EXHIBIT B

Biological Resources Reconnaissance Survey Report

Lyons Hillside Vineyard, LLC
8289 Wild Horse Valley Road
Napa, Napa County (APN: 033-190-004)

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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 multiple vineyard blocks located at the 8289 Wild Horse Valley Road (Study Area) in unincorporated Napa County, California. WRA, Inc. performed field surveys on April 11, June 20, July 31, and December 16, 2019. The Study Area is composed of oak woodland, chaparral, non-native grasslands, developed areas, seasonal wetlands, and streams.

The Study Area contains 19.07 acres of coast live oak woodlands. Oak woodlands are considered sensitive under Napa County General Plan Conservation Element Policy CON-24 which requires a ratio of 3:1 preservation for any impacts to oak woodlands. Vineyard installation will necessarily remove areas of oak woodland, but the extent of retention will achieve this 3:1 ratio. The remainder of the vineyard blocks are situated in the non-sensitive biological community of non-native grassland.

Vineyard blocks and other areas of ground disturbance have been intentionally sited to avoid on-site seasonal wetlands and streams, and relevant minimum setbacks from these features will be adhered to.

A protocol-level rare plant survey resulted in the detection of two special-status plants: Napa biscuitroot (*Lomatium repostum*, CRPR 4) and green monardella (*Monardella viridis*, CRPR 4). A proposed vineyard block was been modified specifically to avoid all populations of both species.

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

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DEFINITIONS

Study Area: The approximately 49.02-acre area within the subject parcel throughout which the on-the-ground assessment was performed.

Project Area: The approximately 18.8-acre area within which the proposed vineyard blocks will be installed; area evaluated for potential impacts to sensitive biological resources.

Remote Assessment Area: The approximately 30.3-acre area outside of the Study Area but within the subject parcel; land cover types were mapped based on aerial photographic interpretation, but protocol-level plant surveys and wetland/stream assessments were not performed.

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
DBH	Diameter breast height
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	(Federal) Endangered Species Act
Magnusen-Stevens Act	Magnuson-Stevens Fishery Conservation & Management
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

1.1 Purpose of Assessment

On April 11, June 20, July 31, and December 16 2019, WRA, Inc. (WRA) performed an assessment of biological resources at 8289 Wild Horse Valley Road (APN: 033-190-004; hereafter subject parcel) (Figure A-1, Appendix A), focusing on the western two-thirds of the subject parcel (Study Area), as this area was indicated by the project engineers to be the locations of future vineyard development. 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). In addition to those biological resources considered under CEQA, this study accounted for resources protected under federal, state, and local environmental regulations.

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 visit, which assessed the Study 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 applicable.

1.2 Project Summary

It is WRA's understanding that the proposed project (Project) involves the installation five new vineyard blocks (Project Area) within the Study Area (Figure A-2, Appendix A). 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.

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 function(s) or have special value(s). 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 2019a). 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; Napa County 2005) and General Plan (Napa County 2008) also identify sensitive Napa County natural communities, discussed further in Section 2.2 below.

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 (SFP), 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 provided 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 [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.

[1] Amendments to Napa County Ordinance 18.180 require a 3:1 ratio for replacement.

General Provisions – Intermittent/perennial streams

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 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 18.108.040 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

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 2019, 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 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 at a minimum 3:1 ratio.

3.0 ENVIRONMENTAL SETTING

The approximately 79.32-acre Study Area encompasses the entirety of the subject parcel (Appendix A). It is located in southeast Napa County, approximately 7.0 aerial miles east of downtown Napa, situated in the eastern mountains. Detailed descriptions of the local setting are below.

3.1 Topography and Soils

All aspects are present in the topography of the Study Area and elevations ranging from approximately 1,500 to 1,800 feet above sea level. According to the *Soil Survey of Napa County* (USDA 1978), the Study Area is underlain by two soil mapping units: Sobrante loam, 5 to 30 percent slopes, and Sobrante loam, 30 to 50 percent slopes. The parent soil series of all the Study Area's mapping units are summarized below.

Sobrante Series: This series consists of moderately deep silt loam formed from weathered basic igneous and metamorphic rocks situated on foothills at elevations ranging from 125 to 3,500 feet. The soil pH is moderately to slightly acid (pH 6.0 to 6.5). These soils are not considered hydric (USDA 2019), are well drained with moderate permeability and low to very high runoff. Native vegetation is oak (*Quercus* spp.) savanah/woodlands, while predominant land use is range or irrigated hay and pasture (CSRL 2019, USDA 1978).

3.2 Climate and Hydrology

The Study Area is above the valley fog incursion zone of Napa County. The average monthly maximum temperature of Napa State Hospital is 82.8 degrees Fahrenheit, while the average monthly minimum temperature is 48.1 degrees Fahrenheit. Predominantly, precipitation falls as rainfall with an annual average of 26.5 inches. Precipitation-bearing weather systems are predominantly from the west and south with the majority of rain falls between November and March, with a combined average of 22.08 inches (USDA 2019).

The local watershed is Wooden Valley Creek-Frontal Suisun Bay Estuaries (HUC 12: 180500010103) and the regional watershed is San Pablo Bay Estuaries (HUC 8: 18050002). The Study Area is situated in the Napa County Planning Watershed of Suisun Reservoir, Wooden Valley Creek. There are two mapped blue-line streams in the Study Area (USGS 1951, NWI 2019a) and three mapped blue-line streams with several tributaries within the California Aquatic Resources Inventory (CARI) database (SFEI 2019). Several small seasonal wetlands are located

in the Study Area. The primary hydrologic sources are direct precipitation and consequent sheet flows as well as channelized flow within the streams. Detailed descriptions of aquatic resources are provided in Section 5.1 below.

3.3 Land Cover and Land Use

The western portion of the Study Area burned in 2008 and the entire Study Area burned in 2017, with only the residence spared (Google Earth 2019). Approximately 20 percent of the subject property is developed with vineyards, a residence, and roads. Undeveloped areas of the subject property consist of non-native grassland, broadleaf upland forests, and chaparral. Detailed plant community descriptions are included in Section 5.1 below, and all observed plants are included in Appendix B. Regional land uses include rural residential, wineries, livestock grazing, and vineyards (Google Earth 2019). Historically, the region was open rangeland of larger ranches and vineyards. There is no history of intensive agriculture, quarrying, mining, or timbering in the Study Area (Historic Aerials 2019).

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 land cover types (e.g., wetlands) and special-status species (e.g., endangered plants):

- *Soil Survey of Napa County, California* (USDA 1978)
- Mt. George 7.5-minute quadrangle (USGS 1955)
- Contemporary aerial photographs (Google Earth 2019)
- Historical aerial photographs (Historical Aerials 2019)
- National Wetlands Inventory (USFWS 2019a)
- California Aquatic Resources Inventory (SFEI 2019)
- California Natural Diversity Database (CNDDB, CDFW 2019a)
- California Native Plant Society Electronic Inventory (CNPS 2019a)
- Consortium of California Herbaria (CCH 2019)
- USFWS List of Federal Endangered and Threatened Species (USFWS 2019b)
- *eBird* Online Database (eBird 2019)
- 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 2019b)
- *Preliminary Descriptions of the Terrestrial Natural Communities* (Holland 1986)
- Napa County Land Cover (NCLC) map (Thorne et al. 2004)
- *California Natural Community List* (CDFW 2018)

Database searches (i.e., CNDDB, CNPS) focused on the Yountville, Capell Valley, Mt. Vaca, Napa, Mt. George, Fairfield North, Cuttings Wharf, Cordelia and Fairfield South 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, an experienced botanist with 40-hour Corps wetland delineation and an experienced wildlife biologist traversed the entire Study Area on foot to document: (1) land cover types (e.g., terrestrial communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic natural communities (e.g., wetlands) are present, and (4) if special-status species are present[2].

4.1 Land Cover Types

4.1.1 Terrestrial Land Cover Types

WRA biologists evaluated the Study Area's terrestrial land cover types (e.g., natural communities, built environment) to determine if such areas have the potential to support special-status plants or wildlife. In most instances, cover types are delineated based on distinct shifts in plant assemblage (vegetation), and follow the *California Natural Community List* (CDFW 2018b), *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), and *A Manual of California Vegetation, Online Edition* (CNPS 2019b).

Terrestrial land cover types were evaluated to determine if they would be considered sensitive (as outlined in Section 2.1.1). Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled (S1/G1), imperiled (S2/G2), or vulnerable (S3/G3), on the *List of Vegetation Alliances*, were considered 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.

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. WRA biologists took sample point data following 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) in areas which expressed wetland indicators, to determine the extent of aquatic resources.

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

[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).

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).

4.1.3 Tree Survey

On December 16, 2019 WRA performed a tree survey within the Project Area to record the species and diameter-breast-height (DBH; to the nearest inch) of trees to be removed for the proposed vineyard development. As the Study Area has been recently burned, many individuals of tree species (i.e., madrone, California bay) did not contain trunks but rather had only stump sprouts. These individuals were not included in the tree survey. Trees with measurable trunks (greater than 5 inches DBH), were included in the survey. In addition to gathering species and DBH measurements, each tree was assessed as potential bat roosting habitat.

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 vicinity of the Study Area 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 site visit's were conducted on April 11, June 20, and July 31, 2019 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 deemed necessary, 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 the Study Area on April 11, June 20, and July 31, 2019. The surveys correspond 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 2018, USFWS 1996). Plants were identified using *The Jepson Manual, 2nd Edition* (Baldwin et. al. 2012) and Jepson Flora Project (eFlora 2019), to the taxonomic level necessary to determine whether or not they were special-status. Plant names follow those of Jepson Flora Project (eFlora 2019), unless otherwise noted.

4.2.3 Special-status Wildlife

The general assessment for special-status wildlife determined that a few species have the potential to occur in the Study Area. On-site trees proposed for removal were assessed for their potential to support roosting by special-status bats; primary relevant characteristics include the presence of large/substantial cavities and hollows. Otherwise, targeted assessments and protocol-level surveys were deemed inapplicable or infeasible at the time of the site visits, due to inappropriate timing between such a survey and Project initiation.

4.2.4 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

Prior to the site visit the USFWS Critical Habitat Mapper (USFWS 2019c) and the NMFS Essential Fish Habitat Mapper (NMFS 2019) 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 2019a), and the NCBDR (Napa County 2005). Additionally, aerial imagery (Google 2019) 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

WRA observed six land cover types within the Study Area: developed, non-native grassland, coast live oak woodland, toyon chaparral, seasonal wetland, and stream. Land cover types within the Study Area are illustrated in Figure A-2 (Appendix A). The non-sensitive land cover types in the Study Area include non-native grasslands, toyon chaparral, and developed areas, while the sensitive communities include the oak woodlands, , streams, and seasonal wetland.

5.1.1 Terrestrial Land Cover Types

Developed Area (no vegetation alliance). CDFW Rank: None. Within the Study Area, developed areas consist of existing asphalt and dirt roads. These areas do not contain vegetation and total

2.7 acres in the Study Area. This land cover type is synonymous with the Urban/Built-up biotic community in the NCLC (Thorne et al. 2004), and therefore it is not considered sensitive by the 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 2019b). These grasslands are typically situated on a variety of landscapes including coastal terraces, valley bottoms, and foothills underlain by a variety of soil types. The Study Area contains 11.26 acres of non-native annual grassland.

The dominant cover is the herbaceous layer, but there are scattered trees and shrubs including black oak (*Quercus kelloggii*), coast live oak (*Quercus agrifolia*), and coyote brush (*Baccharis pilularis*). The herbaceous layer is dominated by non-native grasses of ripgut brome (*Bromus diandrus*), Italian rye grass (*Festuca perennis*), wild oat (*Avena barbata*), dogtail grass (*Cynosurus echinatus*). Native wildflowers are scattered in the grassland where the thatch is less dense; representative species include lupines (*Lupinus* spp.), elegant brodiaea (*Brodiaea elegans*), gumweed (*Madia gracilis*), California buttercup *(Ranunculus californica*), common fiddleneck (*Amsinckia intermedia*), and common soap plant (*Chlorogalum pomeridianum* var. *pomeridianum*). Non-native forbs common in the grassland include sheep sorrel *(Rumex acetosella*), field hedge parsley (*Torilis arvensis*) vetch (*Vicia* spp.), yellow star thistle (Centaurea solstitialis) and Italian thistle (*Carduus pycnocephala*).

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. These grasslands are not considered sensitive by the CDFW or Napa County.

Toyon Chaparral (*Heteromeles arbutifolia* Shrubland Alliance). CDFW Rank: G5 S4: Toyon chaparrals occur in the Coast Ranges, Sierra Nevada Foothills, Transverse Range, and Peninsular Ranges from Napa County south through San Diego County (Sawyer et al. 2009). These chaparrals are typically situated on rocky soils derived from bedrock colluvium from several types of parent material (CNPS 2019b). The Study Area contains 15.92 acres of toyon chaparral.

The dominant cover is mixed shrubs, with toyon (*Heteromeles arbutifolia*) consisting of approximately 50 percent of the relative cover of shrubs. Other shrubs include California coffeeberry (*Frangula californica*), common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), and poison oak (*Toxicodendron diversilobum*). This chaparral burned in the 2017 Atlas Fire, and consequently, the herbaceous layer is dominated by a mix disturbance adapted herbs including rip-gut brome (*Bromus diandrus*), dogtail grass (*Cynosurus echinatus*), brome fescue (*Festuca bromoides*), hedge parsley (*Torilis arvensis*), and Italian thistle (*Carduus pycnocephalus*).

These chaparrals are most closely associated with the Scrub Interior Live Oak-Scrub Oak Mesic East County NFD Super Alliance biotic community in the NCLC (Thorne et al. 2004). The provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status species associated with chaparral and scrubs. These shrublands are not considered sensitive by the CDFW or Napa County.

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

2019b). 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 (Sawyer et al. 2009). The Study Are contains 19.07 acres of coast live oak woodland.

The dominant tree in this land cover type is coast live oak (*Quercus agrifolia*), with scattered cover of California black oak (*Q. kelloggii*), California bay (*Umbellularia californica*), big leaf maple (*Acer macrophyllum*), and madrone (*Arbutus menziesii*). Predominant understory species include poison oak (*Toxicodendron diversilobum*), Pacific sanicle (*Sanicula crassicaulis*), common bedstraw (*Galium aparine*), Italian thistle (*Carduus pycnocephalus*), and numerous non-native annual grasses.

These woodlands are 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; however, they are considered sensitive Napa County under the General Plan Conservation Element Policy CON-24 (oak woodland retention).

5.1.2 Aquatic Resources

Seasonal Wetland – (various vegetation alliances): Seasonal wetlands are known from a variety of topographic positions and soil types where surface waters collect and flows are reduced, or subsurface waters approach the soil surface as a rising water table or seep. In the Study Area, four seasonal wetlands which occupy 0.07 acre. One is located in the southern portion, slightly upslope of an existing driveway, two are located immediately adjacent to Wild Horse Valley Road, and the other is located in the very northern portion, associated with a stream feature.

The vegetation of the wetland are dense and dominated by hydrophytes including common rush (*Juncus patens*), tall cyperus (*Cyperus eragrostis*), Italian ryegrass, hyssop loostrife (*Lythrum hyssopifolia*), and rabbit's-foot grass (*Polypogon maritimus*). Vegetation cover is approximately 80 percent while bare ground and litter 20 percent. Hydric soils are present, and algal matting, a primary indicator of wetland hydrology, is also present. As each of the three parameters are present, it should be assumed the feature would be jurisdictional under the CWA and be considered sensitive by Napa County.

Ephemeral and Intermittent Streams (no vegetation alliance). Section 404/401 CWA: The Study Area contains one primary drainage with two tributaries; the main drainage is an unnamed dashed blue-line stream on the Mt. George 7.5-minute quadrangle (USGS 2015), while two ephemeral drainages are tributary to this blue-line stream. All streams in the Study Area drain, off-site, into Wooden Valley Creek.

Flows in the intermittent streams run for the entire wet season and receive groundwater discharge to the channel extending their surface hydrology later in the season, but dry out by late spring/early summer. The ephemeral streams run during and following rain events, but draw down quickly after storms have subsided. The drainages are moderate- to low-gradient. The banks of all of the drainages are shallow, steep, and primarily of stable, fine sediments (clays, loams), while the beds contain a mix of sorted sands, gravels, and cobbles with exposed bed rock and sizable boulders. All of the streams are too narrow, too shallow, and do not have an extended hydrology to support anadromous fishes. Furthermore, there are partial barriers downstream between the Study Area and Suisun Bay (CDFW 2019c).

All of these streams are likely jurisdictional under Section 404/401 of the CWA and Section 1602 of the CFGC; therefore, they are considered sensitive natural resources. The ephemeral drainages do meet the Napa County stream definition pursuant to Napa County Code 18.108.025.

5.1.3 Tree Survey

A total of 359 trees were inventoried within the Project Area. The tree species recorded include big leaf maple (*Acer macrophylla*), incense cedar (*Calocedrus decurrens*), coast live oak, black oak, valley oak (*Quercus lobata*), coast redwood (*Sequoia sempervirens*), and California bay. Tree locations are depicted in Figure A-2 (Appendix A), and a complete list of all trees surveyed is presented in Appendix E.

All of the trees have been burned in recent fires. Seventeen of these trees are considered dead, showing no signs of stump-sprouting or leaves from this growing season. The remaining (living) trees have all been burned but showed some indication of growth, including stump-sprouting and/or recent vegetative growth. The number and DBH range of trees by species is summarized in Table 2. The largest tree recorded was 80 inches, a multi-stemmed big leaf maple. The DBHs of approximately 26 percent of the surveyed trees (94 trees) are less than 12 inches.

Table 2. Tree Survey Results Summary

Species	# Present	DBH Range (in.)
big leaf maple	4	12 – 80*
Incense cedar	1	11
coast live oak	221	5 – 70*
black oak	81	6 - 73*
coast redwood	2	8 - 12
valley oak	3	12 - 17
California bay	47	6 - 52*
Total	**359**	**5.0 - 80***

* Maximum values represent multi-stemmed trees.

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, 75 special-status plant species have been documented in the vicinity of the Study Area. Occurrences of these species within 5 miles of the Study Area are shown in Figure A-3 (Appendix A). As outlined in Appendix C, 22 of these plants were assessed as having the potential to occur in the Study Area. The remaining species 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 three site visits during a period sufficient to identify all 22 special-status plant species with the potential to occur. Two special-status plants were located in the Study Area during protocol-level surveys: Napa biscuitroot (*Lomatium repostum*, CRPR 4) and green monardella (*Monardella viridis*, CRPR 4). Populations of these species within the Study Area shown in Figure A-2 (Appendix A), and they are described below.

Note: As per the aforementioned resource databases, there are no documented occurrences of special-status bryophytes or lichens in Napa County. Furthermore, botanical survey guidelines state that it is appropriate to conduct botanical field surveys when special-status plants have been historically identified in a project area and/or the project area contains similar physical and biological properties to know occurrences of special-status in the general vicinity (CDFW 2018b). As such, no special-status bryophytes or lichens are included in Appendix C, and none were looked for during the protocol-level special-status plant survey effort.

Special-status Plants Present in the Study Area

Napa biscuitroot (*Lomatium repostum*). CRPR 4. High Potential. Napa biscuitroot is a perennial forb in the carrot family (Apiaceae) that blooms from March through June. It typically occurs on serpentine substrate in chaparral and cismontane woodland habitat at elevations ranging from 290 to 2,700 feet (eFlora 2019, CNPS 2019a). This species has a serpentine affinity rank of strong indicator (3.2) (Safford et al. 2005). Associated species include hoary manzanita (*Arctostaphylos canescens*), Rincon Ridge ceanothus (*Ceanothus confusus*), toyon (*Heteromeles arbutifolia*), chamise (*Adenostoma fasciculatum*), California coffeeberry (*Frangula californica*), bush poppy (*Dendromecon rigida*), Sonoma sage (*Salvia sonomensis*), purple needlegrass (*Stipa pulchra*), Idaho fescue (*Festuca idahoensis*), and small fescue (*F. microstachys*) (personal observation 2019). Twenty-four individuals of this species were observed in April in burnt chaparral in the northwestern portion of the Study Area (Appendix A).

Green monardella (*Monardella viridis*). CRPR 4. High Potential. Green monardella is a perennial forb in the mint family (Lamiaceae) that blooms from June through September. It typically occurs on serpentine substrates in chaparral, cismontane woodland, and broadleaf upland forest habitat at elevations ranging from 325 to 3,285 feet (CNPS 2019a). This species has a serpentine affinity rank of broad endemic/strict indicator (4.3) (Safford et al. 2005). Associated species include silk tassel (*Garrya elliptica*), Napa ceanothus (*Ceanothus purpureus*), mountain mahogany (*Cercocarpus betuloides*), chamise (*Adenostoma fasciculatum*), sticky monkey (*Mimulus aurantiacus*), and Stanford's manzanita (*Arctostaphylos stanfordiana*) (CCH 2017, personal observation 2019). Fifteen

individuals of this species were observed in April in burnt chaparral in the northwestern portion of the Study Area (Appendix A).

Special-status Plants Not Observed in the Study Area

The following special-status plants have the potential to occur within the Study Area based on database searches discussed above, but were not observed during focused surveys conducted during the appropriate bloom season for the species:

- Henderson's bentgrass (*Agrostis hendersonii*); CRPR 3
- Napa false indigo (*Amorpha californica* var. *napensis*); CRPR 1B
- Big-scale balsamroot (*Balsamorhiza macrolepis*); CRPR 1B
- Narrow-anthered Brodiaea (*Brodiaea leptandra*); CRPR 1B
- Brewer's Calandrinia (*Calandrinia breweri*); CRPR 4
- Small-flowered Calycadenia (*Calycadenia micrantha*); CRPR 1B
- Johnny-nip (*Castilleja ambigua* ssp. *ambigua*); CRPR 4
- Mead's owl's-clover (*Castilleja ambigua* ssp. *meadii*); CRPR 1B
- Holly-leaved ceanothus (*Ceanothus purpureus*); CRPR 1B
- Streamside daisy (*Erigeron biolettii*); CRPR 3
- Greene's narrow-leaved daisy (*Erigeron greenei*); CRPR 1B
- Nodding harmonia (*Harmonia nutans*); CRPR 4
- Diablo helianthella (*Helianthella castanea*); CRPR 1B
- Jepson's leptosiphon (*Leptosiphon jepsonii*); CRPR 1B
- Mt. Diablo cottonweed (*Micropus amphibolus*); CRPR 3
- Marin checkerbloom (*Sidalcea hickmanii* ssp. *viridis*); CRPR 1B
- Napa bluecurls (*Trichostema ruygtii*); CRPR 1B
- Showy Rancheria clover (*Trifolium amoenum*); FE, CRPR 1B
- Dark-mouthed Triteleia (*Triteleia lugens*); CRPR 4
- 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 2019, Napa County 2005). Occurrences of these species in CNDDB within 5 miles of the Study Area are shown in Figure A-4 (Appendix A). As outlined in Appendix C, three of these species were assessed as having the potential to occur in the Study Area. The remaining species documented from the greater vicinity are unlikely or have no potential to occur for one or more of the following:

- Aquatic habitats (e.g., rivers, 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, old-growth coniferous trees) 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.

Special-status wildlife species with the potential to occur in the Study Area are discussed below.

Pallid bat (*Antrozous pallidus*). CDFW Species of Special Concern, WBWG High Priority. Moderate Potential. Pallid bats are distributed from southern British Columbia and Montana to central Mexico, and east to Texas, Oklahoma, and Kansas. This species 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 2018). Two trees within the Project Area (both within proposed Block D) contain cavities or snags suitable for roosting by this species, and there are CNDDB occurrences in the vicinity (CDFW 2019). The focal trees may be used for day/night and potentially maternity roosting; bat hibernation within these trees is unlikely given the extent and overall exposure of the cavities.

Fringed myotis (*Myotis thysanodes*). WBWG High Priority. Moderate Potential. The fringed myotis ranges through much of western North America from southern British Columbia, Canada, south to Chiapas, Mexico and from Santa Cruz Island in California, east to the Black Hills of South Dakota. 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 2019). Two trees within the Project Area (both within proposed Block D) contain cavities or snags suitable for roosting by this species. As with pallid bat, the focal trees may be used for day/night and potentially maternity roosting; bat hibernation within these trees is unlikely given the extent and overall exposure of the cavities.

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 (including the Project Area) provides suitable year-round habitat for white-tailed kites, including stands of oaks and other trees for nesting and open areas in close proximity for foraging. This species was not observed during site visits, though that does not rule out its potential presence.

5.2.3 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors

The Study Area does not contain any designated critical habitat (USFWS 2019b) or EFH (NMFS 2019). The site's streams are high gradient, do not have run-riffle-pool complexes, and draw down in spring; therefore, anadromous fish are unlikely to occur in the streams.

As per CDFW and Caltrans (2010) most of the Study Area is located within a mapped "Essential Connectivity Area," specifically a large, north-south oriented tract of land east of Napa Valley.

The Study Area is located at the eastern edge of this mapped area, which is approximately 3.0 miles wide in that vicinity. At the scale of landscape linkages, this tract provides connectivity between baylands of San Pablo Bay and areas from northern Napa County northward. Given the very small size of the Study Area (relative to the width and overall extent of the corridor tract) and the lack of apparent development impacts within the more central portion of this tract, agricultural expansion within the Study Area is in and of itself unlikely to result in any significant impacts to wildlife movement or migration at the landscape-linkage scale. At a more local scale (within approximately 1 mile, including in adjacent Solano County), the Study Area is situated within a matrix of undeveloped lands (primarily chaparral, grassland, and woodlands) where agricultural and rural developments are scarce. While the Project (installation of vineyard blocks) will result in portions of the site having reduced potential for on-site wildlife movement, the retention of existing conditions (e.g., chaparral, woodland) in areas with direct connectivity to similar habitats on neighboring properties will allow for continued local wildlife movement. Additionally, the on-site ephemeral and intermittent stream courses presumably provide at least some corridor function for highly localized movement (by terrestrial species), and these will be completely avoided by the Project.

6.0 PROJECT ANALYSIS AND RECOMMENDATIONS

6.1 Land Cover Types

6.1.1 Terrestrial Land Cover Types

Coast Live Oak Woodlands

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 (as modified in 2019) specifically calls for the preservation of oak woodland (on an acreage basis) at a 3:1 ratio. The subject parcel contains 28.89 acres of oak woodland, with 19.07 acres within the Study Area; these woodland stands are broadly similar in terms of density, tree age(s), etc. across the site. In order to ensure that a 3:1 ratio is maintained (three acres of oak woodland preserved for each one acre impacted), only 7.22 acres can be converted to vineyard. The Project will necessarily remove 6.87 acres of oak woodland, which achieves the 3:1 retention ratio (on a parcel-wide scale). As such, no additional recommendations are provided.

6.1.2 Aquatic Resources

Seasonal wetlands and streams are present in the Study Area; both of which require setbacks per County Ordinance. The limits of ground disturbance will be subject to a minimum setback of 55 feet (measured from TOB), and seasonal wetlands will be avoided by a minimum of 50 feet. Ground-breaking occurring during the dry season along with these protective setbacks are anticipated to buffer potential effects to these on-site aquatic resources. The following recommendations are also provided to protect aquatic resources.

> Recommendation 1: Grading should 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, silt fencing) should be deployed on the vineyard block edge paralleling the aquatic feature.

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 should be lain down in or near the aquatic resources, and spill prevention materials should be deployed for all construction equipment.

6.2 Special-status Species

6.2.1 Special-status Plants

There are two CNPS ranked species within the Study Area: Napa biscuitroot (*Lomatium repostum*) and green Monardella (*Monardella viridis*). Both are CRPR 4, which are defined as having a "limited distribution or [are] infrequent throughout a broader area in California . . . and few, if any, are eligible for state listing" (CNPS 2018a). The Study Area is at the edge of these species' distributions (Calflora 2019, CCH 2019); therefore, they should be considered special-status. The Project will avoid all on-site populations of both species, with no ground disturbance occurring within a minimum of 25 feet. As such, no additional recommendations are provided.

6.2.2 Special-status Wildlife

The Study Area has the potential to support three special-status wildlife species (two bats, and one bird), as well as 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: Two special-status bats have the potential to occur within the Study Area (pallid bat, fringed 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. Two individual trees within the Project Area (both in Block D) were identified as having the potential to support bat roosting, including maternity roosting. Recommendations to avoid impacts to bats that may be roosting in these trees is provided below.

> Recommendation 2: WRA recommends that removal of the two focal trees 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 survey effort for roosting bats be performed by a qualified biologist prior to tree removal to determine if bats are present in the trees. 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, the two focal 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 special-status bird species discussed above (white-tailed kite), a variety of non-status bird species with baseline protections under the MBTA and CFGC may use vegetation within the Study Area for nesting. Pre-construction surveys are recommended to ensure that the implementation of the Project avoids potential impacts to 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 areas of ground disturbance (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 (let 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

As stated in Section 5.2.3 above, agricultural expansion within the Study Area is in and of itself unlikely to result in any significant impacts to local wildlife movement. The Study Area's streams and portions of the existing terrestrial land cover types will remain intact, including areas interstitial to the proposed vineyard blocks, which will allow for continued wildlife movement within and across the Study Area, provided that these intact (non-impacted) areas are contiguous with adjacent habitat on neighboring lands and that fencing does not restrict such movement. To ensure continued wildlife movement, including in the Study Area's intermittent and ephemeral streams, the following recommendation is provided.

Recommendation 4: Any additional fencing with the potential to restrict the movement of larger wildlife species (e.g., deer) installed should be arrayed to allow for continued wildlife movement across the Study Area, including along interstitial pathways between vineyard blocks and to contiguous habitats on neighboring properties.

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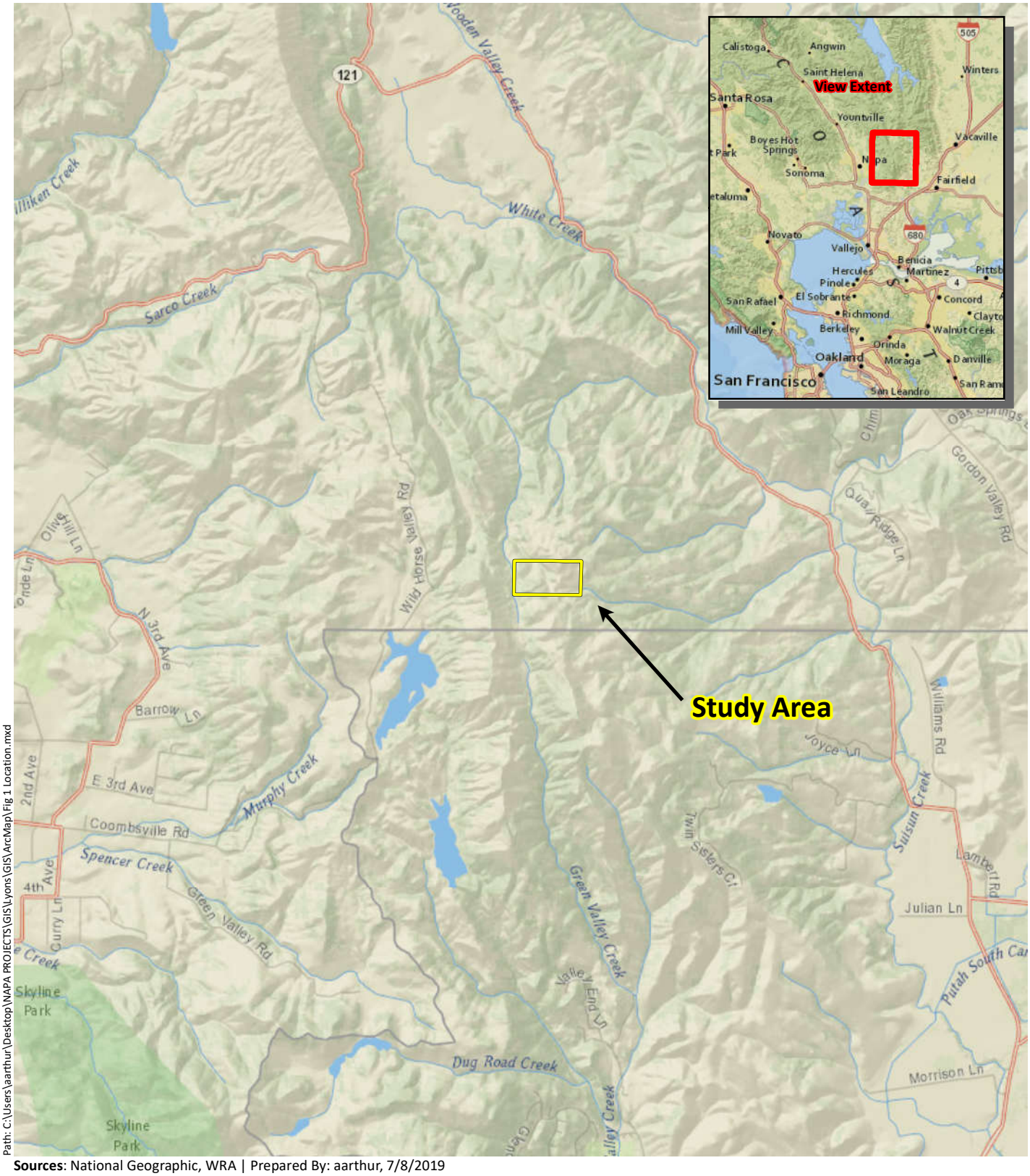
Appendix A

Figures



Sources: National Geographic, WRA | Prepared By: aarthur, 7/8/2019

Figure A-1. Study Area Location

Lyons Property
Napa County, California

0 1.5 3 Miles

N

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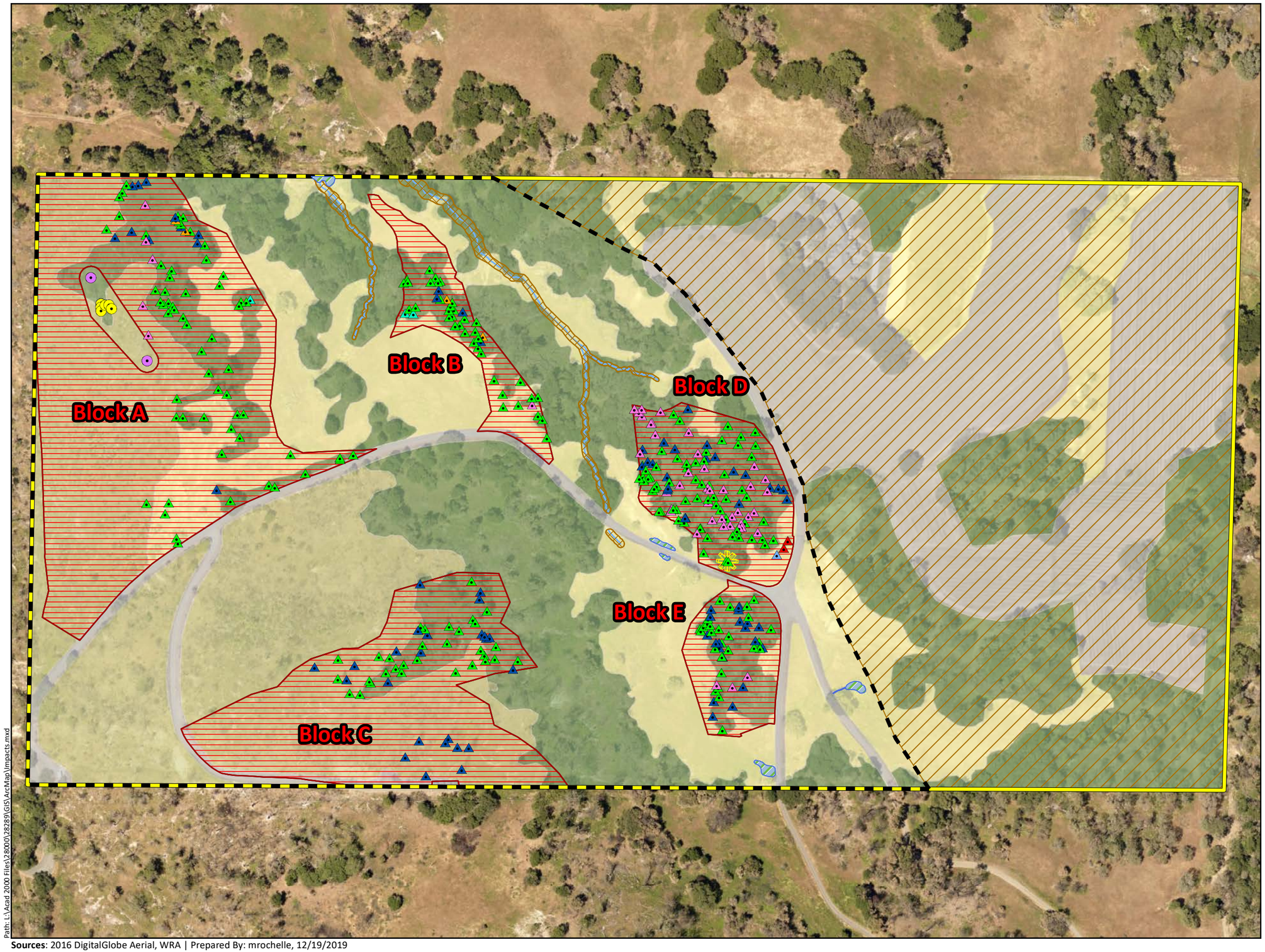
Figure A-2. Land Cover and Impacts

Lyons Property
Napa County, California



Parcel (79.32 ac.)

Study Area (49.02 ac.)

Remote Assessment (30.30 ac.)

Proposed Vineyard Blocks (18.79 ac.):
- 6.87 ac. within Coast Live Oak Woodland
- 0.28 ac. within Developed
- 3.08 ac. within Non-native Grassland
- 8.56 ac. within Toyon Chaparral

Stream Centerline

Top-of-Bank

Rare Plants

- Lomatium repostum
- Monardella viridis

Tree Removal

- Big leaf maple
- Black oak
- California bay
- Coast live oak
- Coast redwood
- Incense cedar
- Valley oak
- Bat Habitat

Land Cover Types

- Coast Live Oak Woodland (19.07 ac.)
- Developed (2.70 ac.)
- Non-native Grassland (11.26 ac.)
- Seasonal Wetland (0.07 ac.)
- Toyon Chaparral (15.92 ac.)

N

0 250 500 Feet

wra
ENVIRONMENTAL CONSULTANTS

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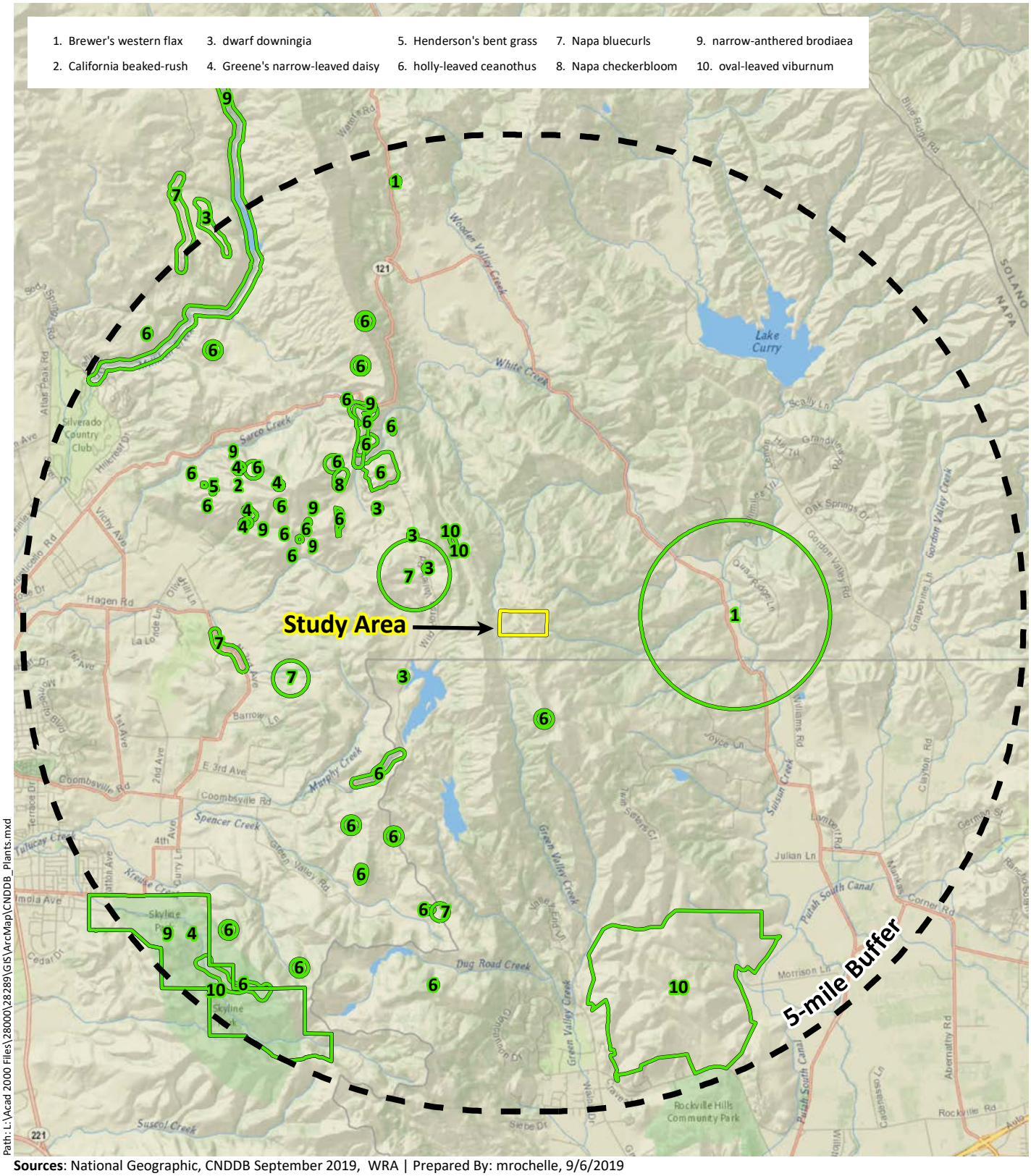
Sources: 2016 DigitalGlobe Aerial, WRA | Prepared By: mrochelle, 12/19/2019



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Sources: National Geographic, CNDDB September 2019, WRA | Prepared By: mrochelle, 9/6/2019

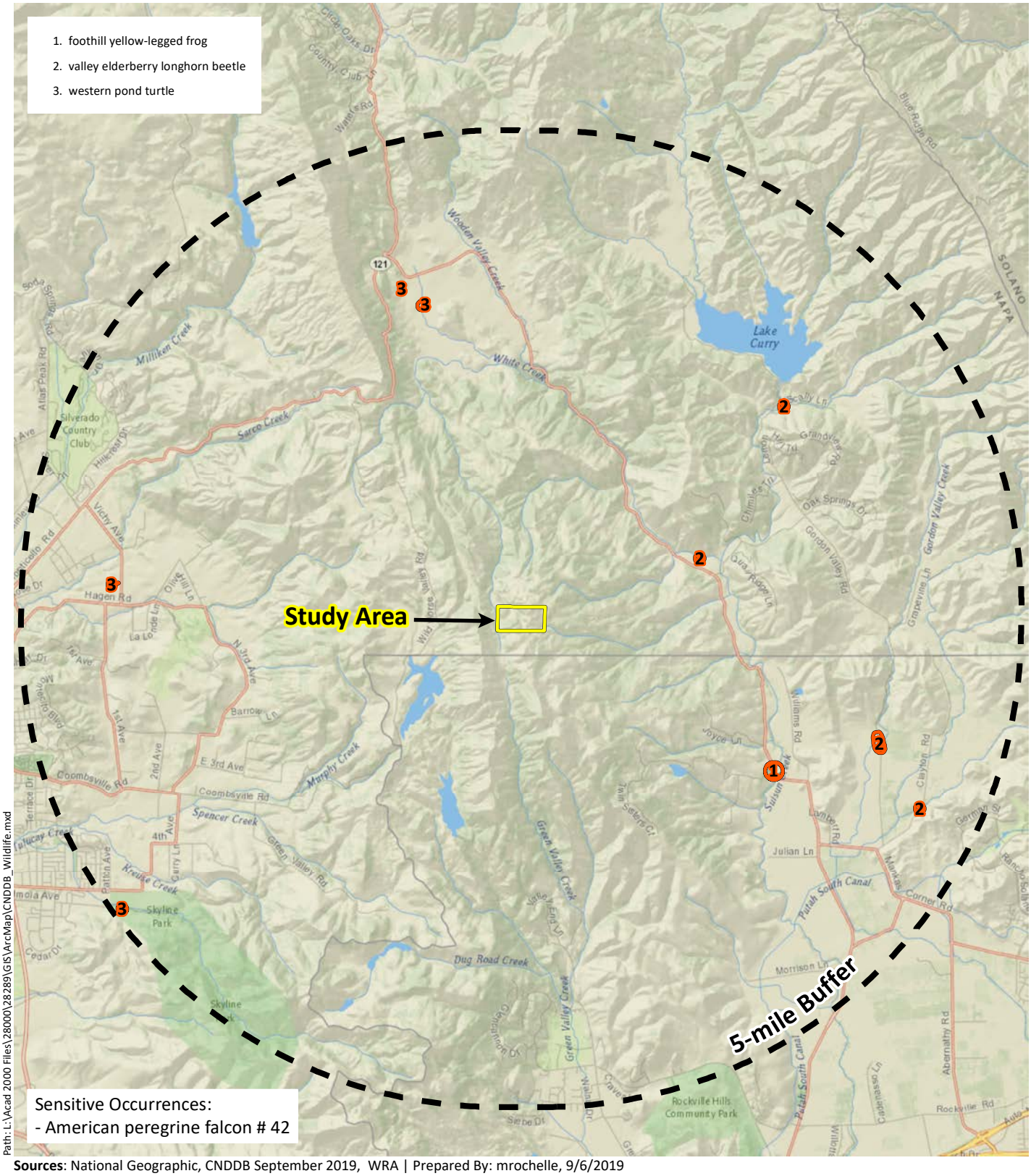
Figure A-3. Special-Status Plant Species Documented within 5-miles of the Study Area

Lyons Property
Napa County, California

0 1 2 Miles

N

wra
ENVIRONMENTAL CONSULTANTS



Sources: National Geographic, CNDDB September 2019, WRA | Prepared By: mrochelle, 9/6/2019

Figure A-4. Special-Status Wildlife Species Documented within 5-miles of the Study Area

Lyons Property
Napa County, California

0 1 2 Miles

N

ENVIRONMENTAL CONSULTANTS

Appendix B

Species Observed in the Study Area

Table B-1. Plant species observed in the Study Area, April 11, June 20, July 31, 2019

Scientific Name	Common Name	Origin	Form	Rarity Status	CAL-IPC Status	Wetland Status (AW 2016)
Acer macrophyllum	Bigleaf maple	native	tree	-	-	FAC
Achillea millefolium	Yarrow	native	perennial herb	-	-	FACU
Acmispon parviflorus	Hill lotus	native	annual herb	-	-	-
Aesculus californica	Buckeye	native	tree	-	-	-
Amsinckia intermedia	Common fiddleneck	native	annual herb	-	-	-
Amsinckia menziesii	Fiddleneck	native	annual herb	-	-	-
Anaphalis margaritacea	Pearly everlasting	native	perennial herb	-	-	FACU
Apocynum androsaemifolium	Spreading dogbane	native	perennial herb	-	-	UPL
Arbutus menziesii	Madrone	native	tree	-	-	-
Arctostaphylos manzanita ssp. *manzanita*	Common manzanita	native	shrub	-	-	-
Artemisia douglasiana	California mugwort	native	perennial herb	-	-	FAC
Asclepias latifolia	Broadleaf milkweed	native	shrub	-	-	-
Avena barbata	Slim oat	non-native (invasive)	annual, perennial grass	-	Moderate	-
Baccharis pilularis ssp. *consanguinea*	Coyote brush	native	shrub	-	-	-
Brassica nigra	Black mustard	non-native (invasive)	annual herb	-	Moderate	-
Brodiaea elegans ssp. *elegans*	Harvest brodiaea	native	perennial herb	-	-	FACU
Bromus carinatus var. *carinatus*	California brome	native	perennial grass	-	-	-
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
Bromus hordeaceus	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU
Calochortus amabilis	Golden fairy lantern	native	perennial herb	-	-	-
Calystegia occidentalis ssp. *occidentalis*	Modoc morning glory	native	perennial herb	-	-	-
Calystegia purpurata ssp. *purpurata*	Smooth western morning glory	native	perennial herb	-	-	-
Cardamine californica	Bitter cress	native	perennial herb	-	-	-
Cardamine hirsuta	Hairy bitter cress	non-native	annual herb	-	-	FACU
Cardamine oligosperma	Idaho bittercress	native	annual, perennial herb	-	-	FAC

Scientific Name	Common Name	Origin	Form	Rarity Status	CAL-IPC Status	Wetland Status (AW 2016)
Carduus pycnocephalus ssp. *pycnocephalus*	Italian thistle	non-native (invasive)	annual herb	-	Moderate	-
Castilleja attenuata	Narrow leaved owl's clover	native	annual herb	-	-	-
Castilleja exserta	Owl's clover	native	annual herb	-	-	-
Centaurea solstitialis	Yellow starthistle	non-native (invasive)	annual herb	-	High	-
Cerastium glomeratum	Large mouse ears	non-native	annual herb	-	-	UPL
Chlorogalum pomeridianum	Amole	native	perennial herb	-	-	-
Clarkia affinis	Chaparral fairyfan	native	annual herb	-	-	-
Clarkia purpurea ssp. *quadrivulnera*	Purple clarkia	native	annual herb	-	-	-
Claytonia parviflora	Narrow leaved miner's lettuce	native	annual herb	-	-	FACU
Claytonia perfoliata ssp. *perfoliata*	Miner's lettuce	native	annual herb	-	-	FAC
Collinsia heterophylla var. *heterophylla*	Purple chinese houses	native	annual herb	-	-	-
Collinsia sparsiflora var. *sparsiflora*	Few flowered collinsia	native	annual herb	-	-	-
Croton setiger	Turkey-mullein	native	perennial herb	-	-	-
Cynosurus echinatus	Dogtail grass	non-native (invasive)	annual grass	-	Moderate	-
Cyperus eragrostis	Tall cyperus	native	perennial grasslike herb	-	-	FACW
Dittrichia graveolens	Stinkwort	non-native (invasive)	annual herb	-	Moderate	-
Elymus caput-medusae	Medusa head	non-native (invasive)	annual grass	-	High	-
Elymus glaucus ssp. *glaucus*	Blue wild rye	native	perennial grass	-	-	FACU
Elymus multisetus	Big squirreltail grass	native	perennial grass	-	-	-
Erigeron foliosus	Leafy daisy	native	perennial herb	-	-	-
Eriophyllum lanatum var. *arachnoideum*	Wooly sunflower	native	perennial herb	-	-	-
Erodium cicutarium	Red stemmed filaree	non-native (invasive)	annual herb	-	Limited	-
Erysimum capitatum var. *capitatum*	Sanddune wallflower	native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status	CAL-IPC Status	Wetland Status (AW 2016)
Erythranthe guttata	Seep monkeyflower	native	perennial herb (rhizomatous)	-	-	OBL
Eschscholzia californica	California poppy	native	annual, perennial herb	-	-	-
Eurybia radulina	Roughleaf aster	native	perennial herb	-	-	-
Festuca bromoides	Brome fescue	non-native	annual grass	-	-	FACU
Festuca californica	California fescue	native	perennial grass	-	-	FACU
Fragaria vesca	Wild strawberry	native	perennial herb	-	-	UPL
Frangula californica ssp. *californica*	California coffeeberry	native	shrub	-	-	-
Galium aparine	Cleavers	native	annual herb	-	-	FACU
Galium bolanderi	Bolander's bedstraw	native	perennial herb	-	-	-
Galium californicum	California bedstraw	native	perennial herb	-	-	-
Galium parisiense	Wall bedstraw	non-native	annual herb	-	-	UPL
Geranium molle	Crane's bill geranium	non-native	annual, perennial herb	-	-	-
Geranium robertianum	Robert's geranium	non-native	annual herb	-	-	FACU
Grindelia hirsutula	Gumweed	native	perennial herb	-	-	FACW
Helianthella californica var. *californica*	California helianthella	native	perennial herb	-	-	-
Hemizonella minima	Opposite leaved tarweed	native	annual herb	-	-	-
Heteromeles arbutifolia	Toyon	native	shrub	-	-	-
Hordeum murinum	Foxtail barley	non-native (invasive)	annual grass	-	Moderate	FACU
Hypericum concinnum	Gold wire	native	perennial herb	-	-	-
Hypericum perforatum ssp. *perforatum*	Klamathweed	non-native	perennial herb	-	Moderate	FACU
Hypochaeris radicata	Hairy cats ear	non-native (invasive)	perennial herb	-	Moderate	FACU
Iris macrosiphon	Ground iris	native	perennial herb	-	-	-
Juncus patens	Common rush	native	perennial grasslike herb	-	-	FACW
Juncus tenuis	Slender rush	native	perennial grasslike herb	-	-	FACW
Lactuca serriola	Prickly lettuce	non-native	annual herb	-	-	FACU

Scientific Name	Common Name	Origin	Form	Rarity Status	CAL-IPC Status	Wetland Status (AW 2016)
Lagophylla ramosissima	Common hareleaf	native	annual herb	-	-	-
Lathyrus vestitus	Common pacific pea	native	perennial herb	-	-	-
Leptosiphon parviflorus	Variable linanthus	native	annual herb	-	-	-
Logfia gallica	Narrowleaf cottonrose	non-native	annual herb	-	-	-
Lomatium caruifolium var. *caruifolium*	Caraway leaved lomatium	native	perennial herb	-	-	FACW
Lomatium repostum	Napa lomatium	native	perennial herb	Rank 4.3	-	-
Lonicera hispidula	Pink honeysuckle	native	vine, shrub	-	-	FACU
Lupinus adsurgens	Drew's silky lupine	native	perennial herb	-	-	-
Lupinus bicolor	Miniature lupine	native	annual, perennial herb	-	-	-
Lupinus nanus	Sky lupine	native	annual herb	-	-	-
Luzula comosa var. *comosa*	Hairy wood rush	native	perennial grasslike herb	-	-	FAC
Lythrum hyssopifolia	Hyssop loosestrife	non-native (invasive)	annual, perennial herb	-	Limited	OBL
Madia gracilis	Gumweed	native	annual herb	-	-	-
Malva neglecta	Dwarf mallow	non-native	annual, perennial herb	-	-	-
Medicago polymorpha	California burclover	non-native (invasive)	annual herb	-	Limited	FACU
Micropus californicus	Q tips	native	annual herb	-	-	FACU
Nasturtium officinale	Watercress	native	perennial herb (aquatic)	-	-	OBL
Nemophila parviflora var. *parviflora*	Small flowered nemophila	native	annual herb	-	-	-
Pedicularis densiflora	Indian warrior	native	perennial herb	-	-	-
Perideridia kelloggii	Kellogg's yampah	native	perennial herb	-	-	-
Plagiobothrys nothofulvus	Rusty haired popcorn flower	native	annual herb	-	-	FAC
Polypodium californicum	California polypody	native	fern	-	-	-
Primula hendersonii	Mosquito bill	native	perennial herb	-	-	-
Prunus cerasifera	Cherry plum	non-native (invasive)	tree	-	Limited	-
Pseudognaphalium beneolens	Cudweed	native	perennial herb	-	-	-

Scientific Name	Common Name	Origin	Form	Rarity Status	CAL-IPC Status	Wetland Status (AW 2016)
Pseudognaphalium californicum	Ladies' tobacco	native	annual, perennial herb	-	-	-
Pteridium aquilinum var. *pubescens*	Western bracken fern	native	fern	-	-	FACU
Quercus agrifolia var. *agrifolia*	Coast live oak	native	tree	-	-	-
Quercus kelloggii	California black oak	native	tree	-	-	-
Quercus lobata	Valley oak	native	tree	-	-	FACU
Quercus wislizeni	Interior live oak	native	tree, shrub	-	-	-
Ranunculus californicus var. *californicus*	Common buttercup	native	perennial herb	-	-	FACU
Ranunculus hebecarpus	Pubescent fruited buttercup	native	annual herb	-	-	-
Ranunculus muricatus	Buttercup	non-native	annual, perennial herb	-	-	FACW
Ranunculus occidentalis	Western buttercup	native	perennial herb	-	-	FAC
Rhagadiolus stellatus	Endive daisy	non-native	annual herb	-	-	-
Rosa californica	California wild rose	native	shrub	-	-	FAC
Rubus armeniacus	Himalayan blackberry	non-native (invasive)	shrub	-	High	FAC
Rumex acetosella	Sheep sorrel	non-native (invasive)	perennial herb	-	Moderate	FACU
Rumex crispus	Curly dock	non-native (invasive)	perennial herb	-	Limited	FAC
Sambucus nigra ssp. *caerulea*	Blue elderberry	native	shrub	-	-	FAC
Sanicula bipinnatifida	Purple sanicle	native	perennial herb	-	-	-
Sanicula crassicaulis	Pacific sanicle	native	perennial herb	-	-	-
Scandix pecten-veneris	Shepherd's needle	non-native	annual herb, vine	-	-	-
Scrophularia californica	California bee plant	native	perennial herb	-	-	FAC
Senecio vulgaris	Common groundsel	non-native	annual herb	-	-	FACU
Silene gallica	Common catchfly	non-native	annual herb	-	-	-
Silybum marianum	Milk thistle	non-native (invasive)	annual, perennial herb	-	Limited	-
Sisyrinchium bellum	Blue eyed grass	native	perennial herb	-	-	FACW
Sonchus asper ssp. *asper*	Prickly sow thistle	non-native	annual herb	-	-	FAC
Sonchus oleraceus	Common sow thistle	non-native	annual herb	-	-	UPL

Scientific Name	Common Name	Origin	Form	Rarity Status	CAL-IPC Status	Wetland Status (AW 2016)
Spergularia rubra	Purple sand spurry	non-native	annual, perennial herb	-	-	FAC
Stachys rigida var. *quercetorum*	Rough hedgenettle	native	perennial herb	-	-	FACW
Stellaria media	Chickweed	non-native	annual herb	-	-	FACU
Stephanomeria elata	Santa barbara stephanomeria	native	annual herb	-	-	-
Symphoricarpos albus var. *laevigatus*	Common snowberry	native	shrub	-	-	FACU
Symphyotrichum chilense	Pacific aster	native	perennial herb	-	-	FAC
Torilis arvensis	Field hedge parsley	non-native (invasive)	annual herb	-	Moderate	-
Toxicodendron diversilobum	Poison oak	native	vine, shrub	-	-	FACU
Tragopogon porrifolius	Salsify	non-native	perennial herb	-	-	-
Trifolium depauperatum var. *truncatum*	Dwarf sack clover	native	annual herb	-	-	FAC
Trifolium subterraneum	Subterranean clover	non-native	annual herb	-	-	-
Trifolium willdenovii	Tomcat clover	native	annual herb	-	-	FACW
Umbellularia californica	California bay	native	tree	-	-	FAC
Urtica dioica	Stinging nettle	native	perennial herb	-	-	FAC
Vicia sativa ssp. *nigra*	Smaller common vetch	non-native	annual herb, vine	-	-	FACU
Wyethia angustifolia	Narrow leaved mule ears	native	perennial herb	-	-	FACU
Wyethia glabra	Smooth mule ears	native	perennial herb	-	-	-

All species identified using the *Jepson Manual, 2nd Edition* (Baldwin et al. 2012) and *The Jepson Flora Project (eFlora 2019).* Nomenclature follows *The Jepson Flora Project* (eFlora 2019) unless otherwise noted

Sp.: “species”, intended to indicate that the observer was confident in the identity of the genus but uncertain which species
Cf.: 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 2019a)

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extirpated in California and either rare or extinct elsewhere
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere
Rank 2A:	Plants presumed extirpated in California, but more common elsewhere
Rank 2B:	Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3:	Plants about which we need more information – a review list
Rank 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 (Lichvar et al. 2016)

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 the Study Area, April 11, 2019

Scientific Name	Common Name
Birds	
Aphelocoma californica	western scrub-jay
Corvus corax	common raven
Cyanocitta stelleri	Steller's jay
Junco hyemalis	dark-eyed junco
Melanerpes formicivorus	acorn woodpecker
Thryomanes bewickii	Bewick’s wren
Zenaida macroura	mourning dove
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 CDFW BIOS database (CDFW 2019a), USFWS IPaC Report (USFWS 2019), and CNPS Electronic Inventory (CNPS 2019a) searches. For plants, the Yountville, Capell Valley, Mt. Vaca, Napa, Mt. George, Fairfield North, Cuttings Wharf, Cordelia, and Fairfield South 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				
Agrostis hendersonii Henderson's bentgrass	Rank 3	Valley and foothill grassland, vernal pools; situated in mesic grasslands. Elevation range: 225 – 995 feet. Blooms: April – June.	**Moderate Potential.** The seasonal wetland may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Allium peninsulare var. *franciscanum* Franciscan onion	Rank 1B	Cismontane woodland, valley and foothill grassland; on clay substrate, often derived from serpentine. Elevation range 170 – 985 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain serpentine clay substrate to support this species.	**Not Present.** No further actions are recommended for this species.
Amorpha californica var. *napensis* Napa false indigo	Rank 1B	Openings in broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 395 – 6560 feet. Blooms: April – July.	**Moderate Potential.** The Study Area contains oak woodland that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Antirrhinum virga twig-like snapdragon	Rank 4	Chaparral, lower montane coniferous forest; located on rocky openings often derived from serpentine. Elevation range: 325 – 6550 feet. Blooms: June – July.	**No Potential.** The Study Area does not contain serpentine clay substrate 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
Arabis modesta modest rockcress	Rank 4	Chaparral, lower montane coniferous forest; located on steep slopes, cliffs, and shaded canyons underlain by deep soils. Elevation range: 390 – 2600 feet. Blooms: March – July.	**No Potential.** The Study Area does not contain steep slopes, cliffs, or shaded canyons to support this species.	**Not Present.** No further actions are recommended for this species.
Astragalus clevelandii Cleveland's milk-vetch	Rank 4	Chaparral, cismontane woodland, riparian forest; located on serpentine seeps. Elevation range: 650 – 4875 feet. Blooms: June – September.	**No Potential.** The Study Area does not contain serpentine seeps.	**Not Present.** No further actions are recommended for this species.
Astragalus tener var. *tener* alkali milk-vetch	Rank 1B	Playas, vernal pools, valley and foothill grassland; located in vernal pools and similar wetlands/mesic areas on alkaline substrate. Elevation range: 0 – 195 feet. Blooms: March – June.	**No Potential.** The Study Area does not contain vernal pools or similar wetland types underlain by alkaline substrate.	**Not Present.** No further actions are recommended for this species.
Atriplex persistens vernal pool smallscale	Rank 1B	Vernal pools; located on alkaline substrates. Elevation range: 30 – 375 feet. Blooms: June – October.	**No Potential.** The Study Area does not contain vernal pools or similar wetland types underlain by alkaline substrate.	**Not Present.** No further actions are recommended for this species.
Balsamorhiza macrolepis big-scale balsamroot	Rank 1B	Valley and foothill grassland, cismontane woodland; situated on rocky substrates, typically derived from metavolcanics, sometimes on serpentine substrate. Elevation range: 295 – 3100 feet. Blooms: March – June.	**Moderate Potential.** The Study Area contains woodland and grasslands underlain by gravelly volcanic substrate.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Brodiaea leptandra narrow-anthered brodiaea	Rank 1B	Broadleaf upland forest, chaparral, lower montane coniferous forest; situated on gravelly soils derived from volcanics, particularly rhyolitic tuff. Elevation range: 360 – 3000 feet. Blooms: May – July.	**Moderate Potential.** The Study Area contains volcanic substrate that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Calandrinia breweri Brewer's Calandrinia	Rank 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 chaparral or scrubby areas that have recently burned.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Calochortus pulchellus Mt. Diablo fairy lantern	Rank 1B	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland; located on wooded and brush slopes. Elevation range: 90 – 2730 feet. Blooms: April – June.	**Unlikely.** Although the Study Area contains woodlands, this species is confined to the Mt. Diablo area.	**Not Present.** No further actions are recommended for this species.
Calycadenia micrantha small-flowered Calycadenia	Rank 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 grassland underlain by volcanic substrate to support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Carex lyngbyei Lyngbye's sedge	Rank 2B	Marshes and swamps; brackish to freshwater. Elevation range: 0 – 35 feet. Blooms: April – 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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Castilleja affinis ssp. *neglecta* Tiburon paintbrush	FE; ST; Rank 1B	Valley and foothill grassland; located in grassy, open areas and rock outcrops underlain by serpentine substrate. Elevation range: 195 – 1300 feet. Blooms: April – June.	**No Potential.** The Study Area does contain serpentine substrate to support this serpentine endemic.	**Not Present.** No further actions are recommended for this species.
Castilleja ambigua ssp. *ambigua* johnny-nip	Rank 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.	**Moderate Potential.** The Study Area contains seasonal wetland and mesic grassland areas underlain by volcanic soils.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Castilleja ambigua var. *meadii* mead's owl's-clover	Rank 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 seasonal wetland and mesic grassland areas underlain by volcanic soils.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Ceanothus purpureus holly-leaved ceanothus	Rank 1B	Chaparral, cismontane woodland; located on rocky, volcanic slopes. Elevation range: 395 – 3000 feet. Blooms: February – June.	**High Potential.** The Study Area contains chaparral or shrubby areas underlain by volcanic soils that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Centromadia parryi ssp. *parryi* pappose tarplant	Rank 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 support alkali grasslands or vernal pools.	**Not Present.** No further actions are recommended for this species.
Centromadia parryi ssp. *rudis* Parry's rough tarplant	Rank 4	Valley and foothill grassland, vernal pools; situated on vernally mesic sites underlain by alkaline soils, frequently seeps, swales, and roadsides. Elevation range: 0 – 330 feet. Blooms: May – October.	**No Potential.** The Study Area does not support alkali grasslands or vernal pools.	**Not Present.** No further actions are recommended for this species.
Chloropyron molle ssp. *molle* soft bird's-beak	FE, SR, Rank 1B	Coastal brackish or salt marshes; located in low-growing saltgrass and picklweed mats. Elevation range: 0 – 10 feet. Blooms: June – November.	**No Potential.** The Study Area does not contain coastal brackish marsh to support this species.	**Not Present.** No further actions are recommended for this species.
Cicuta maculata var. *bolanderi* Bolander's water-hemlock	Rank 2B	Coastal freshwater and brackish marshes. Elevation range: 0 – 650 feet. Blooms: July – September.	**No Potential.** The Study Area does not contain coastal brackish or freshwater marsh to support this species.	**Not Present.** No further actions are recommended for this species.
Cirsium hydrophilum var. *hydrophilum* Suisun thistle	FE; Rank 1B	Salt marshes; associated with bulrushes (*Scheonoplectus* spp.) and salt grass (*Distichlis spicata*), typically located near channels and ditches. Elevation range: 0 – 5 feet. Blooms: June – September.	**No Potential.** The Study Area does not contain coastal brackish marsh 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	Rank 4	Chaparral; located in openings and situated on substrates often derived from serpentine. Elevation range: 210 – 2115 feet. Blooms: April – July.	**No Potential.** The Study Area does not contain serpentine soils to support this species.	**Not Present.** No further actions are recommended for this species.
Collomia diversifolia serpentine collomia	Rank 4	Chaparral, cismontane woodland; situated on rocky to gravelly serpentine substrates. Elevation range: 975 – 1950 feet. Blooms: May – June.	**No Potential.** The Study Area does not contain serpentine soils to support this species.	**Not Present.** No further actions are recommended for this species.
Cryptantha dissita serpentine cryptantha	Rank 1B	Chaparral; located on serpentine outcrops. Elevation range: 1280 – 1885 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine soils to support this species.	**Not Present.** No further actions are recommended for this species.
Downingia pusilla dwarf downingia	Rank 2B	Valley and foothill grassland, vernal pools; located in mesic grassy sites, pool and lake margins. Elevation range: 3 – 1450 feet. Blooms: March – May.	**Unlikely.** Although the Study Area contains seasonal wetlands, vernal pools are lacking and the density of non-native grasses would preclude this diminutive annual forb.	**Not Present.** No further actions are recommended for this species.
Eleocharis parvula small spikerush	Rank 4	Marshes and swamps. Elevation range: 5 – 9815 feet. Blooms: sometimes April, June – August, sometimes September.	**No Potential.** The Study Area does not contain freshwater marsh or similar 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
Erigeron biolettii Streamside daisy	Rank 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 rocky sites in woodland habitat that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Erigeron greenei Greene's narrow-leaved daisy	Rank 1B	Chaparral; located on volcanic or serpentine substrate. Elevation range: 260 – 3270 feet. Blooms: May – September.	**Moderate Potential.** The Study Area contains volcanic rocky areas in shrubby habitat and chaparral that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Eriogonum luteolum var. *caninum* Tiburon buckwheat	Rank 1B	Chaparral, valley and foothill grassland, cismontane woodland, coastal prairie; located on sandy or gravelly substrate derived from serpentine. Elevation range: 0 – 2275 feet. Blooms: May – September.	**No Potential.** The Study Area does not contain serpentine soils to support this species.	**Not Present.** No further actions are recommended for this species.
Eriogonum truncatum Mt. Diablo buckwheat	Rank 1B	Chaparral, coastal scrub, valley and foothill grassland; located on dry, exposed sandy substrates. Elevation range: 10 – 1140 feet. Blooms: April – December.	**Unlikely.** The Study Area does not contain sandy substrate to support this species.	**Not Present.** No further actions are recommended for this species.
Eryngium jepsonii Jepson's coyote thistle	Rank 1B	Valley and foothill grassland, vernal pools; situated on clay substrate that is vernally saturated. Elevation range: 10 – 975 feet. Blooms: April – August.	**Unlikely.** Although the Study Area contains seasonal wetlands, vernal pools are lacking.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Extriplex joaquiniana San Joaquin spearscale	Rank 1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland; located on alkaline substrate. Elevation range: 0 – 2715 feet. Blooms: April – October.	**No Potential.** The Study Area does not contain alkali grasslands or other alkali habitats to support this species.	**Not Present.** No further actions are recommended for this species.
Gilia capitata ssp. *tomentosa* woolly-headed gilia	Ran 1B	Coastal bluff scrub; rocky outcrops on the coast. Elevation range: 15 – 155 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain coastal bluff scrub to support this species.	**Not Present.** No further actions are recommended for this species.
Harmonia nutans nodding harmonia	Rank 4	Chaparral, cismontane woodland; located on rocky to gravelly substrates derived from volcanics. Elevation range: 240 – 3170 feet. Blooms: March – May.	**Moderate Potential.** The Study Area contains grassland and woodland habitat underlain by volcanic substrate that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Helianthella castanea Diablo helianthella	Rank 1B	Broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland; typically located in oak woodland/chaparral ecotone underlain by rocky, azonal substrates, often in partial shade. Elevation range: 195 – 4225 feet. Blooms: March – June.	**Moderate Potential.** The Study Area contains rocky woodlands that may support this species.	**Not Present.** No further actions are recommended for this species.
Hesperolinon bicarpellatum Two-carpellate western flax	Rank 1B	Chaparral; located on serpentine substrate. Elevation range: 195 – 3270 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain serpentine 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 breweri Brewer's western flax	Rank 1B	Chaparral, cismontane woodland, valley and foothill grassland; typically located in serpentine grassland and serpentine chaparral underlain by rocky substrates. Elevation range: 95 – 2925 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain serpentine soils to support this species.	**Not Present.** No further actions are recommended for this species.
Hesperolinon sharsmithiae Sharsmith's western flax	Rank 1B	Chaparral; located on serpentine substrate. Elevation range: 875 – 975 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain serpentine soils to support this species.	**Not Present.** No further actions are recommended for this species.
Iris longipetala coast iris	Rank 4	Coastal prairie, lower montane coniferous forest, meadows and seeps; located on mesic sites. Elevation range: 0 – 1950 feet. Blooms: March – May.	**Unlikely.** The Study Area does not contain coastal prairie or coastal forest habitats to support this species.	**Not Present.** No further actions are recommended for this species.
Juglans hindsii North California black walnut	Rank 1B	Riparian forest, riparian woodland. Only native stands are considered special-status by CNPS and CDFW. Elevation range: 0 – 1430 feet. Blooms: April – May.	**Unlikely.** The Study Area does not contain extensive riparian habitat or perennial stream(s) to support this species.	**Not Present.** No further actions are recommended for this species.
Lasthenia conjugens Contra Costa goldfields	FE; Rank 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 alkaline soils underlying seasonal wetlands or vernal pools.	**Not Present.** No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Lasthenia ferrisiae Ferris' goldfields	Rank 4	Vernal pool; wet saline flats and pools underlain by alkali clay substrates. Elevation range: 65 – 2275 feet. Blooms: February – May.	**No Potential.** The Study Area does not contain alkaline soils underlying seasonal wetlands or vernal pools.	**Not Present.** No further actions are recommended for this species.
Lathyrus jepsonii var. *jepsonii* Delta tule pea	Rank 1B	Freshwater and brackish marshes; typically located near or on slough margins, closely associated with cattail, tules, bulrushes, Baltic rush, California rose, and Suisun Marsh aster; known widely throughout Suisun Bay and Delta regions. Elevation range: 0 – 15 feet. Blooms: May – July, sometimes September.	**No Potential.** The Study Area does not contain coastal brackish marsh necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Legenere limosa legenere	Rank 1B	Vernal pools; typically located in the deepest portions of pools. Elevation range: 3 – 2860 feet. Blooms: April – June.	**Unlikely.** Although the Study Area contains seasonal wetlands, vernal pools are lacking.	**Not Present.** No further actions are recommended for this species.
Leptosiphon jepsonii Jepson's leptosiphon	Rank 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 woodland underlain by volcanic soils that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Leptosiphon latisectus broad-lobed leptosiphon	Rank 4	Broadleaf upland forest, cismontane woodland; frequently situated on serpentine substrate. Elevation range: 550 – 4875 feet. Blooms: April – June.	**Unlikely.** The Study Area does not contain serpentine substrate 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
Lessingia hololeuca woolly-headed lessingia	Rank 3, LR	Broadleaf upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland; typically on clay, serpentine substrate. Elevation range: 3 – 2885 feet. Blooms: April – June.	**Unlikely.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further actions are recommended for this species.
Lilaeopsis masonii Mason's Lilaeopsis	SR, Rank 1B	Freshwater and brackish coastal marshes, riparian scrub; located on channel banks in the splash zone on bare mud substrate. Elevation range: 0 – 35 feet. Blooms: April – November.	**No Potential.** The Study Area does not contain coastal brackish marsh necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Lilium rubescens redwood lily	Rank 4, LR	Broadleaf upland forest, chaparral, lower montane coniferous forest, upper montane coniferous forest, North Coast coniferous forest; often located on serpentine substrates, and along roadcuts. Elevation range: 95 – 6210 feet. Blooms: April – September.	**Unlikely.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further actions are recommended for this species.
Limnanthes vinculans Sebastopol meadowfoam	FE, SE, Rank 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 pool habitat underlain by clay soils necessary 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
Lomatium repostum Napa Lomatium	Rank 4	Chaparral, cismontane woodland; located on serpentine or volcanic substrates. Elevation range: 290 – 2700 feet. Blooms: March – June.	**Moderate Potential.** The Study Area contains woodland and shrubby areas underlain by volcanic substrates that may support this species.	**Present.** Twenty-four individuals of this species were observed during the protocol-level survey. The project should be analyzed to determine if it would pose a significant impact to this species.
Micropus amphibolus Mt. Diablo cottonweed	Rank 3	Broadleaf upland forest, chaparral, cismontane woodland, valley and foothill grassland; typically on thin, rocky soils. Elevation range: 145 – 2710 feet. Blooms: March – May.	**Moderate Potential.** The Study Area contains thin, rocky soils that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Monardella viridis green monardella	Rank 4	Broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 325 – 3285 feet. Blooms: June – September.	**Moderate Potential.** The Study Area contains shrubby areas that may support this species.	**Present.** Fifteen individuals of this species were observed during the protocol-level survey. The project should be analyzed to determine if it would pose a significant impact to this species.
Navarretia leucocephala ssp. *pauciflora* few-flowered navarretia	FE; ST; Rank 1B	Vernal pools; located on volcanic ash flow and volcanic substrate pools. Elevation range: 1300 – 2780 feet. Blooms: May – June.	**Unlikely.** Although the Study Area contains seasonal wetlands, vernal pools are lacking and the density of non-native grasses would preclude this diminutive annual forb.	**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	Rank 1B	Chaparral; crevices in rock outcrops and talus slopes on ridgelines and mountain peaks. Elevation range: 2295 – 4495 feet. Blooms: April – August.	**No Potential.** The Study Area does not contain large rock outcrops, nor is it located on steep ridgelines or mountain peaks.	**Not Present.** No further actions are recommended for this species.
Polygonum marinense Marin knotweed	Rank 3	Salt and brackish coastal marshes. Elevation range: 0 – 35 feet. Blooms: sometimes April, May – August, sometimes October.	**No Potential.** The Study Area does not contain coastal brackish marsh necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Puccinellia simplex California alkali grass	Rank 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 alkaline soils underlying seasonal wetlands or vernal pools.	**Not Present.** No further actions are recommended for this species.
Ranunculus lobbii Lobb's buttercup	Rank 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.	**Unlikely.** Although the Study Area contains seasonal wetlands, vernal pools are lacking and areas of slow-moving inundated waters.	**Not Present.** No further actions are recommended for this species.
Rhynchospora californica California beaked-rush	Rank 1B	Bogs and fens, lower montane coniferous forest, meadows and seeps, freshwater marshes and swamps. Elevation range: 145 – 3315 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain perennial wetlands necessary 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
Sagittaria sanfordii Sanford's arrowhead	Rank 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 necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Senecio clevelandii var. *clevelandii* Cleveland's ragwort	Rank 4	Chaparral; situated on serpentine seeps. Elevation range: 1185 – 2925 feet. Blooms: June – July.	**No Potential.** The Study Area does not contain serpentine seep habitat necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Sidalcea hickmanii ssp. *napensis* Napa checkerbloom	Rank 1B	Chaparral; located on rhyolitic substrates. Elevation range: 1345 – 1985 feet. Blooms: April – June.	**Unlikely.** The Study Area does not contain rhyolitic soils to support this species.	**Not Present.** No further actions are recommended for this species.
Sidalcea hickmanii ssp. *viridis* Marin checkerbloom	Rank 1B	Chaparral; located on serpentine or volcanic substrate, often located in burns. Elevation range: 160 – 1400 feet. Blooms: May – June.	**Moderate Potential.** The Study Area contains shrubby areas underlain by volcanic soils that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Sidalcea keckii Keck's checkerbloom	FE; Rank 1B	Cismontane woodland, valley and foothill grassland; located in grassy areas in blue oak woodland underlain by serpentine substrate. Elevation range: 240 – 2115 feet. Blooms: April – June.	**No Potential.** The Study Area does not contain serpentine substrate necessary 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	Rank 1B	Meadow and seep, marshes and swamps; situated on alkali substrate. Elevation range: 0 – 830 feet. Blooms: February – March.	**No Potential.** The Study Area does not contain alkaline soils underlying seasonal wetlands or vernal pools.	**Not Present.** No further actions are recommended for this species.
Streptanthus hesperidis green jewelflower	Rank 1B	Chaparral, cismontane woodland; located in openings in brushy/wooded sites on rocky serpentine substrate. Elevation range: 420 – 2470 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain serpentine substrate to support this species.	**Not Present.** No further actions are recommended for this species.
Stuckenia filiformis ssp. *alpina* slender-leaved pondweed	Rank 2B	Marshes and swamps; located in shallow freshwater. Elevation range: 975 – 6990 feet. Blooms: May – July.	**No Potential.** The Study Area does not contain perennial wetlands necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Symphyotrichum lentum Suisun Marsh aster	Rank 1B	Freshwater and brackish marshes and swamps; typically located on slough margins and edges, closely associated with cattail, tules, bulrushes, California rose, and Delta Tule pea. Elevation range: 0 – 10 feet. Blooms: May – November.	**No Potential.** The Study Area does not contain coastal brackish marsh necessary to support this species.	**Not Present.** No further actions are recommended for this species.
Trichostema ruygtii Napa bluecurls	Rank 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 open rocky volcanic areas that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Trifolium amoenum showy rancheria clover	FE, Rank 1B	Valley and foothill grassland, coastal bluff scrub, swales, open sunny sites, sometimes on serpentine. 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 the protocol-level survey. No further actions are recommended for this species.
Trifolium hydrophilum saline clover	Rank 1B	Marshes and swamps, mesic portions of alkali vernal pools; mesic, alkali valley and foothill grassland. Elevation range: 0 – 985 feet. Blooms: April – June.	**Unlikely.** Although the Study Area contains seasonal wetlands, vernal pools are lacking and the density of non-native grasses would preclude this diminutive annual forb.	**Not Present.** No further actions are recommended for this species.
Triteleia lugens dark-mouthed triteleia	Rank 4, LR	Broadleaf upland forest, chaparral, lower montane coniferous forest, coastal scrub. Elevation range: 325 – 3250 feet. Blooms: April – June.	**Moderate Potential.** The Study Area contains shrubby areas that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. No further actions are recommended for this species.
Viburnum ellipticum oval-leaved viburnum	Rank 2B	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation range: 705 – 4595 feet. Blooms: May – June.	**Moderate Potential.** The Study Area contains shrubby areas and woodland habitat that may support this species.	**Not Observed.** This species was not observed during the protocol-level survey. 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.** A targeted bat assessment found a small number of trees scheduled for removal that may support roosting by this species; there are several nearby occurrences in CNDDB (CDFW 2019).	**Presence Unknown.** Tree removal outside of maternity roosting season, or conduct pre-construction roosting survey. 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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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; the on-site barn appeared to be regularly used/occupied. CNDDB occurrences in Napa County are all located in the northern portion of the County (CDFW 2019a).	**Presumed Absent.** No further recommendations for this species.
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.	**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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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.	**Moderate Potential.** A targeted bat assessment found a small number of trees scheduled for removal that may support roosting by this species.	**Presence Unknown.** Tree removal outside of maternity roosting season, or conduct pre-construction roosting survey. 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.	**Unlikely.** The Study Area lacks caves, buildings or similar refugia and does not contain coniferous forest.	**Presumed Absent.** No further recommendations for this species.
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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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 provides grassland and woodland with some suitable habitat elements, but there are no occurrences within the eastern portion of Napa County and adjacent areas in other counties (CDFW 2019a).	**Presumed Absent.** No further recommendations for this species.
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 provide vegetated ponds or emergent marsh suitable for nesting.	**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.** Suitable grassland cover is relatively limited within most of the Study Area, and this species has not been documented in this portion of the County as per available sources (Smith 2003, eBird 2019).	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Aquila chrysaetos golden eagle	EPA, 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 or typical large trees for nesting; no large nest structures typical of this species were observed during the site visit. 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.
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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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.
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 2019).	**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 2019a).	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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 very small breeding population is restricted to the Napa Valley floor in association with the Napa River and baylands (CDFW 2019).	**Presumed Absent.** No further recommendations for this species.
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 areas within the Study Area are restricted in area as well as generally arid and relatively rocky; this species is not known to nest in this portion of Napa County as per Smith (2003). May forage or pass through the area during the non-breeding season.	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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.	**Unlikely.** The Study Area does not contain forest or woodland stands of the type typically used by this species.	**Presumed Absent.** No further recommendations for this species.
Coturnicops noveboracensis yellow rail	SSC	Summer resident in portions of the eastern Sierra Nevada, 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 contain any suitable marsh/wetland habitat for this species.	**Not Present.** No further recommendations for this species.
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).	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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 within the Study Area provides suitable nesting trees, and there are 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.
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.	**Unlikely.** No marsh vegetation is present within the Study Area.	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Haliaeetus leucocephalus bald eagle	EPA, 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 (2019a), 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 2019).	**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 this species has not been documented in this portion of the County as per available sources (Smith 2003, eBird 2019).	**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.	**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.	**Unlikely.** The Study Area and adjacent lands lack aquatic foraging habitat.	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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.	**Unlikely.** Grassland cover within the Study Area is restricted in area and relatively arid; this species has not been documented in this portion of the County as per available sources (Smith 2003, eBird 2019).	**Presumed Absent.** No further recommendations for this species.
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.	**Unlikely.** Typical mixed or coniferous forest habitat is not present, and this species' Napa County range is restricted to the forested, northwestern portion of the County (Smith 2003, CDFW 2019a).	**Presumed Absent.** No further recommendations for this species.
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.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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.
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 dense riparian thickets (e.g., dense willow cover) favored by this species for breeding.	**Presumed Absent.** No further recommendations for this species.
Spizella atrogularis black-chinned sparrow	LR	Summer resident. Typically occurs on arid, rocky slopes with mature brushy vegetation, e.g. mixed chaparral, and sagebrush.	**Unlikely.** The Study Area contains chaparral but this species has not been observed in the southern portion of Napa County (eBird 2019, Smith 2003).	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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.	**No Potential.** The Study Area does not contain conifer or mixed broadleaf-conifer forest nor is any present in the immediate vicinity.	**Not Present.** No further recommendations for this species.
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 does not provide vegetated ponds or emergent marsh 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 intermittent/ephemeral stream courses lack deeper perennial pools and other habitat elements. All Napa County CNDDB occurrences are located west of Napa Valley (CDFW 2019a).	**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 does not contain ponds or stream habitat suitable for occupation by this species.	**Presumed Absent.** No further recommendations for this species.
Rana boylii foothill yellow-legged frog	SC (T), 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.** Streams within the Study Area likely lack sufficient hydrology (duration, depth) to support this species. The nearest documented CNDDB occurrence is approximately 11 miles to the north, and is historic (2019a).	**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.** Aquatic features within the Study Area are restricted to seasonal wetlands and intermittent/ephemeral streams that have insufficient hydrology (depth, duration) to support breeding. The nearest occurrences in CNDDB are located greater than 7 miles to the north and south respectively (CDFW 2019a).	**Presumed Absent.** No further recommendations for this species.
Scaphiopus hammondii western spadefoot	SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Shallow temporary pools formed by winter rains are essential for breeding and egg-laying. Range within Napa County is extremely restricted.	**Unlikely.** The Study Area lacks vernal pools and similar temporary water features; in Napa County the known range is restricted to a very small area in its eastern portion.	**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 does not contain mesic forest habitat to support this species and is outside of its known range.	**Presumed Absent.** 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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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.
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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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.
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				
Bombus crotchii Crotch bumblebee	SC	Range largely restricted to California. Favors grassland and scrub habitats. Typical of bumble bees, nests are usually constructed underground. Visits a variety of plants.	**Unlikely.** As per the Xerces Society (2018), there are no known extant populations of this species in the San Francisco Bay area.	**Assumed Absent.** No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Bombus occidentalis western bumble bee	SC	Formerly common throughout much of western North America; populations from southern British Columbia to central California have nearly disappeared (Xerces 2015). Occurs in a wide variety of habitat types. Nests are constructed annually in pre-existing cavities, usually on the ground (e.g. mammal burrows). Many plant species are visited and pollinated.	**Unlikely.** As per the Xerces Society (2018), there are no known extant populations of this species in the San Francisco Bay area.	**Assumed Absent.** No further actions are recommended.
Branchinecta lynchi vernal pool fairy shrimp	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	Found in riparian and oak savannah where elderberry (*Sambucus* sp.), the host plant, is present.	**Unlikely.** Elderberry was not observed during the site visit; the nearest documented CNDDB occurrences are located greater than 1 mile to the east, at elevations below 550 feet (CDFW 2019a).	**Presumed Absent.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
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.** *Viola* was not observed within the Study Area during site visits; this species' limited known range with Napa County is restricted to the immediate vicinity of the Cordelia Hills, approximately 11 miles to the south (CDFW 2019a).	**Not Present.** No further recommendations for this species.
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.	**No Potential.** 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 2019a).	**Not Present.** No further recommendations for this species.

***Key to status codes:**

EPA	Bald and Golden Eagle Protection Act Species
FC	Federal Candidate for Listing
FE	Federal Endangered
FT	Federal Threatened
LR	Locally Rare as per Napa County Baseline Report
SC	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
Rank 1A	CNPS Rank 1A: Plants presumed extinct in California
Rank 1B	CNPS Rank 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2A	CNPS Rank 2A: Plants presumed extirpated in California, but more common elsewhere
Rank 2B	CNPS Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3	CNPS Rank 3: Plants about which CNPS needs more information (a review list)
Rank 4	CNPS Rank 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

Photo 1. Example of non-native grassland within the Study Area.

Photo 2. Example of coast live oak woodland within the Study Area.

Photo 3. Seasonal wetland located in the very northern portion of the Study Area associated with a stream.

Photo 4. The main stream within the Study Area.

Photo 5. Toyon chaparral within the Study Area.

Photo 6. Roadside wetland within the Study Area.

Photo 7. Leaves of the Napa lomatium observed in the toyon chaparral in the western portion of the Study Area.

Photo 8. The wetland in the southern portion of the Study Area, adjacent to driveway.

Appendix E

Tree Survey Results

Table E. Tree Survey Data

Scientific name	Common name	Multi-stem	DBH (in.)	Bat habitat	Comment	Location
Acer macrophylla	Big leaf maple		12		Burned	Block A
Acer macrophylla	Big leaf maple	Yes	27		Burned	Block A
Quercus agrifolia	Coast live oak		8		Burned	Block A
Quercus agrifolia	Coast live oak		8		Burned	Block A
Quercus agrifolia	Coast live oak		8		Burned	Block A
Quercus agrifolia	Coast live oak		9		Burned	Block A
Quercus agrifolia	Coast live oak		9		Burned	Block A
Quercus agrifolia	Coast live oak		10		Dead	Block A
Quercus agrifolia	Coast live oak		11		Burned	Block A
Quercus agrifolia	Coast live oak		11		Burned	Block A
Quercus agrifolia	Coast live oak		11		Burned	Block A
Quercus agrifolia	Coast live oak		11		Burned	Block A
Quercus agrifolia	Coast live oak		12		Burned	Block A
Quercus agrifolia	Coast live oak		12		Burned	Block A
Quercus agrifolia	Coast live oak		12		Burned	Block A
Quercus agrifolia	Coast live oak		12		Burned	Block A
Quercus agrifolia	Coast live oak		12		Burned	Block A
Quercus agrifolia	Coast live oak		13		Burned	Block A
Quercus agrifolia	Coast live oak		13		Burned	Block A
Quercus agrifolia	Coast live oak		14		Dead	Block A
Quercus agrifolia	Coast live oak		14		Burned	Block A
Quercus agrifolia	Coast live oak		14		Burned	Block A
Quercus agrifolia	Coast live oak		14		Burned	Block A
Quercus agrifolia	Coast live oak		14		Dead	Block A
Quercus agrifolia	Coast live oak		15		Burned	Block A
Quercus agrifolia	Coast live oak		15		Burned	Block A
Quercus agrifolia	Coast live oak		16		Dead	Block A
Quercus agrifolia	Coast live oak		16		Burned	Block A
Quercus agrifolia	Coast live oak		17		Burned	Block A
Quercus agrifolia	Coast live oak		17		Burned	Block A
Quercus agrifolia	Coast live oak		17		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	18		Burned	Block A
Quercus agrifolia	Coast live oak		18		Burned	Block A
Quercus agrifolia	Coast live oak		18		Dead	Block A
Quercus agrifolia	Coast live oak		18		Dead	Block A
Quercus agrifolia	Coast live oak		18		Burned	Block A
Quercus agrifolia	Coast live oak		20		Dead	Block A
Quercus agrifolia	Coast live oak	Yes	20		Burned	Block A
Quercus agrifolia	Coast live oak		21		Burned	Block A
Quercus agrifolia	Coast live oak		21		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	21		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	22		Burned	Block A
Quercus agrifolia	Coast live oak		25		Burned	Block A
Quercus agrifolia	Coast live oak		26		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	27		Burned	Block A
Quercus agrifolia	Coast live oak		27		Burned	Block A
Quercus agrifolia	Coast live oak		27		Burned	Block A
Quercus agrifolia	Coast live oak		28		Burned	Block A
Quercus agrifolia	Coast live oak		28		Dead	Block A
Quercus agrifolia	Coast live oak	Yes	28		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	29		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	29		Burned	Block A
Quercus agrifolia	Coast live oak		30		Burned	Block A
Quercus agrifolia	Coast live oak		31		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	36		Burned	Block A
Quercus agrifolia	Coast live oak		39		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	40		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	43		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	46		Burned	Block A

Scientific name	Common name	Multi-stem	DBH (in.)	Bat habitat	Comment	Location
Quercus agrifolia	Coast live oak	Yes	52		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	56		Burned	Block A
Quercus agrifolia	Coast live oak	Yes	65		Burned	Block A
Quercus kelloggii	Black oak		7		Burned	Block A
Quercus kelloggii	Black oak		9		Burned	Block A
Quercus kelloggii	Black oak		9		Burned	Block A
Quercus kelloggii	Black oak		10		Burned	Block A
Quercus kelloggii	Black oak		11		Burned	Block A
Quercus kelloggii	Black oak		13		Burned	Block A
Quercus kelloggii	Black oak		13		Burned	Block A
Quercus kelloggii	Black oak		14		Burned	Block A
Quercus kelloggii	Black oak		14		Burned	Block A
Quercus kelloggii	Black oak	Yes	23		Burned	Block A
Quercus kelloggii	Black oak	Yes	26		Burned	Block A
Quercus lobata	Valley oak		12		Burned	Block A
Umbellularia californica	California bay		11		Burned	Block A
Umbellularia californica	California bay		11		Dead	Block A
Umbellularia californica	California bay		11		Dead	Block A
Umbellularia californica	California bay		17		Burned	Block A
Umbellularia californica	California bay	Yes	42		Burned	Block A
Acer macrophylla	Big leaf maple		14		Burned	Block B
Acer macrophylla	Big leaf maple	Yes	80		Burned	Block B
Quercus agrifolia	Coast live oak		10		Burned	Block B
Quercus agrifolia	Coast live oak		10		Burned	Block B
Quercus agrifolia	Coast live oak		11		Burned	Block B
Quercus agrifolia	Coast live oak		12		Burned	Block B
Quercus agrifolia	Coast live oak		13		Burned	Block B
Quercus agrifolia	Coast live oak		13		Burned	Block B
Quercus agrifolia	Coast live oak		13		Burned	Block B
Quercus agrifolia	Coast live oak		14		Burned	Block B
Quercus agrifolia	Coast live oak		14		Burned	Block B
Quercus agrifolia	Coast live oak		14		Burned	Block B
Quercus agrifolia	Coast live oak		15		Burned	Block B
Quercus agrifolia	Coast live oak		16		Dead	Block B
Quercus agrifolia	Coast live oak		16		Burned	Block B
Quercus agrifolia	Coast live oak		17		Dead	Block B
Quercus agrifolia	Coast live oak		18		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	18		Burned	Block B
Quercus agrifolia	Coast live oak		18		Burned	Block B
Quercus agrifolia	Coast live oak		18		Burned	Block B
Quercus agrifolia	Coast live oak		19		Burned	Block B
Quercus agrifolia	Coast live oak		20		Burned	Block B
Quercus agrifolia	Coast live oak		22		Burned	Block B
Quercus agrifolia	Coast live oak		23		Burned	Block B
Quercus agrifolia	Coast live oak		26		Dead	Block B
Quercus agrifolia	Coast live oak		26		Burned	Block B
Quercus agrifolia	Coast live oak		27		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	28		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	30		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	31		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	32		Burned	Block B
Quercus agrifolia	Coast live oak		32		Burned	Block B
Quercus agrifolia	Coast live oak		33		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	34		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	36		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	36		Burned	Block B
Quercus agrifolia	Coast live oak		37		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	37		Burned	Block B
Quercus agrifolia	Coast live oak	Yes	58		Burned	Block B
Quercus kelloggii	Black oak		12		Burned	Block B

Scientific name	Common name	Multi-stem	DBH (in.)	Bat habitat	Comment	Location
Quercus kelloggii	Black oak		14		Burned	Block B
Quercus kelloggii	Black oak		16		Burned	Block B
Quercus kelloggii	Black oak		25		Burned	Block B
Quercus lobata	Valley oak		13		Burned	Block B
Quercus lobata	Valley oak		17		Burned	Block B
Umbellularia californica	California bay		17		Burned	Block B
Quercus agrifolia	Coast live oak		8		Burned	Block C
Quercus agrifolia	Coast live oak		11		Burned	Block C
Quercus agrifolia	Coast live oak		12		Burned	Block C
Quercus agrifolia	Coast live oak		13		Burned	Block C
Quercus agrifolia	Coast live oak		14		Dead	Block C
Quercus agrifolia	Coast live oak		14		Burned	Block C
Quercus agrifolia	Coast live oak		16		Burned	Block C
Quercus agrifolia	Coast live oak		16		Burned	Block C
Quercus agrifolia	Coast live oak		16		Burned	Block C
Quercus agrifolia	Coast live oak		17		Burned	Block C
Quercus agrifolia	Coast live oak		17		Burned	Block C
Quercus agrifolia	Coast live oak		18		Burned	Block C
Quercus agrifolia	Coast live oak		19		Burned	Block C
Quercus agrifolia	Coast live oak		19		Burned	Block C
Quercus agrifolia	Coast live oak		19		Burned	Block C
Quercus agrifolia	Coast live oak		20		Burned	Block C
Quercus agrifolia	Coast live oak		20		Burned	Block C
Quercus agrifolia	Coast live oak		21		Burned	Block C
Quercus agrifolia	Coast live oak		21		Burned	Block C
Quercus agrifolia	Coast live oak		22		Burned	Block C
Quercus agrifolia	Coast live oak		24		Burned	Block C
Quercus agrifolia	Coast live oak	Yes	25		Burned	Block C
Quercus agrifolia	Coast live oak		26		Burned	Block C
Quercus agrifolia	Coast live oak		28		Burned	Block C
Quercus agrifolia	Coast live oak		29		Burned	Block C
Quercus agrifolia	Coast live oak	Yes	30		Burned	Block C
Quercus agrifolia	Coast live oak		30		Burned	Block C
Quercus agrifolia	Coast live oak	Yes	31		Burned	Block C
Quercus agrifolia	Coast live oak		32		Burned	Block C
Quercus agrifolia	Coast live oak		37		Burned	Block C
Quercus agrifolia	Coast live oak		38		Burned	Block C
Quercus kelloggii	Black oak		9		Burned	Block C
Quercus kelloggii	Black oak		11		Burned	Block C
Quercus kelloggii	Black oak		15		Burned	Block C
Quercus kelloggii	Black oak		15		Burned	Block C
Quercus kelloggii	Black oak		17		Burned	Block C
Quercus kelloggii	Black oak		18		Burned	Block C
Quercus kelloggii	Black oak		18		Burned	Block C
Quercus kelloggii	Black oak		19		Burned	Block C
Quercus kelloggii	Black oak		19		Burned	Block C
Quercus kelloggii	Black oak		19		Burned	Block C
Quercus kelloggii	Black oak		19		Burned	Block C
Quercus kelloggii	Black oak		20		Burned	Block C
Quercus kelloggii	Black oak		20		Burned	Block C
Quercus kelloggii	Black oak		20		Burned	Block C
Quercus kelloggii	Black oak		21		Burned	Block C
Quercus kelloggii	Black oak		22		Burned	Block C
Quercus kelloggii	Black oak		22		Burned	Block C
Quercus kelloggii	Black oak		23		Burned	Block C
Quercus kelloggii	Black oak		23		Burned	Block C
Quercus kelloggii	Black oak		24		Burned	Block C
Quercus kelloggii	Black oak		27		Burned	Block C
Quercus kelloggii	Black oak		28		Dead	Block C
Quercus kelloggii	Black oak		29		Burned	Block C

Scientific name	Common name	Multi-stem	DBH (in.)	Bat habitat	Comment	Location
Quercus kelloggii	Black oak		42		Burned	Block C
Calocedrus decurrens	Incense cedar		11		Burned	Block D
Quercus agrifolia	Coast live oak		5		Burned	Block D
Quercus agrifolia	Coast live oak		7		Burned	Block D
Quercus agrifolia	Coast live oak		7		Burned	Block D
Quercus agrifolia	Coast live oak		7		Burned	Block D
Quercus agrifolia	Coast live oak		8		Burned	Block D
Quercus agrifolia	Coast live oak		8		Burned	Block D
Quercus agrifolia	Coast live oak		8		Burned	Block D
Quercus agrifolia	Coast live oak		10		Burned	Block D
Quercus agrifolia	Coast live oak		10		Burned	Block D
Quercus agrifolia	Coast live oak		11		Burned	Block D
Quercus agrifolia	Coast live oak		11		Burned	Block D
Quercus agrifolia	Coast live oak		12		Burned	Block D
Quercus agrifolia	Coast live oak		12		Burned	Block D
Quercus agrifolia	Coast live oak		13		Burned	Block D
Quercus agrifolia	Coast live oak		13		Burned	Block D
Quercus agrifolia	Coast live oak		13		Burned	Block D
Quercus agrifolia	Coast live oak		13		Burned	Block D
Quercus agrifolia	Coast live oak		14		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	14		Burned	Block D
Quercus agrifolia	Coast live oak		14		Burned	Block D
Quercus agrifolia	Coast live oak		15		Burned	Block D
Quercus agrifolia	Coast live oak		15		Burned	Block D
Quercus agrifolia	Coast live oak		16		Burned	Block D
Quercus agrifolia	Coast live oak		16		Burned	Block D
Quercus agrifolia	Coast live oak		16		Burned	Block D
Quercus agrifolia	Coast live oak		16		Burned	Block D
Quercus agrifolia	Coast live oak		16		Burned	Block D
Quercus agrifolia	Coast live oak		17		Burned	Block D
Quercus agrifolia	Coast live oak		17		Burned	Block D
Quercus agrifolia	Coast live oak		18		Burned	Block D
Quercus agrifolia	Coast live oak		18		Burned	Block D
Quercus agrifolia	Coast live oak		18		Burned	Block D
Quercus agrifolia	Coast live oak		19		Burned	Block D
Quercus agrifolia	Coast live oak		19		Burned	Block D
Quercus agrifolia	Coast live oak		19		Burned	Block D
Quercus agrifolia	Coast live oak		21		Burned	Block D
Quercus agrifolia	Coast live oak		21		Burned	Block D
Quercus agrifolia	Coast live oak		22		Burned	Block D
Quercus agrifolia	Coast live oak		22		Burned	Block D
Quercus agrifolia	Coast live oak		22		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	22		Burned	Block D
Quercus agrifolia	Coast live oak		22		Burned	Block D
Quercus agrifolia	Coast live oak		23		Burned	Block D
Quercus agrifolia	Coast live oak		23		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	23		Burned	Block D
Quercus agrifolia	Coast live oak		24		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	24		Burned	Block D
Quercus agrifolia	Coast live oak		24		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	24		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	24		Burned	Block D
Quercus agrifolia	Coast live oak		24		Burned	Block D
Quercus agrifolia	Coast live oak		25		Burned	Block D
Quercus agrifolia	Coast live oak		30		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	31		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	32		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	32		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	33		Burned	Block D
Quercus agrifolia	Coast live oak		35	Yes	Burned	Block D

Scientific name	Common name	Multi-stem	DBH (in.)	Bat habitat	Comment	Location
Quercus agrifolia	Coast live oak	Yes	37		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	39		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	41		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	44		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	56		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	59		Burned	Block D
Quercus agrifolia	Coast live oak	Yes	70	Yes	Burned	Block D
Quercus kelloggii	Black oak		6		Burned	Block D
Quercus kelloggii	Black oak		7		Burned	Block D
Quercus kelloggii	Black oak		8		Burned	Block D
Quercus kelloggii	Black oak		8		Burned	Block D
Quercus kelloggii	Black oak		8		Burned	Block D
Quercus kelloggii	Black oak		8		Burned	Block D
Quercus kelloggii	Black oak		8		Burned	Block D
Quercus kelloggii	Black oak		9		Burned	Block D
Quercus kelloggii	Black oak		9		Burned	Block D
Quercus kelloggii	Black oak		10		Burned	Block D
Quercus kelloggii	Black oak		11		Burned	Block D
Quercus kelloggii	Black oak		12		Burned	Block D
Quercus kelloggii	Black oak		13		Burned	Block D
Quercus kelloggii	Black oak		14		Burned	Block D
Quercus kelloggii	Black oak		14		Burned	Block D
Quercus kelloggii	Black oak		16		Burned	Block D
Quercus kelloggii	Black oak	Yes	16		Burned	Block D
Quercus kelloggii	Black oak		16		Burned	Block D
Quercus kelloggii	Black oak		24		Burned	Block D
Quercus kelloggii	Black oak	Yes	25		Burned	Block D
Quercus kelloggii	Black oak	Yes	32		Burned	Block D
Quercus kelloggii	Black oak	Yes	36		Burned	Block D
Sequoia sempervirens	Coast redwood		8		Burned	Block D
Sequoia sempervirens	Coast redwood		12		Burned	Block D
Umbellularia californica	California bay		6		Burned	Block D
Umbellularia californica	California bay		6		Burned	Block D
Umbellularia californica	California bay		6		Burned	Block D
Umbellularia californica	California bay		6		Burned	Block D
Umbellularia californica	California bay		6		Burned	Block D
Umbellularia californica	California bay		7		Burned	Block D
Umbellularia californica	California bay		8		Burned	Block D
Umbellularia californica	California bay		8		Burned	Block D
Umbellularia californica	California bay		9		Burned	Block D
Umbellularia californica	California bay		10		Burned	Block D
Umbellularia californica	California bay		11		Burned	Block D
Umbellularia californica	California bay	Yes	11		Burned	Block D
Umbellularia californica	California bay		11		Burned	Block D
Umbellularia californica	California bay		12		Burned	Block D
Umbellularia californica	California bay		13		Burned	Block D
Umbellularia californica	California bay	Yes	13		Burned	Block D
Umbellularia californica	California bay		13		Burned	Block D
Umbellularia californica	California bay		13		Burned	Block D
Umbellularia californica	California bay		14		Burned	Block D
Umbellularia californica	California bay		14		Burned	Block D
Umbellularia californica	California bay	Yes	15		Burned	Block D
Umbellularia californica	California bay	Yes	17		Burned	Block D
Umbellularia californica	California bay	Yes	18		Burned	Block D
Umbellularia californica	California bay	Yes	19		Burned	Block D
Umbellularia californica	California bay	Yes	21		Burned	Block D
Umbellularia californica	California bay		21		Burned	Block D
Umbellularia californica	California bay	Yes	24		Burned	Block D
Umbellularia californica	California bay	Yes	24		Burned	Block D
Umbellularia californica	California bay	Yes	24		Burned	Block D

Scientific name	Common name	Multi-stem	DBH (in.)	Bat habitat	Comment	Location
Umbellularia californica	California bay	Yes	26		Burned	Block D
Umbellularia californica	California bay	Yes	27		Burned	Block D
Umbellularia californica	California bay	Yes	27		Burned	Block D
Umbellularia californica	California bay	Yes	35		Burned	Block D
Umbellularia californica	California bay	Yes	36		Burned	Block D
Umbellularia californica	California bay	Yes	40		Burned	Block D
Umbellularia californica	California bay	Yes	40		Burned	Block D
Umbellularia californica	California bay	Yes	50		Burned	Block D
Umbellularia californica	California bay	Yes	52		Burned	Block D
Quercus agrifolia	Coast live oak		7		Burned	Block E
Quercus agrifolia	Coast live oak		9		Dead	Block E
Quercus agrifolia	Coast live oak		9		Burned	Block E
Quercus agrifolia	Coast live oak		10		Burned	Block E
Quercus agrifolia	Coast live oak		12		Burned	Block E
Quercus agrifolia	Coast live oak		13		Burned	Block E
Quercus agrifolia	Coast live oak		14		Burned	Block E
Quercus agrifolia	Coast live oak		14		Burned	Block E
Quercus agrifolia	Coast live oak		15		Burned	Block E
Quercus agrifolia	Coast live oak		15		Burned	Block E
Quercus agrifolia	Coast live oak		16		Burned	Block E
Quercus agrifolia	Coast live oak		16		Burned	Block E
Quercus agrifolia	Coast live oak		17		Burned	Block E
Quercus agrifolia	Coast live oak		17		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	19		Burned	Block E
Quercus agrifolia	Coast live oak		19		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	20		Burned	Block E
Quercus agrifolia	Coast live oak		23		Dead	Block E
Quercus agrifolia	Coast live oak		23		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	25		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	26		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	31		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	31		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	32		Burned	Block E
Quercus agrifolia	Coast live oak		35		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	55		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	58		Burned	Block E
Quercus agrifolia	Coast live oak	Yes	58		Burned	Block E
Quercus kelloggii	Black oak		8		Burned	Block E
Quercus kelloggii	Black oak		10		Burned	Block E
Quercus kelloggii	Black oak		11		Burned	Block E
Quercus kelloggii	Black oak		11		Burned	Block E
Quercus kelloggii	Black oak		11		Burned	Block E
Quercus kelloggii	Black oak		12		Burned	Block E
Quercus kelloggii	Black oak		13		Burned	Block E
Quercus kelloggii	Black oak		14		Burned	Block E
Quercus kelloggii	Black oak	Yes	15		Burned	Block E
Quercus kelloggii	Black oak		15		Burned	Block E
Quercus kelloggii	Black oak		15		Burned	Block E
Quercus kelloggii	Black oak		16		Burned	Block E
Quercus kelloggii	Black oak		16		Burned	Block E
Quercus kelloggii	Black oak		16		Burned	Block E
Quercus kelloggii	Black oak	Yes	21		Burned	Block E
Quercus kelloggii	Black oak	Yes	24		Burned	Block E
Quercus kelloggii	Black oak	Yes	25		Burned	Block E
Quercus kelloggii	Black oak	Yes	26		Burned	Block E
Quercus kelloggii	Black oak	Yes	32		Burned	Block E
Quercus kelloggii	Black oak	Yes	73		Burned	Block E
Umbellularia californica	California bay		18		Burned	Block E
Umbellularia californica	California bay	Yes	23		Burned	Block E
Umbellularia californica	California bay	Yes	44		Burned	Block E

Appendix F

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, Associate 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.