglas fir (*Pseudotsuga menziesii*). Predominant understory species include poison oak (*Toxicodendron diversilobum*), upright snowberry (*Symphoricarpos albus*), common bedstraw (*Galium aparine*), pink honeysuckle (*Lonicera hispidula*), and numerous non-native annual grasses.

This community is synonymous with the California Black Oak Alliance biotic community in the NCLC (Thorne et al. 2004). These woodlands provide habitat for numerous common native plants and wildlife,

as well as have the potential to support several special-status species associated with woodlands. The CDFW does not consider coast live oak woodland a sensitive natural community. Conversely, these woodlands are considered sensitive Napa County under the General Plan Conservation Element Policy CON-24 (oak woodland retention).

Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance). CDFW Rank: G5 S4: Coast live oak woodlands occur in the outer and inner Coast Ranges, Transverse Ranges, and southern coast from northern Mendocino County south to San Diego County (Sawyer et al. 2009, CNPS 2020b). These woodlands are typically situated on terraces, canyon bottoms, slopes, and flats underlain by deep, well-drained sandy or loam substrates with high organic content (CNPS 2021b). The Study Area contains 64.9 acres of coast live oak woodland, of which 1.1 acres are situated in the Project Area (1.7 percent of the total land cover type in the Study Area).

The dominant tree is coast live oak (*Quercus agrifolia*), with scattered cover of California bay (*Umbellularia californica*) and Pacific madrone (*Arbutus menziesii*). Due to a dense and nearly closed canopy, the understory is depauperate, with scattered shrubs and herbs including poison oak (*Toxicodendron diversilobum*), common bedstraw (*Galium aparine*), hedge parsley (*Torilis arvensis*), Italian thistle (*Carduus pycnocephalus*), and Robert's geranium (*Geranium robertianum*).

This community is synonymous with the Coast Live Oak Alliance biotic community in the NCLC (Thorne et al. 2004). These woodlands provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status species associated with woodlands. The CDFW does not consider coast live oak woodland a sensitive natural community. Conversely, these woodlands are considered sensitive Napa County under the General Plan Conservation Element Policy CON-24 (oak woodland retention).

Pacific Madrone Forest (*Arbutus menziesii* Forest Alliance). CDFW Rank: G4 S3: Pacific madrone forests occur in the Coast Ranges, Klamath Mountains, Cascade Range, and Sierra Nevada Foothills from Del Norte County south to Santa Barbara County (Sawyer et al. 2009, CNPS 2018b). These forests typically occur along stream terraces, on upland slopes with productive soils, as well as steep slopes underlain by shallow, rocky, infertile soils (Sawyer et al. 2009). The Study Area contains 5.3 acres of Pacific madrone forest, of which none are situated in the Project Area.

The dominant tree is Pacific madrone (*Arbutus menziesii*), with scattered cover of coast live oak (*Quercus agrifolia*) and Douglas fir (*Pseudotsuga menziesii*). Predominant understory species include common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), poison oak (*Toxicodendron diversilobum*), Pacific sanicle (*Sanicula crassicaulis*), streambank spring beauty (*Claytonia parviflora*), common bedstraw (*Galium aparine*), California bedstraw (*Galium californicum*), golden globe lily (*Calochortus amabilis*), California wood fern (*Dryopteris arguta*), bracken fern (*Pteridium aquilinum*), and numerous non-native annual grasses.

This community falls in the California Bay-Madrone-Coast Live Oak (Black Oak-Big Leaf Maple) NFD Super Alliance biotic community in the NCLC (Thorne et al. 2004). These forests provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status species associated with woodlands. The CDFW considers Pacific madrone forests a sensitive natural community. Conversely, these forests are not listed as sensitive in the NCBDR (Napa County 2005), nor are they specifically addressed in the General Plan or County Ordinances.

Douglas Fir Forest (*Pseudotsuga menziesii* Forest Alliance). CDFW Rank: G5 S4. Douglas fir forests occur in the Coast Ranges, Klamath Range, Cascade Range, and Sierra Nevada from Del Norte County to Santa Barbara County (Sawyer et al. 2009, CNPS 2021b). These forests are typically situated on all topographic positions and aspects, underlain by a variety of substrates including serpentine and volcanics (CNPS 2021b). The Study Area contains 149 acres of Douglas fir forest, of which 3.0 acres are situated in the Project Area (2.0 percent of the total land cover type in the Study Area).

The dominant tree is Douglas fir (*Pseudotsuga menziesii*), with other tall trees in the canopy including tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), and California black oak (*Quercus kelloggii*). The overstory is relatively young, creating a dense canopy and relatively depauperate understory. There are few trees with structures sufficient to provide nesting for northern spotted owl (*Strix occidentalis caurina*), such as broken tops, multiple boles, epicormics branching, large cavities and fissures, etc. situated in the Subject Property, with few of these trees located in the Study Area. Those herbs and shrubs that do persist in the stand include poison oak (*Toxicodendron diversilobum*), pink honeysuckle (*Lonicera hispidula*), rough hedgenettle (*Stachys rigida*), California bedstraw (*Galium californicum*), California wood fern (*Dryopteris arguta*), and bracken fern (*Pteridium aquilinum*).

This land cover type is synonymous with the Douglas Fir/Coast Redwood Forest Alliance biotic community in the NCLC (Thorne et al. 2004). These forests provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status species associated with dense forests. The CDFW and Napa County do not consider Douglas fir forest a sensitive natural community. However, retention of canopy must considered through the Napa County General Code. Likewise, this area is timberland regulated by CAL FIRE under the Forest Practice Rules.

5.1.2 Aquatic Resources

Ephemeral and Intermittent Streams. CWA Section 404/401. Rank: None. The Subject Property contains six primary drainages and several ephemeral tributaries. The majority of these streams are ephemeral with one, Canon Creek, containing intermittent flows. The majority of the flows are ephemeral which only run during and immediately following substantial precipitation. Cannon Creek supports intermittent flows, which run during the wet season into the dry season, and receive subsurface discharges. The bed-and-banks are a mix of finer sediments, with large cobble and occasional bedrock in the intermittent portions. The ephemeral reaches contain shallow, narrow banks of fine sediments (clays, loams), while the banks of the intermittent streams are relatively steep, deep, and a mix of sediments, large rock, and downed wood. Riparian vegetation is present along the intermittent portions, but is absent along the ephemeral streams. All of the streams are likely jurisdictional under Section 404/401 of the CWA and Section 1602 of the CFGC; therefore, it is considered a sensitive aquatic resource. Only Canon Creek appears to meet the Napa County stream definition pursuant to Napa County Code 18.108.025.

5.2 Special-status Species

5.2.1 Special-status Plant Species

Based upon a review of the resource databases listed in Section 4.0, 100 special-status plant species have been documented in the vicinity of the Study Area. [4] Thirty-two of these plants have the potential to occur

[4] As per these databases, there are no documented occurrences of special-status mosses, bryophytes or lichens in Napa County. Additionally, few such species are documented from cismontane woodland (e.g., oak woodland/forest, madrone forest).

in the Study Area. The remaining 68 special-status plants documented from the greater vicinity are unlikely or have no potential to occur for one or more of the following:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the Study Area
- Edaphic (soil) conditions (e.g., volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the Study Area
- Topographic conditions (e.g., north-facing slope, montane) necessary to support the special-status plant species are not present in the Study Area
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the Study Area
- Associated natural communities (e.g., interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the Study Area
- The Study Area is geographically isolated (e.g. below elevation, coastal environ) from the documented range of the special-status plant species
- Land use history and contemporary management (e.g., absence of mowing or grazing) has degraded the localized habitat necessary to support the special-status plant species

WRA biologists conducted several site visits during a period sufficient to identify all 32 special-status plant species with the potential to occur within the Study Area. Two such plants were located in the Study Area during protocol-level surveys: Napa false indigo (*Amorpha californica* var. *napensis*; CRPR 1B) and narrow-anthered brodiaea (*Brodiaea leptandra*; CRPR 1B). All species with the potential to occur are listed below and described in Appendix C.

Special-status Plants Present in the Study Area

The following two special-status plants were observed within the Study Area during the 2020 surveys.

Napa false indigo (*Amorpha californica* var. *napensis*) CRPR 1B. Moderate Potential (Present). Napa false indigo is a small deciduous tree in the pea family (Fabaceae) that blooms from April to July, with identifiable vegetative structures remaining into early fall. It typically occurs on north-facing aspects in openings in broadleaf upland forest, chaparral, and cismontane woodland habitat at elevations ranging from 395 to 6,560 feet (CDFW 2021a, CNPS 2021a). Soil survey data at known locations in Sonoma County suggest that this species is typically located on moderately acid (pH 5.6) to neutral (pH 6.7) loams, often mixed with larger textures derived from a variety of orogeny (CDFW 2021a, CSRL 2021). Associated species include California bay (*Umbellularia californica*), black oak (*Quercus kelloggii*), coast live oak (*Quercus agrifolia*), Douglas fir (*Pseudotsuga menziesii*), tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), California hazelnut (*Corylus cornuta* var. *californica*), ocean spray (*Holodiscus discolor*), poison oak (*Toxicodendron diversilobum*), wood fern (*Dryopteris arguta*), bracken fern (*Pteridium aquilinum*), wood rose (*Rosa gymnocarpa*), and rein orchid (*Piperia transversa*) (CDFW 2021a, personal observation 2010-2020).

Approximately 70 individuals were documented in the Botanical Survey Area during surveys in spring and summer 2020; none of these were located within the Project Area. One population was observed on both sides of the existing dirt access road to the Ecotone North area, though none were within the roadbed itself. The individual plants in both observed populations were very likely killed in the Glass Fire; it is unclear if the seed bank was damaged as well. If the

seedbank survived, it is probable that germination will be high, and would contribute to the species' persistence within the Study Area.

Narrow-anthered brodiaea (*Brodiaea leptandra*) CRPR 1B. Moderate Potential. Narrow-anthered California Brodiaea is a perennial herb in the brodiaea family (Themidaceae) that blooms from May to July. It typically occurs in broadleaf upland forest, chaparral, and lower montane coniferous forest habitat at elevations ranging from 360 to 3,000 feet (CDFW 2021a, CNPS 2021a). Soil survey data from documented locations suggest this species is associated with gravelly loam and clay loam substrates derived from rhyolites, metavolcanics, and serpentine (CSRL 2021, CDFW 2021a). This species has a serpentine affinity rank of weak indicator (2.0) (Safford et al. 2005). Associated species include chamise (*Adenostoma fasciculatum*), mountain mahogany (*Cercocarpus betuloides*), scrub oak (*Quercus berberidifolia*), white oak (*Quercus garryana*), Ponderosa pine (*Pinus ponderosa*), knobcone pine (*Pinus attenuata*), Pacific madrone (*Arbutus menziesii*), manzanitas (*Arctostaphylos* spp.), buck brush (*Ceanothus cuneatus*), harvest brodiaea (*Brodiaea elegans*), California oat grass (*Danthonia californica*), narrow leaf mules ears (*Wyethia angustifolia*), and Sonoma sage (*Salvia sonomensis*) (CDFW 2021a, personal observation 2012-2020).

Approximately 84 individuals were documented in the Botanical Survey Area during surveys in spring and summer 2020; nine (9) of these were located within the Project Area. Because this species is a bulbiferous perennial adapted to surficial disturbances (e.g., fire, shrub removal), it is plausible that most to all individuals survived the Glass Fire. Likewise, the reduction of competition and nutrient input from the fire, will likely maintain if not increase the number of individuals of this species, particularly in the chamise chaparral outside of the Project Area.

Special-status Plants Not Observed in the Study Area

The following 30 special-status plants have the potential to occur within the Study Area but were not observed during protocol-level rare plant surveys conducted in April, June, and July 2020.

- Franciscan onion (*Allium peninsulare* var. *franciscanum*); CRPR 1B
- Bent-flowered fiddleneck (*Amsinckia lunaris*); CRPR 1B
- Konocti manzanita (*Arctostaphylos manzanita* ssp. *elegans*); CRPR 1B
- Rincon manzanita (*Arctostaphylos stanfordiana* ssp. *decumbens*); CRPR 1B
- Clara Hunt's milk-vetch (*Astragalus claranus*); FE, ST, CRPR 1B
- Brewer's calandrinia (*Calandrinia breweri*); CRPR 4
- Small-flowered Calycadenia (*Calycadenia micrantha*); CRPR 1B
- Mead's owl's-clover (*Castilleja ambigua* var. *meadii*); CRPR 1B
- Rincon Ridge ceanothus (*Ceanothus confusus*); CRPR 1B
- Calistoga ceanothus (*Ceanothus divergens*); CRPR 1B
- Point Reyes ceanothus (*Ceanothus gloriosus* var. *exaltatus*); CRPR 4
- Sonoma ceanothus (*Ceanothus sonomensis*); CRPR 1B
- Holly-leaved ceanothus (*Ceanothus purpureus*); CRPR 1B
- Beaked cryptantha (*Cryptantha rostellata*); CRPR 4
- Mountain lady's-slipper (*Cypripedium montanum*); CRPR 4
- Streamside daisy (*Erigeron biolettii*); CRPR 3
- Greene's narrow-leaved daisy (*Erigeron greenei*); CRPR 1B

- St. Helena fawn lily (*Erythronium helenae*); CRPR 4
- Nodding harmonia (*Harmonia nutans*); CRPR 4
- Bristly leptosiphon (*Leptosiphon acicularis*); CRPR 4
- Jepson's leptosiphon (*Leptosiphon jepsonii*); CRPR 1B
- Broad-lobed leptosiphon (*Leptosiphon latisectus*); CRPR 4
- Napa lomatium (*Lomatium repostum*); CRPR 4
- Cobb Mountain lupine (*Lupinus sericatus*); CRPR 1B
- Mt. Diablo cottonweed (*Micropus amphibolus*); CRPR 3
- Green Monardella (*Monardella viridis*); CRPR 4
- Napa checkerbloom (*Sidalcea hickmanii* ssp. *napensis*); CRPR 1B
- Napa bluecurls (*Trichostema ruygtii*); CRPR 1B
- Showy Rancheria clover (*Trifolium amoenum*); FE, CRPR 1B
- Oval-leaved viburnum (*Viburnum ellipticum*); CRPR 2B

5.2.2 Special-status Wildlife Species

A total of 62 special-status wildlife species have been documented in Napa County (CDFW 2021a, Napa County 2005). As outlined in Appendix C, four of these species were assessed as having the potential to occur in the Study Area. The remaining 56 species are unlikely or have no potential to occur due to one or more of the following reasons:

- Aquatic habitats (e.g., rivers/perennial streams, estuaries) necessary to support the special-status wildlife species are not present in the Study Area;
- Vegetation habitats (e.g., coast redwood forest, coastal prairie) that provide nesting and/or foraging resources necessary support the special-status wildlife species are not present in the Study Area;
- Physical structures and vegetation (e.g., mines, emergent wetland/marsh vegetation) necessary to provide nesting, cover, and/or foraging habitat to support the special-status wildlife species are not present in the Study Area;
- Host plants (e.g., dog violet, harlequin lotus) necessary to provide larval and nectar resources for the special-status wildlife species are not present in the Study Area;
- The Study Area is outside (e.g., north of, west of) of the special-status wildlife species documented nesting range (applicable to birds).

The following special-status wildlife with the potential to occur in the Study Area.

Pallid bat (*Antrozous pallidus*). CDFW Species of Special Concern, WBWG High Priority. Moderate Potential. The pallid bat is widely distributed throughout western North America, and occurs in a number of habitats ranging from rocky arid deserts to grasslands, and into higher elevation coniferous forests. Roosts are typically in rock crevices, tree hollows, mines, caves, and a variety of man-made structures, including vacant and occupied buildings. Tree roosting has been documented within snags and basal hollows of conifers, and within bole cavities in oak trees. Pallid bats are primarily insectivorous, feeding on large prey that is usually taken on the ground but sometimes in flight. Prey items include arthropods such as scorpions, ground crickets, and cicadas (WBWG 2021). Trees within the Study Area (conifers and oaks) may contain cavities or snags suitable for roosting by this species, and there are CNDDB occurrences in the vicinity (CDFW 2021a). A targeted bat habitat assessment was not performed under this biological assessment.

Fringed myotis (*Myotis thysanodes*). WBWG High Priority. High Potential. The fringed myotis ranges throughout much of western North America. This species is found in desert scrubland, grassland, sage-grass steppe, old-growth forest, and subalpine coniferous and mixed deciduous forest. Oak and pinyon-juniper woodlands are most commonly used. The fringed myotis roosts in colonies from 10 to 2,000 individuals, although large colonies are rare. Caves, buildings, underground mines, rock crevices in cliff faces, and bridges are used for maternity and night roosts, while hibernation has only been documented in buildings and underground mines. Tree-roosting has also been documented in Oregon, New Mexico, and California (WBWG 2021). Trees within the Study Area may contain cavities or exfoliating bark suitable for roosting. A targeted bat habitat assessment was not performed under this biological assessment.

Long-legged myotis (*Myotis volans*). WBWG High Priority. Moderate Potential. The long-legged myotis ranges across western North America from southeastern Alaska to Baja California and east to the Great Plains. This species is usually found in coniferous forests, but also occurs seasonally in riparian areas and deserts. Preferred roost sites include abandoned buildings, cracks in the ground, cliff crevices, exfoliating tree bark, and hollows within snags as summer day roosts. Caves and mines are used as hibernation roosts. Foraging occurs in and around the forest canopy and feed on moths and other soft-bodies insects (WBWG 2021). Trees within the Study Area may contain snags and hollows suitable for roosting. A targeted bat habitat assessment was not performed under this biological assessment.

Olive-sided flycatcher (*Contopus cooperi*). CDFW Species of Special Concern. Moderate Potential. The olive-sided flycatcher is a summer resident in California, wintering in Latin America. It breeds in a variety of forested habitats, typically coniferous forests at higher elevations, but also in mixed forest and woodlands at lower elevations. Breeding habitat is often associated with forest openings and edges, both natural (e.g., meadows, canyons) and man-made (e.g., logged areas) (Shuford and Gardali 2008). Nests are usually in conifers, and placed at variable height on the outer portions of branches. This species forages for insects, usually from prominent tree snags. The Project Areas provide coniferous forest with tall snags and hard edges (e.g., vineyard clearings) directly adjacent, and is suitable for nesting.

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species. Moderate Potential. White-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas, and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates. The Study Area provides suitable year-round habitat for white-tailed kites, including stands of oaks for nesting and open areas in close proximity for foraging. This species was not observed during site visits but could be present in the area.

Purple martin (*Progne subis*). CDFW Species of Special Concern. Moderate Potential. The purple martin is an uncommon summer resident in California, breeding in forest and woodlands at low- to mid-elevations throughout much of the state. Nesting occurs primarily in tree cavities; trees selected are usually taller or isolated, with low canopy cover at the nest height, and situated on the upper portions of slopes and/or near bodies of water where large aerial insects (favored prey) are abundant (Shuford and Gardali 2008). Conifers are the most frequently used tree type in northern California. Man-made structures with suitable cavities such as bridges or utility poles are also used. Taller tree snags within the Project Areas ostensibly provide suitable nesting substrates for this species; there are two documented nesting occurrences in CNDDB within 0.8 mile of the Project Areas (CDFW 2021a).

Species Documented in the Vicinity of the Project Areas But Not Observed

Northern spotted owl. Federal Threatened, State Threatened, CDFW Species of Special Concern. Moderate Potential (Not Observed). The NSO is the resident spotted owl subspecies found in cool temperate forests in the coastal portion of California, from Marin County northward. The natural history of this subspecies is summarized by the USFWS (2011) and Gutiérrez et al. (1995). Typical habitats consist of old-growth or otherwise mature coniferous forest and mixed coniferous-hardwood forest; younger (second-growth) forest with stands of large/mature trees may also be occupied. High-quality breeding habitat features a tall, multi-tiered, multi-species canopy dominated by big trees, trees with cavities and/or broken tops, and woody debris and space under the canopy. NSO breeding pairs are usually monogamous and also demonstrate site fidelity, maintaining nesting territories and home ranges across years. The general breeding season is February through August, and nesting occurs on platform-like substrates in the forest canopy. Substrates used as nest sites include tree cavities, epicormic branching (multiple branches forming from a single node), broken tree tops, large horizontal branches, and old nests built by other birds or squirrels. NSO young leave the nest (by gliding and climbing through the canopy) in late May through June, though they remain dependent on their parents for several weeks thereafter as they learn how to fly and forage independently. NSOs forage for nocturnal mammals; dusky-footed woodrats (*Neotoma fuscipes*) are the primary prey in northern California.

As per Smith (2003) and CDFW's Spotted Owl Viewer database (within BIOS; CDFW 2021b), NSO's Napa County distribution is restricted to discrete forested areas in its western portion; detailed information on individual observation locations is provided by CDFW (2021b). The nearest documented NSO breeding territory/activity center to the Project Areas are located approximately 1.6 miles to the northwest, where a male-female pair was observed in 1990; subsequent revisits (presumably dedicated NSO surveys) to this area in 2002 yielded negative results. Individual NSOs (not necessarily affiliated with breeding/nesting) have also been observed at several locations north and northwest of the Project Areas, with the nearest such location approximately 1.0 mile to the north (dating from 2010); most of these observations involved single birds detected outside of the breeding season.

Forest canopy within the Study Area is extensive, particularly in the northern parcel where some stands feature clusters of relatively large Douglas firs. In the southern parcel, most trees (including Douglas firs) are younger, with only very limited structure and potential nesting substrates. As outlined in Section 4.2.3, WRA performed protocol-levels NSO surveys in 2020; survey data and results are summarized in Table 2. NSO was not observed during the surveys. Based on these results, a lack of previous observations on or directly adjacent to the site, and recent fire impacts that presumably had substantial adverse impacts to on-site habitat, NSO is considered absent at the site.

Table 2. Northern Spotted Owl 2020 Survey Data

Date	Survey Time	Weather (sky, wind, moisture)	NSO Detections
April 29	9:35 PM – 10:15 PM	clear, 3-7 mph, dry	0
May 7	10:20 PM – 11:38 PM	clear (moon near full), calm, dry	0
May 14	10:20 PM – 11:20 PM	clear, calm, warm	0
June 4	10:45 PM – 12:00 AM	clear (moon full), 0-2 mph, dry	0
June 11	9:10 PM – 10:10 PM (included pre-dark surveying)	clear, calm, dry	0
June 23	10:30 PM – 11:25 PM	clear, 0-1 mph, dry	0

5.2.3 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

The Study Area does not contain any designated Critical Habitat (USFWS 2021b) or Essential Fish Habitat (NMFS 2021). The Study Area's streams have an ephemeral hydro-period, are very narrow and shallow, and do not have run-riffle-pool complexes; therefore, anadromous fish will not utilize these streams.

The Study Area is not within a designated wildlife corridor (CalTrans 2010, Napa County 2005). The site is located within a much larger tract of forest and lightly-developed land within a rural portion of Napa County east of the Napa Valley. While common wildlife species presumably utilize the site for movement at a local scale, the Study Area itself does not provide corridor functions beyond connecting similar forested and /or scrub-grown land parcels in surrounding areas. While the proposed project will result in portions of the two respective properties being converted to vineyard, most of these properties will remain undeveloped and retain connectivity of habitats at a local scale. It is WRA's understanding that deer-exclusion fencing will be installed around the perimeter of both vineyard blocks (fencing for the Ecotone South block will include the adjacent barn along with a small landscaped area); this fencing scheme will leave undeveloped interstitial areas intact. Additionally, the on-site streams (primarily ephemeral) are presumably used for highly localized movement and will also be completely avoided.

6.0 PROJECT ANALYSIS AND RECOMMENDATIONS

6.1 Land Cover Types

6.1.1 Terrestrial Land Cover Types

A summary of proposed impacts to and retention of terrestrial land cover types within the Study Area (both properties in aggregate) is provided in Table 3. Impacts to sensitive land covers are discussed in respective detail below.

Table 3. Summary of Impacts and Retention of Terrestrial Land Covers

Land cover[1]	Total (acres)	Excluded (acres)[2]	Mod. total (acres)	Proposed impacts (acres)	Total retention %[3]	Mod. retention %[3]
Non-native grassland	9.2	0.0	9.2	8.7	5	N/A
Chamise chaparral	20.6	1.6	19.0	0.4	98.1	97.9
Common manzanita chaparral	4.6	1.5	3.1	0.0	100	100
Coyote brush scrub	1.6	0.1	1.5	0.0	100	100
Blue oak woodland	23.2	1.6	21.6	6.6	71.6	69.4
Coast live oak woodland	64.9	4.2	60.7	1.1	98.3	98.2
Cal. black oak woodland	5.2	0.0	5.2	3.2	38.5	N/A
Oak woodland: TOTAL	93.3	5.9	87.4	10.9	88.3	87.5
Pacific madrone forest	5.3	0.0	5.3	0.0	100	100
Douglas fir forest	149.0	26.2	122.8	2.9	98.1	97.6

1 Developed land is not included.
2 Acreage on slopes greater than 50 percent and/or in stream setbacks.
3 Total retention: includes excluded acreage.
4 Modified retention: does not include excluded acreage.

Common Manzanita Chaparral

Though not included as sensitive in the NCBDR, common manzanita chaparral is listed as sensitive by CDFW (2018b). Policy CON-17e calls for the avoidance, restoration, replacement, and/or preservation of sensitive biological communities, and stipulates that preservation should be at a 2:1 ratio. The Project is completely avoiding on-site common manzanita chaparral, and as such is in compliance with Policy CON-17.

Oak Woodlands

Blue oak, California black oak, and coast live oak woodlands are not considered sensitive by CDFW or included as sensitive in the NCBDR; however, the Napa County General Plan Conservation Element Policy CON-24 requires that oak woodland be maintained and/or improved to the extent feasible to provide for oak woodland and wildlife habitat, slope stabilization, soil protection, and species diversity. Policy CON-24c specifically calls for the preservation of oak woodland (on an acreage basis) at a 2:1 ratio, where the areas to be preserved must generally occur on slopes less than 50 percent and outside of stream and wetland setbacks. Code Section 18.108.020(C) requires that 70 percent of canopy cover be retained based on the on-site canopy present on June 16, 2016, and 18.108.020(D) requires the preservation or mitigation of oak trees at a minimum 3:1 ratio.

The Project was designed to be in compliance with both the 3:1 tree preservation and the 70 percent retention requirements. The Study Area contains 93.3 acres of oak woodland in total, 5.9 acres of which

are on slopes greater than 50 percent and/or within stream setbacks. Of the remaining 87.4 acres, 10.9 acres are within the Project Area, resulting in retention of 76.5 acres, well within the stipulated 3:1 ratio and thus in compliance with Policy CON-24 and relevant items in the County Code.

Douglas Fir Forest

Douglas fir forest is not considered sensitive by CDFW or is included as sensitive in the NCBDR; however, the General Provisions of Napa County Code (18.108.020) requires varying levels of canopy retention and preservation. Code Section 18.108.020(C) requires that 70 percent of canopy cover be retained based on the on-site canopy present on June 16, 2016. Code Section 18.108.020(D) requires that the removal of tree canopy on an acreage basis be mitigated at a 3:1 ratio (which is equivalent to 75 percent retention) where the areas to be preserved must generally occur on slopes less than 50 percent and outside of stream and wetland setbacks. There has been no appreciable change in canopy cover since 2016; therefore, the use of Napa County's 2016 GIS Vegetation Public Habitat Mapping is appropriate for both analyses. The project was designed to be in compliance with both the 70 percent retention and the 3:1 tree preservation requirements, and therefore no further recommendations are warranted.

6.1.2 Aquatic Resources

The on-site streams will be entirely avoided by the Project by 35 feet or greater in accordance with Napa County Code 18.108.025. The following recommendations are put forward to protect aquatic resources.

> Recommendation 1: Grading shall occur during the dry season (April 1 through October 15) and should be suspended during unseasonable rainfalls of greater than one-half inch over a 24-hour period. If rainfall is in the forecast, standard erosion control measures (e.g., straw waddles, bales) should be deployed on the vineyard block edge paralleling the aquatic feature. Fence posts shall be located above the top-of-bank of the Study Area's streams.
>
> Construction personnel should be informed of the location of the site's aquatic resources with high-visibility flagging or staking prior to construction. No materials or equipment shall be lain down or near the aquatic resources, and spill prevention materials shall be deployed for all construction equipment.

6.2 Special-status Species

6.2.1 Special-status Plants

Two special-status plants occur within the Study Area, with one, narrow-anthered brodiaea (*Brodiaea leptandra*; CRPR 1B) is situated in the Project Area. Narrow-anthered brodiaea is broadly distributed throughout the Mayacama Mountains of Napa and Sonoma counties, and the northern flank of St. Helena in Lake County. Both fire suppression and land cover conversion have pressured this already limited-distribution species; fire suppression allows for shrubs and trees to overtop and eventually shade out and out compete this species. Nine of the 84 individuals observed within the Botanical Survey Area (approximately 11 percent) will presumably be permanently impacted by the Project. Because over 90 percent of the documented population will be retained, and this species could plausibly benefit from the Glass Fire impacts (via a reduction in vegetative competition), no further actions are recommended for this species.

6.2.2 Special-status Wildlife

The Project Area has the potential to support four special-status wildlife species (three bats and three birds), as well as native, non-status birds protected under the MBTA and CFGC. The following measures are recommended to avoid or otherwise minimize potential impacts to these species.

Bat Species: Three special-status bats have the potential to occur within the Study Area (pallid bat, fringed myotis, long-legged myotis). Removal and trimming of trees during the bat maternity season (generally, April through August) could impact bat breeding and potentially result in the take of bats. Because a targeted bat habitat assessment was not conducted as part of this biological assessment, pre-construction surveys for bat habitat and recommendations for tree removal to avoid impacts to bat species are provided below.

> Recommendation 2: WRA recommends that any tree removal be performed from September through March, outside of the general bat maternity season. If tree removal during this period is not feasible, it is recommended that a bat habitat assessment and survey effort (the latter if needed) be performed by a qualified biologist prior to tree removal to determine if bats are present in the trees. If no suitable roosting habitat for bats is found, then no further study is warranted. If special-status bat species or bat maternity roosts are detected, then roost trees should be avoided until the end of the maternity roosting season. If this avoidance is not feasible, appropriate species- and roost-specific mitigation measures should be developed in consultation with CDFW. Irrespective of time of year, all felled trees should remain on the ground for at least 24 hours prior to chipping, off-site removal, or other processing to allow any bats present within the felled trees to escape.

All Bird Species (including non-special-status): In addition to the three special-status bird species discussed above (olive-sided flycatcher, white-tailed kite, purple martin), a variety of non-status bird species with baseline protections under the MBTA and CFGC may use vegetation within the Project Areas for nesting. Pre-construction surveys are recommended to ensure that the implementation of the Proposed Project would not impact any nesting birds.

> Recommendation 3: WRA recommends that tree/vegetation removal and initial ground disturbance occur from August 16 to January 31, outside of the general bird nesting season. If tree/vegetation removal during this time is not feasible, a pre-construction nesting bird survey should be performed by a qualified biologist no more than 14 days prior to the initiation of tree removal or ground disturbance is recommended. The survey should cover the Project Area (including tree removal areas) and surrounding areas within 500 feet. If active bird nests are found during the survey, an appropriate no-disturbance buffer should be established by the qualified biologist. Once it is determined that the young have fledged (left the nest) or the nest otherwise becomes inactive (e.g., due to predation), the buffer may be lifted and work may be initiated within the buffer.

6.2.3 Wildlife Movement

Agricultural expansion within the Study Area is in and of itself unlikely to result in any significant impacts to local wildlife movement. As stated in Section 5.2.3, the Study Area's streams and a majority of the terrestrial land cover types will remain intact, allowing for continued wildlife movement across each property to adjacent, off-site habitat areas. This includes the preservation of substantial portions of the

Study Area's oak woodlands and other tree canopies (e.g., Douglas fir forest), in accordance with Policies CON-18 and -24 will also facilitate continued local movement of wildlife. Proposed deer-exclusion fencing around the new blocks will generally be restricted to the immediate perimeters of the blocks, leaving interstitial areas on both properties intact. For these reasons, no recommendations related to wildlife movement and connectivity are provided at this time.

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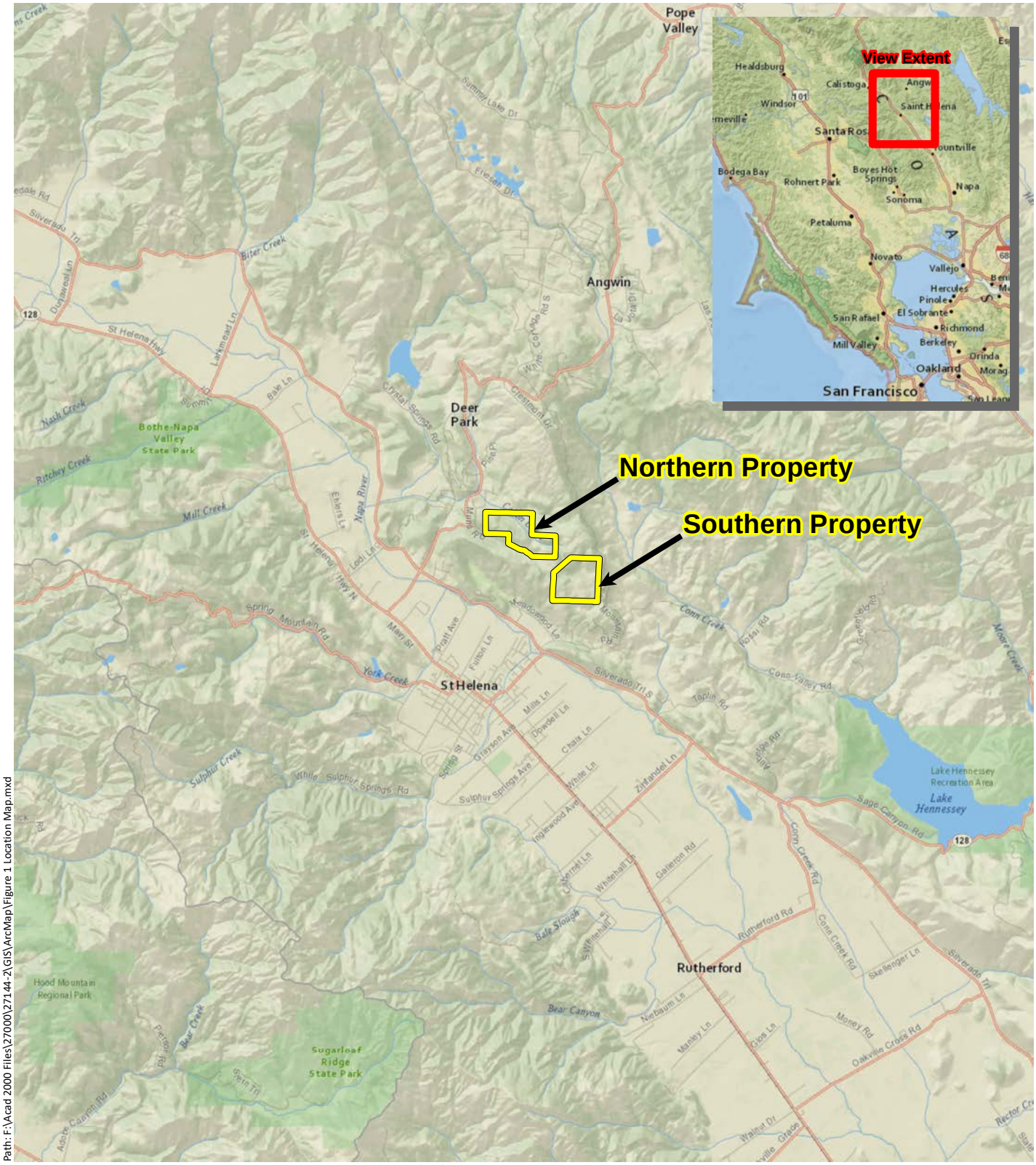
Appendix A

Figures



Sources: National Geographic, WRA | Prepared By: mrochelle, 4/27/2021

Figure A-1. Regional Location Map

Real Thorevilos
Napa County

0 1 2 Miles

N

ENVIRONMENTAL CONSULTANTS

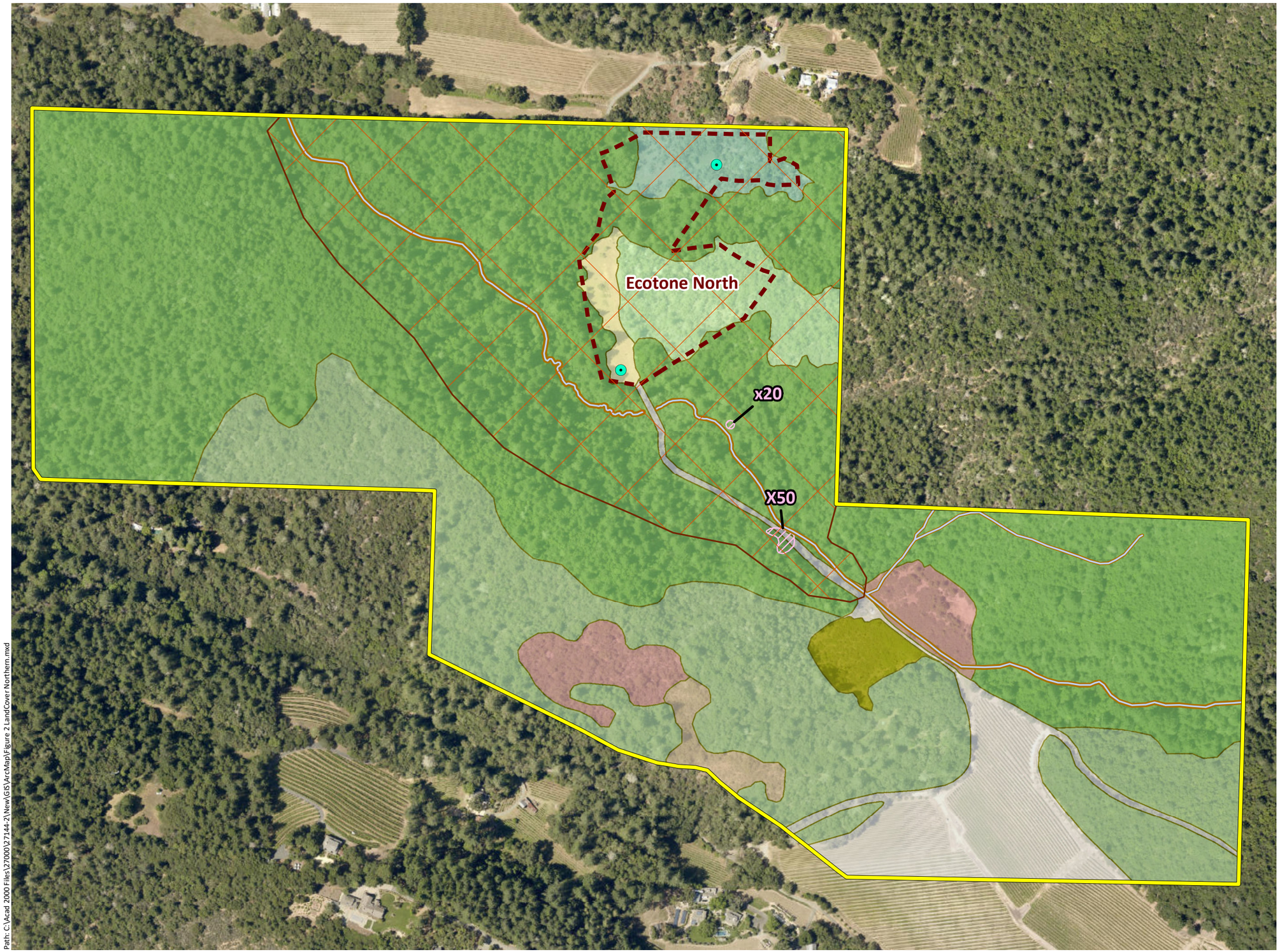


Figure A-2. Land Cover and Special-status Plants (Northern Property)

Real Thorevilos
Napa County, California

Northern Property Boundary - 151.6 ac.

Ecotone North Clearing Limits - 9.0 ac.

Botanical_Survey_Area

NSO Survey Stations

Special-status Plants

Napa false indigo - x70

Aquatic Features

Stream Centerlines

Top of Bank

Land Cover Types

Developed - 9.4 ac.

Non-native Grassland - 1.1 ac.

Chamise Chaparral - 1.4 ac.

Common Manzanita Chaparral - 4.6 ac.

Coyote Brush Scrub - 1.6 ac.

Blue Oak Woodland - 2.8 ac.

California Black Oak Woodland - 5.2 ac.

Coast Live Oak Woodland - 31.9 ac.

Douglas Fir Forest - 93.6 ac.

N

0 200 400

Feet

wra
ENVIRONMENTAL CONSULTANTS

Path: C:\Acad 2000 Files\27000\27144-2\New\GIS\ArcMap\Figure 2 LandCover Northern.mxd

Sources: Napa County 2018 Aerial, WRA | Prepared By: aarthur, 4/27/2021

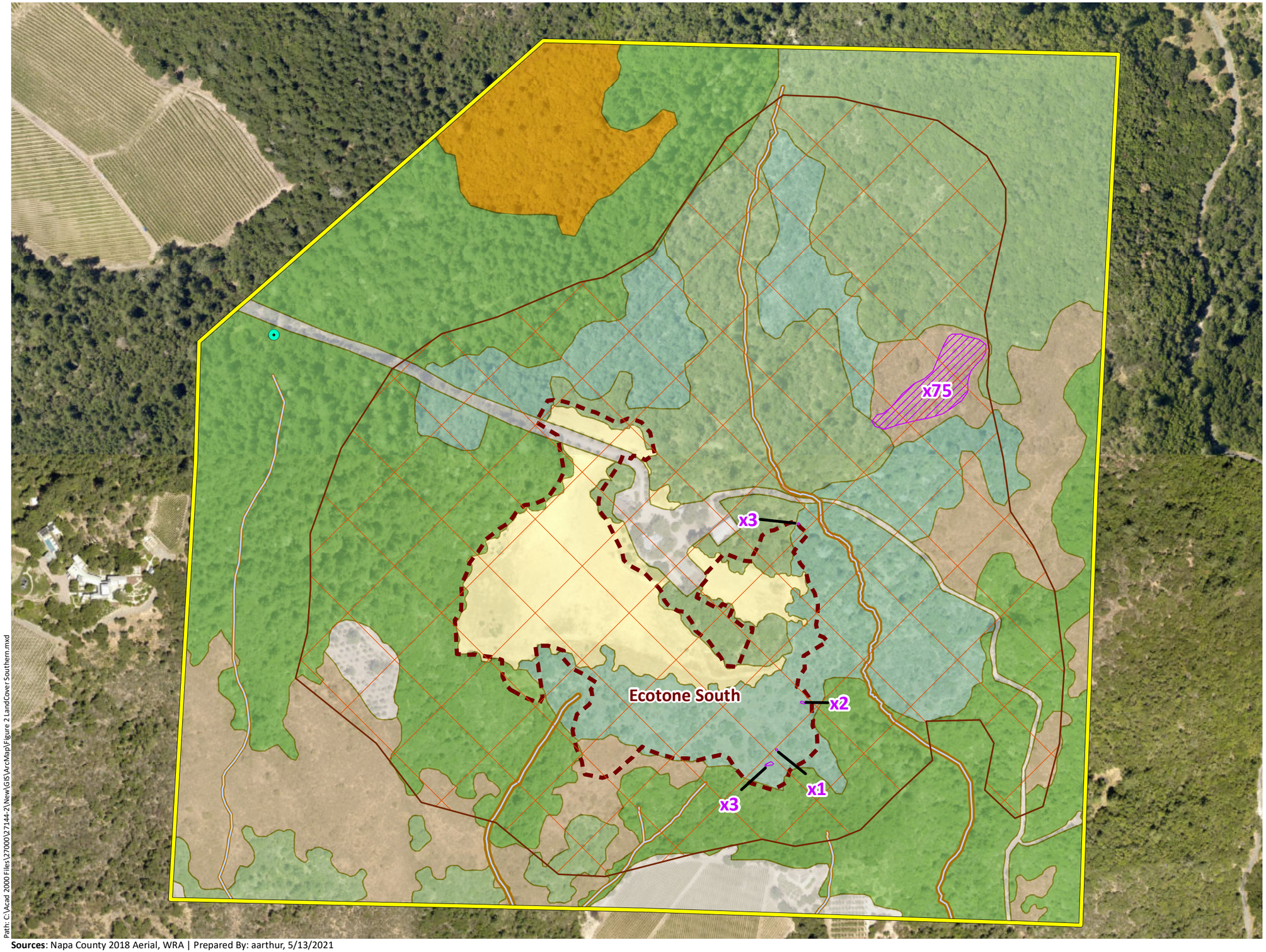


Figure A-2. Land Cover and Special-status Plants (Southern Property)

Real Thorevilos
Napa County, California

Southern Property Boundary - 148.4 ac.

Ecotone South Clearing Limits - 14.2 ac.

Botanical Survey Area

NSO Survey Stations

Special-status Plants

Narrow-anthered Brodiaea - x84

Aquatic Features

Stream Centerlines

Top of Bank

Land Cover Types

Developed - 7.0 ac.

Non-native Grassland - 8.1 ac.

Chamise Chaparral - 19.2 ac.

Blue Oak Woodland - 20.4 ac.

Coast Live Oak Woodland - 33.0 ac.

Douglas Fir Forest - 55.4 ac.

Pacific Madrone Forest - 5.3 sc.

N

0 200 400

Feet

wra
ENVIRONMENTAL CONSULTANTS

Path: C:\Acad 2000 Files\27000\27144-2\NewGIS\ArcMap\Figure 2 LandCover Southern.mxd

Sources: Napa County 2018 Aerial, WRA | Prepared By: aarthur, 5/13/2021

Appendix B

Species Observed in the Study Area

Table B-1. Plant species observed in the Study Area, April 23, June 11,and July 17, 2020

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Agavaceae	*Chlorogalum pomeridianum* var. *pomeridianum*	common soap plant	perennial forb	native	--	--	NL
Amaryllidaceae	*Narcissus pseudonarcissus*	daffodil	perennial forb	non-native	--	--	NL
Anacardiaceae	*Toxicodendron diversilobum*	poison oak	deciduous shrub	native	--	--	FACU
Apiaceae	*Anthriscus caucalis*	burr chervil	annual forb	non-native	--	--	NL
Apiaceae	*Daucus carota*	Queen Anne's lace	perennial forb	non-native	--	assessed	UPL
Apiaceae	*Osmorhiza berteroi*	sweet cicely	perennial forb	native	--	--	FACU
Apiaceae	*Perideridia kelloggii*	Kellogg's yampah	perennial forb	native	--	--	NL
Apiaceae	*Sanicula crassicaulis*	Pacific sanicle	perennial forb	native	--	--	NL
Apiaceae	*Scandix pecten-veneris*	shepherd's needle	annual forb	non-native	--	--	NL
Apiaceae	*Torilis arvensis*	hedge parsley	annual forb	non-native	--	moderate	NL
Aristolochiaceae	*Aristolochia californica*	Dutchman's pipe	perennial vine	native	--	--	NL
Asteraceae	*Achillea millefolium*	common yarrow	perennial forb	native	--	--	FACU
Asteraceae	*Anisocarpus madioides*	woodland madia	perennial forb	native	--	--	NL
Asteraceae	*Artemisia douglasiana*	mugwort	perennial forb	native	--	--	FAC
Asteraceae	*Baccharis pilularis* ssp. *consanguinea*	coyote brush	evergreen shrub	native	--	--	NL
Asteraceae	*Carduus pycnocephalus*	Italian thistle	annual forb	non-native	--	moderate	NL
Asteraceae	*Centaurea melitensis*	tocalote	annual forb	non-native	--	moderate	NL
Asteraceae	*Centaurea solstitialis*	yellow star thistle	annual forb	non-native	--	high	NL
Asteraceae	*Cichorium intybus*	chicory	perennial forb	non-native	--	--	FACU
Asteraceae	*Erigeron canadensis*	Canadian horseweed	annual forb	native	--	--	FACU
Asteraceae	*Helianthella californica* var. *californica*	California helianthella	perennial forb	native	--	--	NL
Asteraceae	*Hieracium albiflorum*	white hawkweed	perennial forb	native	--	--	NL
Asteraceae	*Hypochaeris glabra*	smooth cat's-ear	annual forb	non-native	--	limited	NL
Asteraceae	*Hypochaeris radicata*	rough cat's-ear	perennial forb	non-native	--	moderate	FACU
Asteraceae	*Lactuca serriola*	prickly lettuce	annual forb	non-native	--	assessed	FACU
Asteraceae	*Lasthenia gracilis*	needle goldfields	annual forb	native	--	--	NL

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Asteraceae	*Leontodon saxatilis* ssp. *longirostris*	hawkbit	annual forb	non-native	--	--	FACU
Asteraceae	*Logfia filaginoides*	California cottonrose	annual forb	native	--	--	NL
Asteraceae	*Logfia gallica*	narrowleaf cottonrose	annual forb	non-native	--	--	NL
Asteraceae	*Madia gracilis*	gumweed tarweed	annual forb	native	--	--	NL
Asteraceae	*Madia sativa*	coast tarweed	annual forb	native	--	--	NL
Asteraceae	*Micropus californicus*	Q-tips	annual forb	native	--	--	NL
Asteraceae	*Pseudognaphalium californicum*	ladies' tobacco	perennial forb	native	--	--	NL
Asteraceae	*Rhagadiolus stellatus*	endive daisy	annual forb	non-native	--	--	NL
Asteraceae	*Senecio vulgaris*	old-man-of-spring	annual forb	non-native	--	--	FACU
Asteraceae	*Soliva sessilis*	field burweed	annual forb	non-native	--	--	FACU
Asteraceae	*Sonchus asper* ssp. *asper*	prickly sow thistle	annual forb	non-native	--	assessed	FAC
Asteraceae	*Wyethia angustifolia*	narrow leaf mule ears	perennial forb	native	--	--	FACU
Asteraceae	*Wyethia glabra*	Coast Range mule ears	perennial forb	native	--	--	NL
Boraginaceae	*Amsinckia intermedia*	common fiddleneck	annual forb	native	--	--	NL
Boraginaceae	*Cynoglossum grande*	Pacific hound's tongue	perennial forb	native	--	--	NL
Boraginaceae	*Nemophila heterophylla*	white baby blue eyes	annual forb	native	--	--	NL
Boraginaceae	*Plagiobothrys nothofulvus*	rusty popcornflower	annual forb	native	--	--	FAC
Brassicaceae	*Capsella bursa-pastoris*	shepherd's purse	annual forb	non-native	--	--	FACU
Brassicaceae	*Cardamine oligosperma*	Idaho bittercress	annual forb	native	--	--	NL
Brassicaceae	*Raphanus sativus*	wild radish	perennial forb	non-native	--	limited	NL
Brassicaceae	*Thysanocarpus curvipes*	fringe pod	annual forb	native	--	--	NL
Cactaceae	*Opuntia ficus-indica*	tuna cactus	evergreen shrub	non-native	--	--	NL
Calycanthaceae	*Calycanthus occidentalis*	spice bush	evergreen shrub	native	--	--	FAC
Caprifoliaceae	*Lonicera hispidula*	pink honeysuckle	evergreen shrub	native	--	--	FACU
Caprifoliaceae	*Lonicera interrupta*	chaparral honeysuckle	evergreen shrub	native	--	--	NL
Caryophyllaceae	*Scleranthus annuus*	knawel	annual forb	non-native	--	--	FACU
Caryophyllaceae	*Spergularia rubra*	red sandspurry	perennial forb	non-native	--	--	FAC

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Caryophyllaceae	*Stellaria media*	common chickweed	annual forb	non-native	--	--	FACU
Cyperaceae	*Carex praegracilis*	clustered field sedge	perennial graminoid	native	--	--	FACW
Cyperaceae	*Cyperus eragrostis*	tall flat-sedge	perennial graminoid	native	--	--	FACW
Dennstaedtiaceae	*Pteridium aquilinum* var. *pubescens*	bracken fern	perennial fern	native	--	--	FACU
Dryopteridaceae	*Dryopteris arguta*	California wood fern	perennial fern	native	--	--	NL
Ericaceae	*Arbutus menziesii*	Pacific madrone	evergreen tree	native	--	--	NL
Ericaceae	*Arctostaphylos manzanita* ssp. *manzanita*	common manzanita	evergreen shrub	native	--	--	NL
Euphorbiaceae	*Croton setiger*	turkey mullein	annual forb	native	--	--	NL
Euphorbiaceae	*Euphorbia lathyris*	moleplant	perennial forb	non-native	--	assessed	NL
Fabaceae	*Acmispon glaber var. glaber*	deer vetch	evergreen shrub	native	--	--	NL
Fabaceae	*Acmispon parviflorus*	small flowered lotus	annual forb	native	--	--	NL
Fabaceae	*Amorpha californica* var. *napensis*	Napa false indigo	deciduous shrub	native	CRPR 1B	--	FAC
Fabaceae	*Genista monspessulana*	French broom	evergreen shrub	non-native	--	high	NL
Fabaceae	*Lathyrus vestitus* var. *vestitus*	common Pacific pea	perennial forb	native	--	--	NL
Fabaceae	*Lupinus nanus*	sky lupine	annual forb	native	--	--	NL
Fabaceae	*Medicago polymorpha*	bur medic	annual forb	non-native	--	limited	FACU
Fabaceae	*Rupertia physodes*	California tea	perennial forb	native	--	--	NL
Fabaceae	*Trifolium dubium*	shamrock clover	annual forb	non-native	--	--	UPL
Fabaceae	*Trifolium gracilentum*	pinpoint clover	annual forb	native	--	--	NL
Fabaceae	*Trifolium hirtum*	rose clover	annual forb	non-native	--	moderate	NL
Fabaceae	*Trifolium microcephalum*	maiden clover	annual forb	native	--	--	FAC
Fabaceae	*Trifolium microdon*	thimble clover	annual forb	native	--	--	NL
Fabaceae	*Trifolium repens*	white clover	perennial forb	non-native	--	--	FACU
Fabaceae	*Trifolium subterraneum*	subterranean clover	annual forb	non-native	--	--	NL
Fabaceae	*Trifolium willdenovii*	tomcat clover	annual forb	native	--	--	FACW
Fabaceae	*Vicia sativa*	garden vetch	annual forb	non-native	--	--	FACU

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Fabaceae	*Vicia villosa*	woolly-pod vetch	annual forb	non-native	--	--	NL
Fagaceae	*Quercus agrifolia*	coast live oak	evergreen tree	native	--	--	NL
Fagaceae	*Quercus douglasii*	blue oak	deciduous tree	native	--	--	NL
Fagaceae	*Quercus kelloggii*	California black oak	deciduous tree	native	--	--	NL
Fagaceae	*Quercus wislizeni* var. *wislizeni*	interior live oak	evergreen tree	native	--	--	NL
Geraniaceae	*Erodium brachycarpum*	foothill filaree	annual forb	non-native	--	limited	NL
Geraniaceae	*Erodium cicutarium*	redstem stork's bill	annual forb	non-native	--	limited	NL
Geraniaceae	*Geranium dissectum*	cutleaf geranium	annual forb	non-native	--	moderate	NL
Geraniaceae	*Geranium robertianum*	Robert's geranium	annual forb	non-native	--	assessed	NL
Grossulariaceae	*Ribes sanguineum* var. *glutinosum*	blood currant	deciduous shrub	native	--	--	NL
Hydrangeaceae	*Whipplea modesta*	modesty	evergreen vine	native	--	--	NL
Hypericaceae	*Hypericum concinnum*	goldwire	perennial forb	native	--	--	NL
Hypericaceae	*Hypericum perforatum*	Klamath weed	perennial forb	non-native	--	moderate	FACU
Iridaceae	*Iris macrosiphon*	long-tube iris	perennial forb	native	--	--	NL
Iridaceae	*Sisyrinchium bellum*	blue-eyed grass	perennial forb	native	--	--	FACW
Juncaceae	*Juncus bufonius*	toad rush	annual graminoid	native	--	--	FACW
Juncaceae	*Juncus patens*	common rush	perennial graminoid	native	--	--	FACW
Juncaceae	*Luzula comosa*	Pacific woodrush	perennial graminoid	native	--	--	FAC
Lamiaceae	*Stachys rigida* var. *quercetorum*	rough hedgenettle	perennial forb	native	--	--	FACW
Lauraceae	*Umbellularia californica*	California bay	evergreen tree	native	--	--	FAC
Liliaceae	*Calochortus amabilis*	golden globelily	perennial forb	native	--	--	NL
Linaceae	*Linum bienne*	pale flax	annual forb	non-native	--	--	NL
Melanthiaceae	*Toxicoscordion fremontii*	Fremot's star lily	perennial forb	native	--	--	NL
Montiaceae	*Claytonia parviflora*	streambank spring beauty	annual forb	native	--	--	FACU
Myrsinaceae	*Lysimachia arvensis*	scarlet pimpernel	annual forb	non-native	--	--	NL
Oleaceae	*Fraxinus latifolia*	Oregon ash	deciduous tree	native	--	--	FACW
Oleaceae	*Olea europaea*	olive	evergreen tree	non-native	--	limited	NL

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Onagraceae	*Clarkia purpurea* ssp. *quadrivulnera*	winecup clarkia	annual forb	native	--	--	NL
Onagraceae	*Epilobium brachycarpum*	annual willowherb	annual forb	native	--	--	FAC
Onagraceae	*Taraxia ovata*	sun cup	perennial forb	native	--	--	NL
Orchidaceae	*Piperia transversa*	royal rein orchid	perennial forb	native	--	--	NL
Orobanchaceae	*Cordylanthus pilosus* ssp. *pilosus*	hairy bird's beak	annual forb	native	--	--	NL
Orobanchaceae	*Pedicularis densiflora*	Indian warrior	perennial forb	native	--	--	NL
Phrymaceae	*Diplacus aurantiacus*	sticky monkey	evergreen shrub	native	--	--	NL
Phrymaceae	*Erythranthe guttata*	Whipple's monkeyflower	perennial forb	native	CRPR 1A	--	OBL
Pinaceae	*Pinus ponderosa*	ponderosa pine	evergreen tree	native	--	--	FACU
Pinaceae	*Pseudotsuga menziesii*	Douglas fir	evergreen tree	native	--	--	FACU
Plantaginaceae	*Collinsia sparsiflora*	spinster's blue eyed Mary	annual forb	native	--	--	NL
Plantaginaceae	*Kickxia elatine*	sharpleaf cancerwort	perennial forb	non-native	--	--	UPL
Plantaginaceae	*Plantago erecta*	foothill plantain	annual forb	native	--	--	NL
Plantaginaceae	*Plantago lanceolata*	English plantain	perennial forb	non-native	--	limited	FAC
Poaceae	*Aira caryophyllea*	silver hairgrass	annual graminoid	non-native	--	assessed	FACU
Poaceae	*Avena barbata*	wild oat	annual graminoid	non-native	--	moderate	NL
Poaceae	*Brachypodium distachyon*	false brome	perennial graminoid	non-native	--	moderate	NL
Poaceae	*Briza maxima*	big rattlesnake grass	annual graminoid	non-native	--	limited	NL
Poaceae	*Briza minor*	little rattlesnake grass	annual graminoid	non-native	--	--	FAC
Poaceae	*Bromus carinatus*	California brome	perennial graminoid	native	--	--	NL
Poaceae	*Bromus diandrus*	rip-gut brome	annual graminoid	non-native	--	moderate	NL
Poaceae	*Bromus hordeaceus*	soft chess	annual graminoid	non-native	--	limited	FACU
Poaceae	*Bromus laevipes*	Chinook brome	perennial graminoid	native	--	--	NL
Poaceae	*Bromus madritensis*	foxtail chess	annual graminoid	non-native	--	--	NL
Poaceae	*Bromus sterilis*	poverty brome	annual graminoid	non-native	--	--	NL
Poaceae	*Cynosurus echinatus*	dogtail grass	annual graminoid	non-native	--	moderate	NL
Poaceae	*Danthonia californica*	California oat grass	perennial graminoid	native	--	--	FAC

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Poaceae	*Elymus glaucus*	blue wildrye	perennial graminoid	native	--	--	FACU
Poaceae	*Festuca bromoides*	brome fescue	perennial graminoid	non-native	--	--	FACU
Poaceae	*Festuca californica*	California fescue	perennial graminoid	native	--	--	FACU
Poaceae	*Festuca idahoensis*	Idaho fescue	perennial graminoid	native	--	--	NL
Poaceae	*Festuca microstachys*	Pacific fescue	annual graminoid	native	--	--	NL
Poaceae	*Festuca perennis*	Italian rye grass	annual graminoid	non-native	--	moderate	FAC
Poaceae	*Gastridium phleoides*	nit grass	annual graminoid	non-native	--	--	FACU
Poaceae	*Holcus lanatus*	common velvet grass	perennial graminoid	non-native	--	moderate	FAC
Poaceae	*Hordeum marinum*	Mediterranean barley	annual graminoid	non-native	--	moderate	FAC
Poaceae	*Hordeum murinum*	mouse barley	annual graminoid	non-native	--	moderate	FAC
Poaceae	*Melica californica*	California onion grass	perennial graminoid	native	--	--	NL
Poaceae	*Melica geyeri*	Geyer's onion grass	perennial graminoid	native	--	--	NL
Poaceae	*Melica torreyana*	Torrey's onion grass	perennial graminoid	native	--	--	NL
Poaceae	*Phalaris aquatica*	harding grass	perennial graminoid	non-native	--	moderate	FACU
Poaceae	*Poa annua*	annual bluegrass	annual graminoid	non-native	--	--	FAC
Poaceae	*Poa bulbosa* ssp. *bulbosa*	bulbous bluegrass	perennial graminoid	non-native	--	--	NL
Poaceae	*Polypogon monspeliensis*	rabbit's-foot grass	annual graminoid	non-native	--	limited	FACW
Poaceae	*Stipa pulchra*	purple needlegrass	perennial graminoid	native	--	--	NL
Polemoniaceae	*Leptosiphon parviflorus*	variable linanthus	annual forb	native	--	--	NL
Polemoniaceae	*Navarretia squarrosa*	skunkbush	annual forb	native	--	--	FACU
Polygalaceae	*Polygala californica*	California milkwort	perennial forb	native	--	--	NL
Polygonaceae	*Chorizanthe membranacea*	pink spineflower	annual forb	native	--	--	NL
Polygonaceae	*Rumex acetosella*	sheep sorrel	perennial forb	non-native	--	moderate	FACU
Polygonaceae	*Rumex crispus*	curly dock	perennial forb	non-native	--	limited	FAC
Polypodiaceae	*Polypodium calirhiza*	nested polypody	perennial fern	native	--	--	NL
Primulaceae	*Primula hendersonii*	mosquito bills	perennial forb	native	--	--	NL
Pteridaceae	*Adiantum jordanii*	maidenhair fern	perennial fern	native	--	--	FAC

Family	Scientific name	Common name	Life form	Origin	Rare Status[1]	Invasive Status[2]	Wetland indicator[3]
Pteridaceae	*Pellaea andromedifolia*	coffee fern	perennial fern	native	--	--	NL
Pteridaceae	*Pellaea mucronata*	bird's foot fern	perennial fern	native	--	--	NL
Pteridaceae	*Pentagramma triangularis*	gold back fern	perennial fern	native	--	--	NL
Ranunculaceae	*Ranunculus californicus*	California buttercup	perennial forb	native	--	--	FACU
Ranunculaceae	*Ranunculus muricatus*	spiny buttercup	perennial forb	non-native	--	--	FACW
Rhamnaceae	*Frangula californica*	California coffeeberry	evergreen shrub	native	--	--	NL
Rhamnaceae	*Rhamnus crocea*	redberry buckthorn	evergreen shrub	native	--	--	NL
Rosaceae	*Adenostoma fasciculatum*	chamise	evergreen shrub	native	--	--	NL
Rosaceae	*Amelanchier utahensis*	western serviceberry	evergreen shrub	native	--	--	FACU
Rosaceae	*Cercocarpus betuloides*	mountain mahogany	evergreen shrub	native	--	--	NL
Rosaceae	*Heteromeles arbutifolia*	toyon	evergreen shrub	native	--	--	NL
Rosaceae	*Holodiscus discolor* var. *discolor*	ocean spray	deciduous shrub	native	--	--	FACU
Rosaceae	*Prunus cerasifera*	cherry plum	deciduous tree	non-native	--	limited	NL
Rosaceae	*Rosa gymnocarpa*	dwarf rose	evergreen shrub	native	--	--	FACU
Rosaceae	*Rubus armeniacus*	Himalayan blackberry	evergreen shrub	non-native	--	high	FAC
Rosaceae	*Rubus leucodermis*	western raspberry	evergreen shrub	native	--	--	FACU
Rubiaceae	*Galium aparine*	common bedstraw	annual forb	native	--	--	FACU
Rubiaceae	*Galium californicum*	California bedstraw	perennial forb	native	--	--	NL
Rubiaceae	*Galium porrigens*	climbing bedstraw	perennial forb	native	--	--	NL
Sapindaceae	*Acer macrophyllum*	big leaf maple	deciduous tree	native	--	--	FAC
Sapindaceae	*Aesculus californica*	California buckeye	deciduous tree	native	--	--	NL
Scrophulariaceae	*Verbascum thapsus*	woolly mullein	perennial forb	non-native	--	limited	FACU
Themidaceae	*Brodiaea elegans* ssp. *elegans*	harvest brodiaea	perennial forb	native	--	--	FACU
Themidaceae	*Brodiaea leptandra*	narrow-anthered brodiaea	perennial forb	native	CRPR 1B	--	NL
Themidaceae	*Dichelostemma capitatum*	blue dicks	perennial forb	native	--	--	FACU
Violaceae	*Viola lobata*	pine violet	perennial forb	native	--	--	NL
Vitaceae	*Vitis californica*	California wild grape	deciduous vine	native	--	--	FACU

All species identified using the *Jepson Manual, 2nd Edition* (Baldwin et al. 2012), *The Jepson Flora Project* (eFlora 2021); nomenclature follows *The Jepson Flora Project* (eFlora 2021) unless otherwise noted

Sp.: "species", intended to indicate that the observer was confident in the identity of the genus but uncertain which species
Cf.: "*confer*" or "compared with", intended to indicate a species appeared to the observer to be specific, but was not identified based on diagnostic characters

[1]Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2021a)

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
CRPR 1A:	Plants presumed extirpated in California and either rare or extinct elsewhere
CRPR 1B:	Plants rare, threatened, or endangered in California and elsewhere
CRPR 2A:	Plants presumed extirpated in California, but more common elsewhere
CRPR 2B:	Plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 3:	Plants about which we need more information – a review list
CRPR 4:	Plants of limited distribution – a watch list

[2]Invasive Status: California Invasive Plant Inventory (Cal-IPC 2006)

High:	Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
Moderate:	Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited moderate distribution ecologically
Limited:	Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
Assessed:	Assessed by Cal-IPC and determined to not be an existing current threat

[3]Wetland Status: National List of Plant Species that Occur in Wetlands, Arid West Region (Corps 2018)

OBL:	Almost always a hydrophyte, rarely in uplands
FACW:	Usually a hydrophyte, but occasionally found in uplands
FAC:	Commonly either a hydrophyte or non-hydrophyte
FACU:	Occasionally a hydrophyte, but usually found in uplands
UPL:	Rarely a hydrophyte, almost always in uplands
NL:	Rarely a hydrophyte, almost always in uplands
NI:	No information; not factored during wetland delineation

Table B-2. Wildlife species observed in and around the Study Area

Scientific Name	Common Name
Mammals	
Canus latrans	coyote
Odocoileus hemionus columbianus	black-tailed deer
Birds	
Aphelocoma californica	California scrub-jay
Buteo jamaicensis	red-tailed hawk
Cathartes aura	turkey vulture
Chamaea fasciata	wrentit
Colaptes auratus	northern flicker
Corvus corax	common raven
Empidonax difficilis	Pacific-slope flycatcher
Junco hyemalis	dark-eyed junco
Megascops kennicottii	western screech-owl
Myiarchus cinerascens	ash-throated flycatcher
Oreothlypis celata	orange-crowned warbler
Pipilo maculatus	spotted towhee
Piranga ludoviciana	western tanager
Poecile rufescens	chestnut-backed chickadee
Thryomanes bewickii	Bewick's wren
Vireo cassinii	Cassin's vireo
Vireo huttoni	Hutton's vireo
Aphelocoma californica	California scrub-jay
Reptiles and Amphibians	
Sceloporus occidentalis	western fence lizard

Appendix C

Potential for Special-status Species to Occur in the Study Area

Table C. Potential for Special-status Species to Occur in the Study Area. List compiled from the Napa County Baseline Data Report (NCBDR; Napa County 2005), CDFW BIOS database (CDFW 2021a), USFWS IPaC Report (USFWS 2021), and CNPS Electronic Inventory (CNPS 2021a) searches. For plants, the Detert Reservoir, Aetna Springs, Walter Springs, Calistoga, St. Helena, Chiles Valley, Kenwood, Rutherford, and Yountville USGS 7.5' quadrangles were included in the search. For wildlife, the entirety of Napa County was considered.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
PLANTS				
Allium peninsulare var. *franciscanum* Franciscan onion	CRPR 1B	Cismontane woodland, valley and foothill grassland; on clay substrate, often derived from volcanics or serpentine; serpentine indicator: WI. Elevation range 170 – 985 feet. Blooms: May – June.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Alopecurus aequalis var. *sonomensis* Sonoma alopecurus	FE, CRPR 1B	Freshwater marshes and swamps, riparian scrub; closely associated with other wetland species; wetland indicator: OBL/OBL. Elevation range: 15 – 1200 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain perennial wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Amorpha californica var. *napensis* Napa false indigo	CRPR 1B	Openings in broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 395 – 6560 feet. Blooms: April – July.	**High Potential.** The Study Area contains chaparral, woodland, and/or forest that may support this species.	**Present.** Approximately 70 individuals were observed within the surveyed area. See Section 6 for recommendations for this species.
Amsinckia lunaris bent-flowered fiddleneck	CRPR 1B	Cismontane woodland, valley and foothill grassland, coastal bluff scrub; situated on rocky soils. Elevation range: 10 – 1625 feet. Blooms: March – June.	**High Potential.** The Study Area contains grassland that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Antirrhinum virga twig-like snapdragon	CRPR 4	Chaparral, lower montane coniferous forest; located on rocky openings often derived from serpentine; serpentine indicator: SI. Elevation range: 325 – 6550 feet. Blooms: June – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Arctostaphylos manzanita ssp. *elegans* Konocti manzanita	CRPR 1B	Chaparral, cismontane woodland, lower montane coniferous forest; located on volcanic substrates. Elevation range: 1280 – 5250 feet. Blooms: March – July.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Arctostaphylos stanfordiana ssp. decumbens Rincon manzanita	CRPR 1B	Chaparral, cismontane woodland; highly restricted to red rhyolite soils. Elevation range: 245 – 1215 feet. Blooms: February – April.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Asclepias solanoana serpentine milkweed	CRPR 4, LR	Chaparral, cismontane woodland, lower montane coniferous forest; located on serpentine substrate; serpentine indicator: SE. Elevation range: 745 – 6045 feet. Blooms: May – August.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Astragalus breweri Brewer's milk-vetch	CRPR 4	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland; located on open, gravelly serpentine or volcanic substrate; serpentine indicator: SI. Elevation range: 290 – 2375 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Astragalus claranus Clara Hunt's milk-vetch	FE; ST; CRPR 1B	Cismontane woodland, valley and foothill grassland, chaparral; on open grassy hillsides, especially exposed shoulders with thin, volcanic or serpentine clay soils; serpentine indicator: SI. Elevation range: 245 – 900 feet. Blooms: March – May.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Astragalus clevelandii Cleveland's milk-vetch	CRPR 4	Chaparral, cismontane woodland, riparian forest; located on serpentine seeps; serpentine indicator: SE. Elevation range: 650 – 4875 feet. Blooms: June – September.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Astragalus rattanii var. *jepsonianus* Jepson's milk-vetch	CRPR 1B	Chaparral, cismontane woodland, valley and foothill grassland; typically situated on serpentine substrate in openings or grasslands; often on roadsides; serpentine indicator: BE/SI. Elevation range: 955 – 2275 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Brodiaea leptandra narrow-anthered brodiaea	CRPR 1B	Broadleaf upland forest, chaparral, lower montane coniferous forest; situated on gravelly soils derived from volcanics, particularly rhyolitic tuff, sometimes serpentine; serpentine indicator: WI. Elevation range: 360 – 3000 feet. Blooms: May – July.	**High Potential.** The Study Area contains volcanic soils that may support this species.	**Present.** Approximately 84 individuals were observed within the surveyed, including within the Project Area. See Section 6 for recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Calamagrostis ophitidis serpentine reed grass	CRPR 4	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland; located in openings, often north-facing, underlain by rocky serpentine substrate; serpentine indicator: SE. Elevation range: 290 – 3465 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Calandrinia breweri Brewer's Calandrinia	CRPR 4	Chaparral, coastal scrub; located on sandy or loamy substrate in areas often recently disturbed or burned. Elevation range: 30 – 3965 feet. Blooms: March – June.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Calochortus uniflorus large-flowered mariposa lily	CRPR 4, LR	Coastal prairie, coastal scrub, meadows and seeps, North Coast coniferous forest; infrequently situated on serpentine substrate; serpentine indicator: WI. Elevation range: 30 – 3480 feet. Blooms: April – June.	**Unlikely.** The Study Area does not contain coastal prairie or similar mesic grassland/openings to support this species.	**Presumed Absent.** No further actions are recommended for this species.
Calycadenia micrantha small-flowered Calycadenia	CRPR 1B	Chaparral, meadows and seeps, valley and foothill grassland; located on volcanic or serpentine substrate in sparsely vegetated rocky, talus, or scree areas. Elevation range: 15 – 4875 feet. Blooms: June – September.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Calyptridium quadripetalum four-petaled pussypaws	CRPR 4	Chaparral, lower montane coniferous forest; located on sandy or gravelly substrate, typically derived from serpentine; serpentine indicator: BE. Elevation range: 1020 – 6630 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Calystegia collina ssp. *oxyphylla* Mt. Saint Helena morning-glory	CRPR 4	Chaparral; located on serpentine barrens, slopes, and hillsides; serpentine indicator: SE. Elevation range: 815 – 3315 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Castilleja ambigua ssp. *ambigua* Johnny-nip	CRPR 4	Coastal bluff scrub, coastal prairie, coastal scrub, marshes and swamps, valley and foothill grassland, vernal pool margins. Elevation range: 0 – 1415 feet. Blooms: March – August.	**Unlikely.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Castilleja ambigua var. *meadii* Mead's owl's-clover	CRPR 1B	Meadows and seeps, vernal pools; located in mesic areas or wetlands underlain by gravelly clay soils derived from volcanics. Elevation range: 1460 – 1545 feet. Blooms: April – May.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Ceanothus confusus Rincon Ridge ceanothus	CRPR 1B	Closed-cone coniferous forest, chaparral, cismontane woodland; known from volcanic and serpentine substrate; typically situated on dry shrubby slopes; serpentine indicator: WI/IN. Elevation range: 245 – 3495 feet. Blooms: February – April.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Ceanothus divergens Calistoga ceanothus	CRPR 1B	Chaparral, cismontane woodland; on rocky, serpentine sites; serpentine indicator: WI. Elevation range: 560 – 3115 feet. Blooms: February – March.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Ceanothus gloriosus var. *exaltatus* Point Reyes ceanothus	CRPR 4	Chaparral. Elevation range: 95 – 1985 feet. Blooms: March – June, sometimes August.	**Moderate Potential.** The Study Area contains chaparral that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Ceanothus purpureus holly-leaved ceanothus	CRPR 1B	Chaparral, cismontane woodland; located on rocky, volcanic slopes. Elevation range: 395 – 3000 feet. Blooms: February – June.	**High Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Ceanothus sonomensis Sonoma ceanothus	CRPR 1B	Chaparral; located on sandy serpentine or volcanic substrates; serpentine indicator: WI/IN. Elevation range: 705 – 2625 feet. Blooms: February – April.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Centromadia parryi ssp. *parryi* pappose tarplant	CRPR 1B	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland; in vernally mesic sites, often with alkali substrate. Elevation range: 5 – 1380 feet. Blooms: May – November.	**No Potential.** The Study Area does not contain alkali grassland to support this species.	**Not Present.** No further actions are recommended for this species.
Clarkia breweri Brewer's clarkia	CRPR 4	Chaparral, cismontane woodland, coastal scrub; frequently on serpentine substrate; serpentine indicator: BE/SI. Elevation range: 695 – 3625 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Clarkia gracilis ssp. *tracyi* Tracy's clarkia	CRPR 4	Chaparral; located in openings and situated on substrates often derived from serpentine; serpentine indicator: BE. Elevation range: 210 – 2115 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Collomia diversifolia serpentine collomia	CRPR 4	Chaparral, cismontane woodland; situated on rocky to gravelly serpentine substrates; serpentine indicator: SE. Elevation range: 975 – 1950 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Cordylanthus tenuis ssp. *brunneus* serpentine bird's-beak	CRPR 4	Closed-cone coniferous forest, chaparral, cismontane woodland; typically located serpentine substrate; serpentine indicator: BE. Elevation range: 1540 – 2975 feet. Blooms: July – August.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Cryptantha dissita serpentine cryptantha	CRPR 1B	Chaparral; located on serpentine outcrops; serpentine indicator: BE/SI. Elevation range: 1280 – 1885 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Cryptantha rostellata beaked cryptantha	CRPR 4	Cismontane woodland, valley and foothill grassland; found on gravelly, volcanic soils in openings and roadsides. Elevation range: 120 – 2400 feet. Blooms: April-June.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Cuscuta howelliana Boggs Lake dodder	LR	Vernal pool; situated on the margins; hosts on *Eryngium* spp., *Navarretia* spp., *Polygonum polygaloides*, and *Epilobium campestre*. Elevation range: 455 – 5365 feet. Blooms: August – September.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Cypripedium montanum mountain lady's-slipper	CRPR 4	Broadleaf upland forest, cismontane woodland, lower montane coniferous forest, North Coast coniferous forest. Elevation range: 600 – 7235 feet. Blooms: March – August.	**Moderate Potential.** The Study Area contains woodland and/or forest that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Delphinium uliginosum swamp larkspur	CRPR 4	Chaparral, valley and foothill grassland; located in seeps and wet meadows underlain by serpentine substrate; serpentine indicator: SE. Elevation range: 1105 – 1985 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Downingia pusilla dwarf downingia	CRPR 2B	Valley and foothill grassland, vernal pools; located in mesic grassy sites, pool and lake margins. Elevation range: 3 – 1450 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Erigeron biolettii Streamside daisy	CRPR 3	Broadleaf upland forest, cismontane woodland, North Coast coniferous forest; on rocky, mesic. Elevation range: 95 – 3610 feet. Blooms: June – October.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Erigeron greenei Greene's narrow-leaved daisy	CRPR 1B	Chaparral; located on volcanic or serpentine substrate. Elevation range: 260 – 3270 feet. Blooms: May – September.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Eriogonum umbellatum var. *bahiiforme* bay buckwheat	CRPR 4	Cismontane woodland, lower montane coniferous forest; situated on rocky substrates often derived from serpentine; serpentine indicator: BE/SI. Elevation range: 2275 – 7150 feet. Blooms: July – September.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Eryngium constancei Loch Lomond coyote thistle	FE; SE; CRPR 1B	Vernal pools; located on volcanic ash flow vernal pools. Elevation range: 1495 – 2780 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Eryngium jepsonii Jepson's coyote thistle	CRPR 1B	Valley and foothill grassland, vernal pools; situated on clay substrate that is vernally saturated. Elevation range: 10 – 975 feet. Blooms: April – August.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Erythronium helenae St. Helena fawn lily	CRPR 4	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland; located on volcanic or serpentine substrate; serpentine indicator: BE. Elevation range: 1135 – 3965 feet. Blooms: March – May.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Fritillaria liliacea fragrant fritillary	CRPR 1B	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland; located in grassy sites underlain by clay, typically derived from volcanics or serpentine; serpentine indicator: WI. Elevation range: 10 – 1335 feet. Blooms: February – April.	**Unlikely.** The Study Area does not contain adobe substrate to support this species.	**Presumed Absent.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Fritillaria pluriflora adobe lily	CRPR 1B	Chaparral, cismontane woodland, valley and foothill grassland; typically located on adobe clays, often derived from serpentine; serpentine indicator: WI. Elevation range: 195 – 2295 feet. Blooms: February – April.	**Unlikely.** The Study Area does not contain adobe substrate to support this species.	**Presumed Absent.** No further actions are recommended for this species.
Fritillaria purdyi Purdy's fritillary	CRPR 4	Chaparral, cismontane woodland, lower montane coniferous forest; usually situated on serpentine substrates; serpentine indicator: BE. Elevation range: 565 – 7330 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Harmonia hallii Hall's harmonia	CRPR 1B	Chaparral, rock outcrops; situated on rocky serpentine subtrates; often roadsides and roadcuts; serpentine indicator: SE. Elevation range: 1625 – 3170 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Harmonia nutans nodding harmonia	CRPR 4	Chaparral, cismontane woodland; located on rocky to gravelly substrates derived from volcanics. Elevation range: 240 – 3170 feet. Blooms: March – May.	**High Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Helianthus exilis serpentine sunflower	CRPR 4	Chaparral, cismontane woodland; located along serpentine seeps; serpentine indicator: SE. Elevation range: 485 – 4960 feet. Blooms: June – November.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Hesperolinon bicarpellatum Two-carpellate western flax	CRPR 1B	Chaparral; located on serpentine substrate; serpentine indicator: SE. Elevation range: 195 – 3270 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Hesperolinon sharsmithiae Sharsmith's western flax	CRPR 1B	Chaparral; located on serpentine substrate; serpentine indicator: ?. Elevation range: 875 – 975 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Iris longipetala coast iris	CRPR 4	Coastal prairie, lower montane coniferous forest, meadows and seeps; located on mesic sites. Elevation range: 0 – 1950 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain mesic grassland or coastal prairie to support this species.	**Not Present.** No further actions are recommended for this species.
Juncus luciensis Santa Lucia dwarf rush	CRPR 1B	Chaparral, Great Basin scrub, lower montane coniferous forest, meadows and seeps, vernal pools. Elevation range: 975 – 6630 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Lasthenia burkei Burke's goldfields	FE; SE; CRPR 1B	Vernal pools, meadows and seeps; typically located in pools and swales. Elevation range: 45 – 1950 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Lasthenia conjugens Contra Costa goldfields	FE; CRPR 1B	Valley and foothill grassland, vernal pools, cismontane woodland; located in pools, swales, and depressions in mesic grassy sites underlain by alkaline substrate. Elevation range: 0 – 1530 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Layia septentrionalis Colusa layia	CRPR 1B	Chaparral, cismontane woodland, valley and foothill grassland; on sandy, serpentine substrate; typically occurs in fields, grassy slopes; serpentine indicator: SI. Elevation range: 330 – 3595 feet. Blooms: April – May.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Leptosiphon acicularis bristly leptosiphon	CRPR 4, LR	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland; often located on shallow, rocky substrate in foothill positions. Elevation range: 175 – 4875 feet. Blooms: April – July.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Leptosiphon jepsonii Jepson's leptosiphon	CRPR 1B	Chaparral, cismontane woodland; on open to partially shaded grassy slopes on volcanic or the periphery of serpentine substrate. Elevation range: 330 – 1640 feet. Blooms: April – May.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Leptosiphon latisectus broad-lobed leptosiphon	CRPR 4	Broadleaf upland forest, cismontane woodland; frequently situated on serpentine or volcanic substrate; serpentine indicator: WI. Elevation range: 550 – 4875 feet. Blooms: April – June.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Lessingia hololeuca woolly-headed lessingia	CRPR 3, LR	Broadleaf upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland; typically on clay, serpentine substrate; serpentine indicator: SI. Elevation range: 3 – 2885 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Lilium bolanderi Bolander's lily	CRPR 4	Chaparral, lower montane coniferous forest; typically situated on serpentine substrate; serpentine indicator: SE. Elevation range: 95 – 5200 feet. Blooms: June – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Limnanthes floccosa ssp. *floccosa* woolly meadowfoam	CRPR 4	Chaparral, cismontane woodland, valley and foothill grassland, vernal pools; situated in vernally mesic settings. Elevation range: 195 – 4340 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Limnanthes vinculans Sebastopol meadowfoam	FE, SE, CRPR 1B	Mesic meadows, valley and foothill grassland, vernal pools; located in swales, wet meadows, depressions, and pools in the oak savanna of the Santa Rosa Plain on heavy adobe clay substrate. Elevation range: 3 – 2885 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Lomatium repostum Napa Lomatium	CRPR 4	Chaparral, cismontane woodland; located on serpentine or volcanic substrates; serpentine indicator: SI. Elevation range: 290 – 2700 feet. Blooms: March – June.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Lupinus sericatus Cobb Mountain lupine	CRPR 1B	Broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest; typically located in stands of knobcone pine-oak woodland, on open wooded slopes in gravelly substrate typically derived from volcanics, sometimes serpentine. Elevation range: 890 – 4960 feet. Blooms: March – June.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Lythrum californicum California loosestrife	LR	Yellow pine forest, cismontane woodland, chaparral, valley and foothill grassland, meadows and seeps; located in wetlands. Elevation range: 0 – 7150 feet. Blooms: April – September.	**No Potential.** The Study Area does not contain perennial wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Micropus amphibolus Mt. Diablo cottonweed	CRPR 3	Broadleaf upland forest, chaparral, cismontane woodland, valley and foothill grassland; typically on thin, rocky soils; serpentine indicator: WI. Elevation range: 145 – 2710 feet. Blooms: March – May.	**Moderate Potential.** The Study Area contains chaparral, woodland, and/or grassland with thin, rocky soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Monardella viridis green monardella	CRPR 4	Broadleaf upland forest, chaparral, cismontane woodland; situated on serpentine or volcanic soils; serpentine indicator: BE/SI. Elevation range: 325 – 3285 feet. Blooms: June – September.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Navarretia cotulifolia cotula navarretia	CRPR 4, LR	Chaparral, cismontane woodland, valley and foothill grassland; located on adobe substrate. Elevation range: 10 – 5950 feet. Blooms: May – June.	**Unlikely.** The Study Area does not contain adobe substrate to support this species.	**Presumed Absent.** No further actions are recommended for this species.
Navarretia heterandra Tehama navarretia	CRPR 4	Valley and foothill grasslands, vernal pools; situated in pools and mesic grasslands. Elevation range: 95 – 3285 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Navarretia jepsonii Jepson's navarretia	CRPR 4	Chaparral, cismontane woodland, valley and foothill grassland; situated on serpentine substrates; serpentine indicator: SE. Elevation range: 565 – 2780 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	CRPR 1B	Wet, mesic sites underlain by adobe and/or alkaline substrate in cismontane woodland, meadows, seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Elevation range: 15 – 5710 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Navarretia leucocephala ssp. *pauciflora* few-flowered navarretia	FE; ST; CRPR 1B	Vernal pools; located on volcanic ash flow and volcanic substrate pools. Elevation range: 1300 – 2780 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Navarretia leucocephala ssp. *plieantha* many-flowered navarretia	FE, SE, CRPR 1B	Vernal pools underlain by substrate derived from volcanic ash flows. Elevation range: 95 – 3120 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Navarretia myersii ssp. *deminuta* Myer's navarretia	CRPR 1B	Vernal pool; underlying substrate is clay loam. Elevation range: undocumented. Blooms: April – May.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Navarretia paradoxinota Porter's navarretia	CRPR 1B	Meadow and seep; typically situated in vernally mesic openings underlain by serpentine substrate. Elevation range: 535 – 2730 feet. Blooms: May – June, sometimes July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Navarretia rosulata Marin County navarretia	CRPR 1B	Closed-cone coniferous forest, chaparral; located on dry, rocky sites often formed from serpentine; serpentine indicator: SE. Elevation range: 650 – 2065 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Penstemon newberryi var. *sonomensis* Sonoma beardtongue	CRPR 1B	Chaparral; crevices in rock outcrops and talus slopes on ridgelines and mountain peaks. Elevation range: 2295 – 4495 feet. Blooms: April – August.	**Unlikely.** The Study Area does not contain large rock outcrops on ridgelines to support this species.	**Not Present.** No further actions are recommended for this species.
Plagiobothrys strictus Calistoga popcornflower	FE; ST; CRPR 1B	Broadleaf upland forest, meadows and seeps, valley and foothill grassland, vernal pools; located on heavy dark adobe alkali clay substrate near hot springs and vernal pools. Elevation range: 290 – 520 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Poa napensis Napa bluegrass	FE; SE; CRPR 1B	Meadows and seeps, valley and foothill grassland; located in moist alkaline substrate near hot springs. Elevation range: 325 – 650 feet. Blooms: May – August.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Pogogyne douglasii Douglas' mesamint	LR	Valley and foothill grassland, cismontane woodland, yellow pine forest, mixed evergreen forest, vernal pool; situated in vernal pools, swales, and similar seasonal wetlands. Elevation range: 0 – 2925 feet. Blooms: March – July.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Puccinellia simplex California alkali grass	CRPR 1B	Chenopod scrub, meadow and seep, valley and foothill grassland, vernal pool; situated vernally mesic alkaline substrate in sinks, flats, and lake margins. Elevation range: 5 – 3025 feet. Blooms: March – May.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Ranunculus lobbii Lobb's buttercup	CRPR 4	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools; located in mesic, vernally wet areas. Elevation range: 45 – 1530 feet. Blooms: February – May.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Sagittaria sanfordii Sanford's arrowhead	CRPR 1B	Marshes and swamps; located in assorted shallow freshwater habitats including canals and perennial drainage ditches. Elevation range: 0 – 2115 feet. Blooms: May – October, sometimes November.	**No Potential.** The Study Area does not contain perennial wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Senecio clevelandii var. *clevelandii* (=*Packera clevelandii*) Cleveland's ragwort	CRPR 4	Chaparral; situated on serpentine seeps; serpentine indicator: SE. Elevation range: 1185 – 2925 feet. Blooms: June – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Sidalcea hickmanii ssp. *napensis* Napa checkerbloom	CRPR 1B	Chaparral; located on rhyolitic substrates. Elevation range: 1345 – 1985 feet. Blooms: April – June.	**Moderate Potential.** The Study Area contains chaparral habitat that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Sidalcea oregana ssp. *hydrophila* marsh checkerbloom	CRPR 1B	Meadows and seeps, riparian forest; located on wet soils along streambanks and meadows. Elevation range: 3575 – 7475 feet. Blooms: July – August.	**No Potential.** The Study Area does not contain perennial wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Sidalcea oregana ssp. *valida* Kenwood Marsh checkerbloom	FE; SE; CRPR 1B	Freshwater marshes and swamps, on the edges of marshes. Elevation range: 375 – 495 feet. Blooms: June – September.	**No Potential.** The Study Area does not contain perennial wetlands to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Spergularia macrotheca var. *longistyla* long-styled sand-spurry	CRPR 1B	Meadow and seep, marshes and swamps; located in alkaline marshes, pools, mud flats, meadows, and hot springs. Elevation range: 0 – 830 feet. Blooms: February – March.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Streptanthus batrachopus Tamalpais jewel-flower	CRPR 1B	Closed-cone coniferous forest, chaparral; located on serpentine talus slopes; serpentine indicator: SE. Elevation range: 990 – 2115 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Streptanthus brachiatus ssp. *brachiatus* Socrates Mine jewel-flower	CRPR 1B	Chaparral, closed-cone coniferous forest; located on serpentine substrates; serpentine indicator: SE. Elevation range: 1770 – 3250 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Streptanthus hesperidis green jewelflower	CRPR 1B	Chaparral, cismontane woodland; located in openings in brushy/wooded sites on rocky serpentine substrate; serpentine indicator: SE. Elevation range: 420 – 2470 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Streptanthus morrisonii ssp. *elatus* Three Peaks jewel-flower	CRPR 1B	Serpentine chaparral; serpentine indicator: SE. Elevation range: 90 – 815 feet. Blooms: June – September.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Streptanthus vernalis early jewel-flower	CRPR 1B	Closed-cone coniferous forest, chaparral; situated on serpentine; serpentine indicator: ?. Elevation range: undocumented. Blooms: March – May.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Toxicoscordion fontanum marsh zigzag	CRPR 4	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps; located in vernally mesic sites underlain by serpentine; serpentine indicator: BE/SI. Elevation range: 45 – 3250 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain serpentine or other ultramafic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Trichostema ruygtii Napa bluecurls	CRPR 1B, LR	Cismontane woodland, chaparral, valley and foothill grassland, vernal pools, lower montane coniferous forest; located in open, sunny locations, and dried vernal pools. Elevation range: 95 – 2210 feet. Blooms: June – October.	**Moderate Potential.** The Study Area contains volcanic soils that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Trifolium amoenum showy rancheria clover	FE, CRPR 1B	Valley and foothill grassland, coastal bluff scrub, swales, open sunny sites, sometimes on serpentine; serpentine indicator: WI/IN. Elevation range: 15 – 1365 feet. Blooms: April – June.	**Moderate Potential.** The Study Area contains grassland that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.
Trifolium hydrophilum saline clover	CRPR 1B	Marshes and swamps, mesic portions of alkali vernal pools; mesic, alkali valley and foothill grassland. Elevation range: 0 – 985 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain vernal pools or similar seasonal wetlands to support this species.	**Not Present.** No further actions are recommended for this species.
Viburnum ellipticum oval-leaved viburnum	CRPR 2B	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation range: 705 – 4595 feet. Blooms: May – June.	**High Potential.** The Study Area contains chaparral, woodland, and/or forest habitat that may support this species.	**Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
WILDLIFE				
Mammals				
Antrozous pallidus pallid bat	SSC, WBWG High	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various manmade structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Moderate Potential.** Woodland and forest within the Study Area provides trees suitable for roosting; there are several CNDDB occurrences within 5 miles (CDFW 2021a). Targeted bat assessment (i.e., close inspection of trees) was not performed.	**Presence Unknown.** Tree removal outside of maternity roosting season, or conduct pre-construction roost habitat assessment. See Section 6.0 for details.
Bassariscus astutus ringtail (ringtail cat)	SFP	Widely distributed throughout much of California. Found in a variety of habitats including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 4,600 ft. elevation. Typically uses cliffs or large trees for shelter.	**Unlikely.** The Study Area lacks cliffs and large tree cavities/hollows typical of dens for this species.	**Presumed Absent.** No further recommendations for this species.
Corynorhinus townsendii townsendii Townsend's western big-eared bat	SSC, WBWG High	Humid coastal regions of northern and central California. Roost in limestone caves, lava tubes, mines, buildings etc. Will only roost in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to disturbance	**Unlikely.** The Study Area does not contain caves, mines, or buildings suitable for roosting. CNDDB occurrences in Napa County are all located in the northern portion of the County (CDFW 2021a).	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Eumops perotis californicus western mastiff bat	SSC, WBWG High	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	**Unlikely.** The Study Area lacks large rock structures that are suitable for roosting. There are no CNDDB occurrences of this species in Napa County (CDFW 2021a).	**Presumed Absent.** No further recommendations for this species.
Lasiurus blossevillii western red bat	SSC, WBWG High	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. It is associated with broad-leaved tree species including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	**Unlikely.** The Study Area lacks large, broadleaved trees of the type typically used for roosting (maples, sycamores, etc.).	**Presumed Absent.** No further recommendations for this species.
Myotis thysanodes fringed myotis	WBWG High	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Building, mines, and large trees and snags are important day and night roosts.	**High Potential.** Woodland and forest within the Study Area provides trees suitable for roosting. Targeted bat assessment (i.e., close inspection of trees) was not performed.	**Presence Unknown.** Tree removal outside of maternity roosting season, or conduct pre-construction roost habitat assessment. See Section 6.0 for details.
Myotis volans long-legged myotis	WBWG High	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices, buildings, mines, and caves are important day roosts.	**Moderate Potential.** The Study Area contains coniferous forest and presumably tree cavities suitable for roosting. Targeted bat assessment (i.e., close inspection of trees) was not performed.	**Presence Unknown.** Tree removal outside of maternity roosting season, or conduct pre-construction roost habitat assessment. See Section 6.0 for details.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Reithrodontomys raviventris salt marsh harvest mouse	FE, SE, SFP	Endemic to emergent salt and brackish wetlands of the San Francisco Bay Estuary. Pickleweed marshes are primary habitat; also occurs in various other wetland communities with dense vegetation. Does not burrow, builds loosely organized nests. Requires higher areas for dryland refugia during high tides.	**No Potential.** The Study Area contains no tidal or brackish marsh and is outside of this species' Napa County range.	**Not Present.** No further recommendations for this species.
Sorex ornatus sinuosus Suisun shrew	SSC	Tidal marshes of the northern shores of San Pablo and Suisun bays. Require dense low-lying vegetation cover, driftwood, and other litter above the mean high tide line for nesting and foraging.	**No Potential.** The Study Area contains no tidal or brackish marsh and is outside of this species' Napa County range.	**Not Present.** No further recommendations for this species.
Taxidea taxus American badger	SSC	Most abundant in drier open stages of most shrub, woodland, and herbaceous vegetation types. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Unlikely.** The Study Area contains areas of grassland and woodland with some suitable habitat elements, but there are no occurrences within the eastern portion of Napa County (CDFW 2021a). Additionally, large burrows were not observed during the site visits.	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Birds				
Agelaius tricolor tricolored blackbird	SC (E), SSC	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	**No Potential.** The Study Area does not contain vegetated ponds or marshes.	**Not Present.** No further recommendations for this species.
Ammodramus savannarum grasshopper sparrow	SSC, LR	Summer resident. Breeds in open grasslands in lowlands and foothills, generally with low- to moderate-height grasses and scattered shrubs. Well-hidden nests are placed on the ground.	**Unlikely.** Grassland cover within the Study Area is generally limited in area; larger contiguous and undisturbed areas are absent.	**Presumed Absent.** No further recommendations for this species.
Aquila chrysaetos golden eagle	BGEPA, SFP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**Unlikely.** The Study Area does not provide large cliffs, and lacks typical nest trees. No indication of presence observed during site visits. May forage in the vicinity.	**Presumed Absent.** No further recommendations for this species.
Ardea alba great egret	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially, usually in trees, occasionally on the ground or elevated platforms. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**Unlikely.** The Study Area is not within close proximity to suitable waters to support a breeding colony.	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Ardea herodias great blue heron	LR (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially in tall trees and cliffs, also sequested terrestrial substrates. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**Unlikely.** The Study Area is not within close proximity to suitable waters to support a breeding colony.	**Presumed Absent.** No further recommendations for this species.
Asio flammeus short-eared owl	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	**Unlikely.** Known distribution (wintering) is restricted to the Napa baylands; breeding in the County has never been documented (Smith 2003).	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Asio otus long-eared owl	SSC	Occurs year-round in California. Nests in trees in a variety of woodland habitats, including oak and riparian, as well as tree groves. Requires adjacent open land with rodents for foraging, and the presence of old nests of larger birds (hawks, crows, magpies) for breeding.	**Unlikely.** Rare in Napa County, with the nearest observations located on the Napa Valley floor (eBird 2021).	**Presumed Absent.** No further recommendations for this species.
Athene cunicularia burrowing owl	SSC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	**Unlikely.** Breeding and wintering distribution within Napa County are restricted to the vicinity of Lake Berryessa and southern baylands (Smith 2003, CDFW 2021a).	**Presumed Absent.** No further recommendations for this species.
Buteo swainsoni Swainson's hawk	ST	Summer resident in Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	**Unlikely.** Napa County's small breeding population is restricted to the Napa Valley floor in association with the Napa River and baylands (CDFW 2021a).	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Charadrius alexandrines nivosus western snowy plover	FT, SSC	Federal listing applies only to the Pacific coastal population. Year-round resident and winter visitor. Occurs on sandy beaches, salt pond levees, and the shores of large alkali lakes. Nests on the ground, requiring sandy, gravelly or friable soils.	**No Potential.** The Study Area does not contain beaches or other suitable barren habitat near water.	**Not Present.** No further recommendations for this species.
Circus cyaneus northern harrier	SSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	**Unlikely.** Open grassland within the Study Area is limited in area and disturbed.	**Presumed Absent.** No further recommendations for this species.
Contopus cooperi olive-sided flycatcher	SSC	Summer resident. Typical breeding habitat is montane coniferous forests. At lower elevations, also occurs in wooded canyons and mixed forests and woodlands. Often associated with forest edges. Arboreal nest sites located well off the ground.	**Moderate Potential.** The Study Area contains stands of coniferous and mixed forest, with several edge habitats.	**Presence Unknown.** Tree/vegetation removal and initial ground disturbance should occur outside of nesting season, or conduct pre-construction surveys and avoid any active nests found. See Section 6.0 for details.
Coturnicops noveboracensis yellow rail	SSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also a rare winter visitor along the coast and other portions of the state. Extremely cryptic.	**No Potential.** The Study Area does not provide any suitable marsh/wetland habitat.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Cypseloides niger black swift	SSC	Summer resident with a fragmented breeding distribution; most occupied areas in California either montane or coastal. Breeds in small colonies on cliffs behind or adjacent to waterfalls, in deep canyons, and sea-bluffs above surf. Forages aerially over wide areas. No modern nesting records in Napa County.	**No Potential.** The Study Area does not contain waterfalls; there are no modern breeding records for Napa County (Smith 2003, Shuford and Gardali 2008).	**Not Present.** No further recommendations for this species.
Egretta thula snowy egret	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees, at times in sequestered beds of dense emergent vegetation (e.g., tules). Rookery sites usually situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	**Unlikely.** The Study Area is not within close proximity to suitable waters to support a breeding colony.	**Presumed Absent.** No further recommendations for this species.
Elanus leucurus white-tailed kite	SFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**Moderate Potential.** Woodland areas within the Study Area provides suitable nesting trees, with adjacent scrub and open areas for foraging.	**Presence Unknown.** Tree/vegetation removal and initial ground disturbance should occur outside of nesting season, or conduct pre-construction surveys and avoid any active nests found. See Section 6.0 for details.
Falco peregrinus anatum American peregrine falcon	SE, SFP	Year-round resident and winter visitor. Occurs near water, including coastal areas, wetlands, lakes and rivers. Usually nests on sheltered cliffs or tall man-made structures. Preys primarily on waterbirds.	**Unlikely.** The Study Area does not contain large cliffs or suitable man-made structures for nesting.	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Geothlypis trichas sinuosa San Francisco (saltmarsh) common yellowthroat	SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**No Potential.** No marsh vegetation is present within the Study Area, and this species' Napa County distribution is restricted to baylands (Shuford and Gardali 2008).	**Not Present.** No further recommendations for this species.
Haliaeetus leucocephalus bald eagle	BGEPA, SE, SFP	Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs, and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	**Unlikely.** Larger water bodies are not within or in close proximity to the Study Area. As per Smith (2003) and CDFW (2021a), nesting within Napa County is known only from the immediate vicinity of Lake Berryessa.	**Presumed Absent.** No further recommendations for this species.
Icteria virens yellow-breasted chat	SSC, LR	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow (*Salix* ssp.), blackberry (*Rubus* spp.), and wild grape (*Vitis californicus*).	**Unlikely.** The Study Area does not contain stands of dense riparian understory favored by this species for nesting. There are no recent observations in the vicinity (eBIrd 2021).	**Presumed Absent.** No further recommendations for this species.
Lanius ludovicianus loggerhead shrike	SSC, LR	Year-round resident in open woodland, grasslands, savannah, and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely-foliaged shrubs or trees.	**Unlikely.** The Study Area provides some suitable habitat elements, but the only eBird observation in the area is from the Napa Valley floor in more typical pastoral/grassland habitat, and from 1985. This usually conspicuous species was not observed during site visits.	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Laterallus jamaicensis coturniculus California black rail	ST, SFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**No Potential.** The Study Area does not contain tidal or brackish marsh. Within Napa County, this species is restricted to baylands and the lower Napa River.	**Not Present.** No further recommendations for this species.
Melospiza melodia samuelis San Pablo song sparrow	SSC	Year-round resident of tidal marshes along the north side of San Francisco and San Pablo Bays. Typical habitat is dominated by pickleweed, with gumplant and other shrubs present in the upper zone for nesting. May forage in areas adjacent to marshes.	**No Potential.** The Study Area contains no tidal or brackish marsh and is outside of this species' limited Napa County range (Shuford and Gardali 2008).	**Not Present.** No further recommendations for this species.
Nycticorax nycticorax black-crowned night heron	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees but also in patches of emergent vegetation. Rookery sites are often on islands and usually located adjacent to foraging areas: margins of lakes and bays.	**No Potential.** The Study Area and adjacent lands lack aquatic foraging habitat.	**Not Present.** No further recommendations for this species.
Passerculus sandwichensis alaudinus Bryant's savannah sparrow	SSC	Year-round resident associated with the coastal fog belt, primarily between Humboldt and northern Monterey Counties. Occupies low tidally influenced habitats and adjacent areas, including grasslands. Also uses drier, more upland coastal grasslands. Nests near the ground in taller vegetation, including along levees and canals.	**No Potential.** The one primary area of open grassland within the Study Area (eastern parcel) is disturbed, and this species' Napa County breeding range is restricted to southwestern baylands (Shuford and Gardali 2008).	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Progne subis purple martin	SSC, LR	Summer resident. Inhabits woodlands and low-elevation coniferous forests. Nests in old woodpecker cavities and man-made structures (bridges, utility towers). Nest is often located in tall, isolated tree or snag.	**Moderate Potential.** The Study Area features mixed woodland and coniferous forest that provides suitable nesting habitat (e.g., tree snags).	**Presence Unknown.** Tree/vegetation removal and initial ground disturbance should occur outside of nesting season, or conduct pre-construction surveys and avoid any active nests found. See Section 6.0 for details.
Rallus obsoletus obsoletus California Ridgway's (clapper) rail	FE, SE, SFP	Year-round resident in tidal marshes of the San Francisco Bay estuary. Requires tidal sloughs and intertidal mud flats for foraging, and dense marsh vegetation for nesting and cover. Typical habitat features abundant growth of cordgrass and pickleweed. Feeds primarily on mollusks and crustaceans.	**No Potential.** The Study Area does not contain tidal or brackish marsh. Within Napa County, this species is restricted to baylands and the lower Napa River system.	**Not Present.** No further recommendations for this species.
Riparia riparia bank swallow	ST	Summer resident in riparian and other lowland habitats near rivers, lakes and the ocean in northern California. Nests colonially in excavated burrows on vertical cliffs and bank cuts (natural and manmade) with fine-textured soils. Historical nesting range in southern and central areas of California has been eliminated by habitat loss. Currently known to breed in Siskiyou, Shasta, and Lassen Cos., portions of the north coast, and along Sacramento River from Shasta Co. south to Yolo Co.	**No Potential.** The Study Area does not contain cliffs or cuts with fine-textured soils or any other potentially suitable nesting substrate. Not known to nest in Napa County as per Smith (2003).	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Setophaga petechia brewsteri (Brewster's) yellow warbler	SSC	Summer resident throughout much of California. Breeds in riparian vegetation close to water, including streams and wet meadows. Microhabitat used for nesting is variable, but dense willow growth is typical. Occurs widely on migration.	**Unlikely.** The Study Area does not contain perennial streams and associated dense riparian thickets (e.g., willow cover) favored by this species for breeding. Individuals presumably occur during migration.	**Presumed Absent.** No further recommendations for this species.
Spizella atrogularis black-chinned sparrow	LR	Summer resident. Typically occurs on arid, rocky slopes with brushy vegetation, e.g. mixed chaparral, and sagebrush.	**Unlikely.** The Study Area does not contain chaparral or similar habitats with dense, mature brush.	**Presumed Absent.** No further recommendations for this species.
Strix occidentalis caurina northern spotted owl	FT,ST, SSC	Year-round resident in dense, structurally complex forests, primarily those with stands of mature conifers. In Napa County, uses both coniferous and mixed (coniferous-hardwood) forests. Nests on platform-like substrates in the forest canopy, including in tree cavities. Preys on mammals.	**Moderate Potential.** The Study Area features stands of coniferous and mixed (coniferous-hardwood) forest, particularly the northern parcel, that are ostensibly suitable for this species.	**Not Observed.** Protocol-level surveys were performed in 2020, and this species was not observed.
Xanthocephalus xanthocephalus yellow-headed blackbird	SSC, LR	Summer resident. Breeds colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Requires abundant large insects such as dragonflies; nesting is timed for maximum emergence of insect prey.	**No Potential.** The Study Area lacks marsh vegetation suitable for nesting.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Reptiles and Amphibians				
Dicamptodon ensatus California giant salamander	SSC	Occurs in the north-central Coast Ranges. Moist coniferous and mixed forests are typical habitat; also uses woodland and chaparral. Adults are terrestrial and fossorial, breeding in cold, permanent or semi-permanent streams. Larvae usually remain aquatic for over a year.	**Unlikely.** The Study Area's streams lack suitable hydrology (e.g. perennial or near perennial flow, deeper pools). Occurrences in CNDDB are greater than 3 miles away (CDFW 2021a).	**Presumed Absent.** No further recommendations for this species.
Emys marmorata western pond turtle	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**Unlikely.** The Study Area lacks ponds or other typical aquatic habitat features, perennial or near-perennial streams.	**Presumed Absent.** No further recommendations for this species.
Rana boylii foothill yellow-legged frog	SSC	Found in or near rocky streams in a variety of habitats; highly aquatic. Prefers partially-sunlit, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on invertebrates (aquatic and terrestrial).	**Unlikely.** The Study Area's streams lack suitable hydrology (e.g. perennial or near perennial flow, habitat complexity). Occurrences in CNDDB are greater than 1.7 miles away, on the opposite side of the watershed (CDFW 2021a).	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Rana draytonii California red-legged frog	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense emergent and/or overhanging riparian vegetation. Favors perennial to intermittent ponds, marshes, and stream pools. Requires 11 to 20 weeks of continuous inundation for larval development. Disperses through upland habitats during and after rains.	**Unlikely.** The Study Area's streams lack suitable hydrology and habitat characteristics for this species; the nearest occurrences in CNDDB are located greater than 5 miles away, in Pope Valley (CDFW 2021a).	**Presumed Absent.** No further recommendations for this species.
Taricha rivularis red-bellied newt	SSC	Inhabits coastal forests from southern Sonoma County northward, with an isolated population in Santa Clara County. Redwood forest provides typical habitat, though other forest types (e.g., hardwood) are also occupied. Adults are terrestrial and fossorial. Breeding occurs in streams, usually with relatively strong flows.	**No Potential.** The Study Area's ephemeral streams lack suitable hydrology, and the known range does not include Napa County (CDFW 2021a).	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Fishes				
Acipenser medirostris green sturgeon	FT, SSC	Spawns in the Sacramento River and Klamath Rivers, at temperatures between 8-14 degrees C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	**No Potential.** The Study Area does not contain suitable anadromous or estuarine waters.	**Not Present.** No further recommendations for this species.
Eucyclogobius newberryi tidewater goby	FE, SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches. Requires fairly still but not stagnant water and high oxygen levels.	**No Potential.** The Study Area does not contain brackish or ore estuarine waters.	**Not Present.** No further recommendations for this species.
Hypomesus transpacificus Delta smelt	FT, ST	Endemic to the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	**No Potential.** The Study Area does not contain estuarine waters.	**Not Present.** No further recommendations for this species.
Lampetra ayresi river lamprey	SSC	Lower Sacramento River, San Joaquin River and Russian River. May occur in coastal streams north of San Francisco Bay. Adults need clean, gravelly riffles, Ammocoetes need sandy backwaters or stream edges, good water quality and temps < 25 degrees C.	**No Potential.** The Study Area does not contain suitable anadromous or estuarine waters.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Mylopharodon conocephalus hardhead	SSC	Known from mid-elevation streams in the Sacramento, San Joaquin, Napa River, and Russian River drainages. Prefer clear, deep pools with sand-gravel-boulder bottoms and slow water velocity.	**No Potential.** The Study Area does not contain suitable anadromous or estuarine waters.	**Not Present.** No further recommendations for this species.
Oncorhynchus mykiss irideus steelhead - central CA coast DPS	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**No Potential.** The Study Area does not contain suitable anadromous or estuarine waters.	**Not Present.** No further recommendations for this species.
Oncorhynchus tshawytscha Chinook salmon - California coastal ESU	FT	This ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 degrees C lethal to adults.	**No Potential.** The Study Area does not contain suitable anadromous or estuarine waters.	**Not Present.** No further recommendations for this species.
Pogonichthys macrolepidotus Sacramento splittail	SSC	Formerly endemic to the lakes and rivers of the Central Valley, but now confined to the Sacramento Delta, Suisun Bay and associated marshes. Occurs in slow-moving river sections and dead-end sloughs. Requires flooded vegetation for spawning and foraging for young. A freshwater species, but tolerant of moderate salinity (10-18 parts per thousand).	**No Potential.** The Study Area does not contain riverine or estuarine waters.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Spirinchus thaleichthys longfin smelt	FC, ST, SSC	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	**No Potential.** The Study Area does not contain riverine or estuarine waters.	**Not Present.** No further recommendations for this species.
Invertebrates				
Branchinecta lynchi vernal pool fairy shrimps	FT	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**No Potential.** The Study Area does not contain vernal pools or other suitable seasonal aquatic features (e.g., swales deep and ponded enough to support this species).	**Not Present.** No further recommendations for this species.
Desmocerus californicus dimorphus valley elderberry longhorn beetle	FT	Known from the Central Valley and adjacent foothills, in riparian and oak savannah where elderberry (*Sambucus* sp.), the host plant, is present.	**No Potential.** Elderberry was not observed during the site visit; CNDDB occurrences are restricted to Napa County's southeastern-most portion (CDFW 2021a).	**Not Present.** No further recommendations for this species.
Speyeria callippe callippe Callippe silverspot butterfly	FE	Two populations are recognized, on San Bruno Mountain and the Cordelia Hills. Host plant is Johnny jump-up (*Viola pedunculata*), which is found on serpentine soils. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	**No Potential.** Violet was not observed within the Study Area during the site visit. Additionally, this species' known range with Napa County is restricted to the immediate vicinity of the Cordelia Hills.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Syncaris pacifica California freshwater shrimp	FE, SE	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	**Unlikely.** Although the Study Area contains an intermittent stream, this species is known from perennial streams. Additionally, the only documented occurrence in Napa County is from Huichica Creek in the southwest portion of the county (Marin and Wicksten 2004, CDFW 2021a).	**Presumed Absent.** No further recommendations for this species.

***Key to status codes:**

FC	Federal Candidate for Listing
FE	Federal Endangered
BGEPA	Bald and Golden Eagle Protection Act Species
FT	Federal Threatened
LR	Locally Rare as per Napa County Baseline Report
SC (E/T)	State Candidate for Listing (Endangered/Threatened)
SE	State Endangered
SFP	State Fully Protected Animal
SR	State Rare
SSC	State Species of Special Concern
ST	State Threatened
CRPR 1A	CNPS CRPR 1A: Plants presumed extinct in California
CRPR 1B	CNPS CRPR 1B: Plants rare, threatened or endangered in California and elsewhere
CRPR 2A	CNPS CRPR 2A: Plants presumed extirpated in California, but more common elsewhere
CRPR 2B	CNPS CRPR 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
CRPR 3	CNPS CRPR 3: Plants about which CNPS needs more information (a review list)
CRPR 4	CNPS CRPR 4: Plants of limited distribution (a watch list)
WBWG	Western Bat Working Group High or Medium-high Priority Species

Potential to Occur:

No Potential: Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely: Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential: Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential: All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Results and Recommendations:

Present: Species was observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

Assumed Present: Species is assumed to be present on-site based on the presence of key habitat components.

Assumed Present without Impact: Species assumed present; however, project activities will not have an impact on the species.

Presumed Absent: Species is presumed to not be present due to a lack of key habitat components.

Not Present: Species is considered not present due to a clear lack of any suitable habitat and/or local range limitations.

Not Observed: Species was not observed during dedicated/formal surveys.

Presence Unknown: Species has the potential to be present, but no dedicated surveys to determine absence/presence were performed.

Appendix D

Representative Photographs

Non-native grassland in the southeastern Study Area; location of proposed vineyard block

Coyote brush scrub in the middle-ground, framed by coast live oak woodland; located in the northwestern Study Area

Common manzanita chaparral in the northwestern Study Area

Chamise chaparral in the southeastern Study Area

Blue oak woodland in the northwestern Study Area

California black oak woodland in the northwestern Study Area

Coast live oak woodland in the southeastern Study Area

Pacific madrone forest in the southeastern Study Area

Douglas fir forest in the southeastern Study Area

Canon Creek in the northwestern Study Area

Narrow-anthered brodiaea (*Brodiaea leptandra*; CRPR 1B) in the southeastern Study Area

Napa false indigo (*Amorpha californica* var. *napensis*; CRPR 1B) in the northwestern Study Area

Appendix E

Statement of Qualifications

Appendix E. Statement of Qualifications

WRA is an environmental consulting firm with over 30 years of experience conducting biological resources assessments, wetland delineations, protocol-level rare plant surveys, special-status wildlife assessments and species-specific surveys, as well as preparing applications with state and federal natural resource agencies for avoiding, minimizing, and mitigating impacts to sensitive natural resources. Other services and products with which WRA has expertise include preparation of CEQA/NEPA documents, habitat mitigation and monitoring plans, natural resource management plans, mitigation and conservation bank enabling instruments, grazing management plans, and wetland and other natural resources restoration plans.

Matt Richmond, BS, Principal with WRA, has seventeen years performing botanical assessments, rare plant surveys, environmentally sensitive habitat area surveys, wetland delineations, and vegetation mapping. He also has experience performing protocol-level surveys for California red-legged frog, Ridgeway's rail, marbled murrelet, northern spotted owl, Point Arena mountain beaver, and Behren's silverspot butterfly. His project focus is in conservation and mitigation banking, coastal development projects, vineyard development, and timber resources. Mr. Richmond regularly manages large-scale mitigation banking projects, as well as coastal development permits, coastal restoration projects, vineyard grading permits with a focus in Mendocino, Napa, Lake, and Sonoma counties. Mr. Richmond's technical training includes the flora of Northern California, plant ecology, and forest ecology. Additionally, he has completed the 40-hour Corps wetland delineation training. Mr. Richmond received his Bachelor of Science in Biology from Humboldt State University.

Aaron Arthur, MS, Senior Plant Biologist with WRA, has twelve years performing vegetation & habitat mapping, rare plant surveys, botanical assessments, vegetation change analysis, and wetland delineations. His project focus is in vineyard development, timber resources, coastal development permits, habitat mitigation and monitoring plans, conservation and mitigation banking, and long-term management plans in Sonoma, Marin, Napa, and Mendocino counties. Mr. Arthur's technical training includes the flora of Northern California, the flora of the Pacific Northwest, agrostology, aquatic botany, plant ecology, forest ecology, and soil science. Additionally he has completed the 40-hour Corps wetland delineation course, holds 2081(a) Plant Voucher Permit, and is Certified California Consulting Botanist #0016 from the California Native Plant Society. Mr. Arthur received his Bachelor of Arts in Geography and received his Master of Science in Physical Geography from Oregon State University, where his research focused on forest floristics and vegetation change.

Jason Yakich, MS, Senior Wildlife Biologist with WRA, has nearly fifteen years of experience performing wildlife habitat assessments, biological monitoring for special-status wildlife species, breeding bird and other avian surveys, and protocol-level surveys for several special-status wildlife species. He prepares and oversees a variety of biological assessments and technical reports, and assures permit compliance for a wide array of public and private projects. Mr. Yakich has respective permit authorizations from the USFWS and CDFW to conduct active (call-playback) surveys for California clapper rail and California black rail. Mr. Yakich received his Bachelor of Arts in Biology from U.C. Santa Cruz, and received his Master of Science in Biology from San Francisco State University with a focus in marine biology.