# EXHIBIT B-1

# Biological Resources Reconnaissance Survey Report

## Wappo Land Company LLC, 135 Long Ranch Road
## Napa County, California (APNs: 030-220-044, -043)


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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 15.83 gross acres of vineyard (Project Area) located at 135 Long Ranch Road (owned by Wappo Land Company, LLC) in unincorporated Napa County, California (APNs: 030-220-044, -043) (Study Area). WRA, Inc. performed field surveys on May 10, June 14, and October 25, 2017 and March 12 and June 27, 2018.

The Study Area is composed of broadleaf upland forests and woodlands, conifer woodland, chaparral, non-native grasslands, developed areas, agriculture areas, and ephemeral streams. The proposed vineyards are entirely located in chamise chaparral, coast live oak woodland, leather oak chaparral and non-native grassland. Impacts to oak woodlands considered sensitive are expected, and a portion of the Study Area is proposed for preservation to offset these impacts.

Three special-status plants occur within the Project Area, including three subpopulations of Sharsmiths's western flax, three subpopulations of narrow-anthered brodiaea, and several subpopulations of holly-leaved ceanothus; therefore impacts to special-status plants are expected. Portions of the Study Area are proposed for preservation to offset these impacts. One special-status bird and several non-status bird species with baseline legal protections have the potential to occur in the Project Area. Mitigation measures and best management practices have been developed and provided herein to avoid impacts to these resources. If tree/vegetation removal and initial ground disturbance occur outside of the general bird nesting season, no additional studies are recommended.

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## DEFINITIONS

Study Area: The area throughout which the assessment and survey effort was performed, inclusive of approximately 88.7 acres spanning across portions of three parcels at Long Ranch Road

Project Area: The area within which the proposed vineyard(s) will be installed; area evaluated for potential impacts to sensitive biological resources

## LIST OF 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 |
| CSRL | California Soils Resources Lab |
| CWA | Clean Water Act |
| EFH | Essential Fish Habitat |
| 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 May 10, June 14, and October 25, 2017 and March 12 and June 27, 2018, WRA, Inc. (WRA) performed an assessment of biological resources on private parcels owned by Wappo Land Company, LLC, located at 135 Long Ranch Road in unincorporated Napa County (APN's: 030-220-024, -026, -025; hereafter Study Area) (Figure 1, Appendix A). The purpose of this study was to gather the information necessary to complete a review of biological resources under the California Environmental Quality Act (CEQA) to meet the guidelines outlined by Napa County in *Guidelines for Preparing Biological Resources Reconnaissance Surveys* (Napa County 2016a) and *Guidelines for Preparing Special-status Plant Studies* (Napa County 2016b).

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

This report describes the results of the site visits, which assessed the Study Area (inclusive of the Project Area) for (1) the presence of sensitive biological communities, (2) the potential for biological communities 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 assessments were documented and their presence is discussed herein. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats that might require further protocol-level surveys or other studies be conducted are discussed further in this report. At this time, no recommendation for further study is made, provided that tree/vegetation removal and initial ground disturbance occur outside of the general bird nesting season.

Figures are included in Appendix A. A list of plants and wildlife observed during the site visits is included as Appendix B. An assessment of all of the special-status species documented from the general vicinity and their potential to occur in the Study Area is included as Appendix C. Representative photographs of the Study Area are included as Appendix D. The qualifications of the biologists who prepared this report are included as Appendix E.

## 1.2 Project Summary

The proposed project (Project) involves the installation of two adjacent vineyard blocks (Project Area) totaling approximately 12.76 acres net (15.83 gross acres) in the northeast portion of the Study Area. Associated with the installation of the grape vines will be vineyard avenues, fences, irrigation lines, etc.

# 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 Biological Communities*

Herein, biological communities are understood to be those areas of a particular vegetation type, soil or bedrock formation, aquatic features, and/or other distinct phenomenon. Typically, biological communities have distinct boundaries that can be delineated based on changes in plant assemblages, soil types, and/or changes in surface/near-surface hydroperiod. The several regulations defining and protecting sensitive biological communities are discussed below.

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

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

Streams, Lakes, and Riparian Habitat: Streams and lakes, as habitat for fish and wildlife species, are subject to jurisdiction by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term “stream”, which includes creeks and rivers, is defined in the California Code of Regulations (CCR) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR 1.72). In addition, the term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). “Riparian” is defined as “on, or pertaining to, the banks of a stream.” Riparian vegetation is defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

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

### *2.1.2 Special-status Species*

Plants: Special-status plants include species/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). 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 Table 1. Additionally, any plant species listed as sensitive within the Napa County General Plan or NCBDR are likewise considered sensitive.

Table 1. CNPS Ranks and Threat Codes

| **California Rare Plant Ranks (formerly known as CNPS Lists)** | |
|---|---|
| Rank 1A | Presumed extirpated in California and either rare or extinct elsewhere |
| Rank 1B | Rare, threatened, or endangered in California and elsewhere |
| Rank 2A | Presumed extirpated in California, but more common elsewhere |
| Rank 2B | Rare, threatened, or endangered in California, but more common elsewhere |
| Rank 3 | Plants about which more information is needed - A review list |
| Rank 4 | Plants of limited distribution - A watch list |
| **Threat Ranks** | |
| 0.1 | Seriously threatened in California |
| 0.2 | Moderately threatened in California |
| 0.3 | Not very threatened in California |

Wildlife: As with plants, special-status wildlife include 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 given special consideration under CEQA, and are therefore considered special-status species. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the intentional collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA. Finally, wildlife species/taxa named as "locally rare" in the NCBDR (Napa County 2005) are also treated as special-status for purposes of this assessment.

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

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) provides for conservation and management of fishery resources in the U.S. This Act establishes

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

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

## 2.2 Napa County Regulatory Setting

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

*Napa County Baseline Data Report*

Specific sensitive biological communities are identified in the NCBDR (Napa County 2005). In addition to those biological communities 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 when retention of existing vegetation is found to be infeasible. Removal of oak species limited in distribution shall be avoided to the maximum extent feasible.
d) Support hardwood cutting criteria that require retention of adequate stands of oak trees sufficient for wildlife, slope stabilization, soil production be left standing.
e) Maintain, the extent feasible, a mixture of oak species which is needed to ensure acorn production. Black, canyon, live, and brewer oaks as well as blue, white, scrub and live oaks are common associations.

*General Provisions – 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 18.08.040 shall take place within the following setbacks from streams:

Table 2. 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.

*Sensitive Domestic Water Supply Drainages*

Napa County Code 18.108.027 regulates vegetation in the following areas designated as "Sensitive Domestic Water Supply Drainage":

- Kimball Reservoir drainage
- Rector Reservoir drainage
- Milliken Reservoir drainage
- Bell Canyon Reservoir drainage
- Lake Hennessey drainage (including Friesen Lakes)
- Lake Curry drainage
- Lake Madigan drainage

A minimum of sixty percent of the tree canopy cover on the parcel existing on June 16, 1993 (aerial photograph) along with any understory vegetation must be preserved, or when vegetation consists of shrub and brush without tree canopy, a minimum of forty percent of the shrub, brush and associated annual and perennial herbaceous vegetation shall be maintained as part of any use involving earth-disturbing activity.

All earth-disturbing activities shall be limited to the period of April 1 through September 1 of each year except earth-disturbing activities that comply with the National Pollutant Discharge Elimination System (NPDES) program administered by the department of public works shall be limited to the period of April 1 through October 1 of each year.

## 3.0 ENVIRONMENTAL SETTING

The approximately 88.7-acre Study Area is set across three separate parcels. It is located in central Napa County, approximately 11 aerial miles northeast of Napa situated in the eastern Napa County mountains, northwest of Atlas Peak. Detailed descriptions of the local setting are below.

### 3.1 Topography and Soils

The overall slope of the Study Area is moderate-to-steep with a west to southwest aspect, and elevations ranging from approximately 850 to 1,270 feet above sea level. According to the *Soil Survey of Napa County* (USDA 1978), the Study Area is underlain by three soil mapping units: Hambright rock-Outcrop Complex, 30 to 75 percent slopes; Rock outcrop-Hambright complex, 50 to 75 percent slopes; and Henneke gravelly loam, 30 to 75 percent slopes. The parent soil series of all the Study Area's mapping units are summarized below.

Henneke Series: This series consists of shallow gravelly loam soils weathered ultramafic serpentinite rocks on hills at elevations ranging from 500 to 4,000 feet (CSRL 2018, USDA 1978). These soils are not considered hydric, and are well-drained with medium to very high runoff and moderately slow to slow permeability (USDA 2012, USDA 1978). Native vegetation consists of scattered oaks (*Quercus* spp.), foothill pine (*Pinus sabiniana*), leather oak *(Q. durata*), and white leaf manzanita (*Arctostaphylos viscida*). Typical land uses include open space (USDA 1978).

Hambright Series: This series consists of shallow loamy soils formed from residuum weathered from basic volcanic rock, and is situated on backslope hills at elevations ranging from 300 to 3,000 feet (CSRL 2018, USDA 1978). These soils are not considered hydric, and are well drained with medium to very rapid runoff, and moderate permeability (USDA 2012, USDA 1978). Native and naturalized vegetation includes annual grasses, with scattered blue oak (*Quercus douglasii*) and shrubs, while the land uses are predominantly livestock grazing (USDA 1978).

Rock outcrop: Rock outcrop consists of ridges of igneous bedrock and of outcrops of sandstone and shale. These areas are more than 90 percent rock with soil less than 6 inches deep. Runoff is very rapid. Native vegetation typically includes small shrubs and few stunted trees in cracks. (USDA 1978).

### 3.2 Climate and Hydrology

The Study Area is located above the valley fog incursion zone of Napa County. The average monthly maximum temperature of 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 2018).

The local watershed is Rector Creek-Conn Creek (HUC 12: 180500020103) and the regional watershed is San Pablo Bay Estuaries (HUC 8: 18050002). The Study Area is situated in the Lake Hennessey-Rector Reservation Napa County Planning Watersheds. There is one unnamed dashed blue-line streams in the Study Area (USGS 1978). The stream is mapped as Freshwater Forested/Shrub Wetland in the National Wetlands Inventory (NWI; USFWS 2018a). On both the 7.5-minute quadrangle (USGS 1978) and NWI (2018a) the stream is single stemmed. An unmapped ephemeral stream was also identified in the field; it is not depicted on the USGS quad

nor in the NWI database. Additionally, a created agriculture pond is located within the Study Area. The primary hydrologic sources are direct precipitation and consequent sheet- and in-channel flows. Precipitation in the majority of the Study Area infiltrates quickly due to coarse textured soils with a high percent of rock content. Detailed description of aquatic resources are described in Section 5.1 below.

### 3.3 Biota and Land Use

The Study Area is largely undeveloped and is composed of chamise chaparral, coast live oak woodland, foothill pine woodland, leather oak woodland, and non-native grassland. Detailed plant community descriptions are included in Section 5.1 below, and all observed plants are included in Appendix B.

Currently the Study Area has several vineyards along with an underground wine cellar and equipment staging area, all located west and south of Long Ranch Road. Regional land uses include rural residential, wineries, livestock grazing, and vineyards (Google Earth 2018). 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 2018).

## 4.0 ASSESSMENT METHODS

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

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

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

Following the remote assessment, a botanist with 40-hour Corps wetland delineation and wildlife biologist training traversed the entire Study Area on foot to document: (1) biological communities (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[1].

## 4.1 Biological Communities

### *4.1.1 Terrestrial Biological Communities*

The Study Area's terrestrial natural communities were evaluated to determine if such areas have the potential to support special-status plants or wildlife. In most instances, communities 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 2018b). In some cases it may be necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature; should an undescribed variant be used, it will be noted in the description.

Vegetation alliances and associations (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled (S1/G1), imperiled (S2/G2), or vulnerable (S3/G3), were evaluated as sensitive as part of this evaluation.[2] 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 Natural Resources*

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

This site assessment does not constitute a formal wetland delineation; however, the surveys looked for superficial indicators of wetlands such as hydrophytic vegetation (i.e., plant communities dominated by wetland species), evidence of inundation or flowing water, saturated soils and seepage, and topographic depressions/swales. None were noted, so there was no need for WRA biologists to perform sample points 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).

[1] 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.
[2] Ranking of CDFW List of Vegetation Alliances is based on NatureServe Rankings (NatureServe 2018)

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

## 4.2 Special-status Species

### *4.2.1 General Assessment*

Potential occurrence of special-status species in the Project Area was evaluated by first determining which special-status species occur in the vicinity of the Project 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.

Site visits were made on May 10, June 14, and October 25, 2017 and March 12 and June 27, 2018 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, protocol-level surveys were conducted within the Study Area on May 10, June 14, and October 25, 2017 and March 12 and June 27, 2018. 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 2018c, USFWS 1996). Plants were identified using *The Jepson Manual, 2nd Edition* (Baldwin et. al. 2012) and Jepson Flora Project (eFlora 2018), to the taxonomic level necessary to determine whether or not they were sensitive. Plant names follow those of Jepson Flora Project (eFlora 2018), unless otherwise noted.

#### *4.2.3 Special-status Wildlife*

The general assessment for special-status wildlife determined that few such species have the potential to occur in the Study Area. Targeted assessments and protocol-level surveys were deemed inapplicable (e.g., evaluation of ponds or streams for aquatic organisms) or infeasible (e.g., 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 2018b) and the NMFS Essential Fish Habitat Mapper (NMFS 2018) 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 2018a), and the NCBDR (Napa County 2005). Additionally, aerial imagery (Google 2018) 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 Biological Communities

WRA observed twelve biological communities within the Study Area: agriculture, agriculture pond, barren/rock, chamise chaparral, coast live oak woodland, developed/paved, dirt road, foothill pine woodland, leather oak chaparral, interior live oak chaparral, non-native grassland and ephemeral stream. Biological communities within the Study Area are shown in Figure 2 (Appendix A). The only sensitive biological communities in the Study Area are coast live oak woodland and ephemeral streams, though the ephemeral streams are not located within the Project Area.

#### *5.1.1 Terrestrial Biological Communities*

*Non-sensitive*

Developed/Paved; Dirt Road (no vegetation alliance). CDFW Rank: None. A small portion of the Study Area is developed with paved roadways, a landscaped lawn, and an equipment staging area. The developed/paved and dirt road areas total 8.24 acre in the Study Area with 0.14 acre situated in the Project Area (1.7 percent of the total community type in the Study Area). In the developed and landscaped areas, the vegetation is minimal and composed of ornamentals and common weeds. The Urban/Built-up NCLC type is synonymous with the developed areas

(Thorne et al. 2004). This community is not considered sensitive by Napa County, CDFW, or any other regulatory entity.

Agriculture (no vegetation alliance). CDFW Rank: None. Agricultural areas are those dedicated to growing crops where significant land alterations have converted and/or disrupted natural processes in the localized landscape. Vegetation is almost entirely composed of planted agricultural crops. Within the Study Area, agriculture areas are located in its western portion and consist of vineyards. Agriculture occupies 13.89 acres of the Study Area, none of which is within the Project Area. The Agriculture NCLC type is synonymous with the agriculture areas (Thorne et. al. 2004). This community is not considered sensitive by Napa County, CDFW, or any other regulatory agency.

Non-Native Annual Grassland – Wild Oat Grassland (*Avena barbata* Semi-Natural Herbaceous Stands). CDFW Rank: None. Non-native annual grasslands are known throughout California on all aspects and topographic positions underlain by a variety of substrates. The Study Area contains 3.56 acres of non-native grassland, of which approximately 0.11 acres (3.08 percent of the total community type in the Study Area) are located within the Project Area. These grasslands occur in the southwestern portion of the Study Area, mixing with oak woodlands, and are dominated by non-native grasses including wild oat (*Avena barbata*), soft chess (*Bromus hordeaceus*), dog tail grass (*Cynosurus echinatus*), ripgut brome *(Bromus diandrus*) and brome fescue (*Festuca bromoides*). Native wildflowers provide a characteristic component of these grasslands with such species as common soap plant (*Chlorogalum pomeridianum* var. *pomeridianum*), blue dicks (*Dichelostemma capitatum*), and golden globe lily (*Calochortus amabilis*). This community is synonymous with the California Annual Grasslands biotic community in the NCLC (Thorne et al. 2004). This community is not considered sensitive by Napa County, CDFW, or any other regulatory entity.

Chamise Chaparral (*Adenostoma fasciculata* Shrubland Alliance) CDFW Rank: G5 S5: Chamise chaparral typically occurs on varied topography where soils are shallow over colluvium or bedrock throughout cismontane California. Chamise is dominant in the intermittent to continuous canopy of the shrub layer (CNPS 2018b). The Study Area contains 37.43 acres of chamise chaparral, of which 10.34 (27.6 percent of the total community type in the Study Area) are located within the Project Area. The chamise chaparral dominates on the soils derived from volcanics and is located within the eastern half of the Study Area. Chamise chaparral is dominated by chamise with other sclerophyllous shrubs within the shrub layer, including holly leaf ceanothus (*Ceanothus purpureus*), and leather oak (*Quercus durata*). The understory was a mix of non-native grassland, barren rock, and/or low growing woody perennial herbs, including Sonoma sage (*Salvia sonomensis*). Native herbs observed growing in the more open chamise chaparral included golden globe lily, yellow mariposa lily *(Calochortus luteus*), foothill plantain *(Plantago erecta*), California milkwort (*Polygala californica*), and Hartweg's doll's lily (*Odontostomum hartwegii*). This community is synonymous with Chamise Alliance biotic community in the NCLC (Thorne et. al. 2004). This community is not considered sensitive by Napa County, CDFW, or any other regulatory entity; however it does provide habitat for all the special-status plants observed within the Study Area.

Foothill Pine Woodland (*Pinus sabiniana* Woodland Alliance). CDFW Rank: G4 S4: Foothill pine woodland typically occurs on streamside terraces, valleys, slopes, and ridges on shallow, stony soils with moderate to excessive drainage throughout the hills and mountains of cismontane California (CNPS 2018b). The Study Area contains 1.64 acres of foothill pine woodland, none of which are located within the Project Area. The foothill pine woodland is located in the westernmost portion of the Study Area. Foothill pine is dominant in the tree canopy, with coast

live oak (*Quercus agrifolia*) characteristically present. The understory is open, dominated by non-native grassland with scattered chamise shrubs. This community is synonymous with Foothill Pin Alliance biotic community in the NCLC (Thorne et. al. 2004). This community is not considered sensitive by Napa County, CDFW, or any other regulatory entity.

Interior Live Oak Chaparral (*Quercus wislizenii* Shrubland Alliance). CDFW Rank G4 S4: Interior live oak chaparral typically occurs on steep slopes with rocky alluvial or bedrock soils throughout the Coast Range (CNPS 2018b). The Study Area contains 3.18 acres of interior live oak chaparral, of which, 3.12 acres are located within the Project Area (approximately 98 percent of the total community type in the Study Area). Interior live oak is dominant with chamise as a co-dominant and holly-leaved ceanothus characteristically present in some portions. The canopy is continuous, while the understory is sparse and similar to chamise chaparral. This community is synonymous with Scrub Interior Live Oak-Scrub Oak Mesic East County NFD Super Alliance biotic community in the NCLC (Thorne et. al. 2004). This community is not considered sensitive by Napa County, CDFW, or any other regulatory entity.

Leather Oak Chaparral (*Quercus durata* Shrubland Alliance). CDFW Rank: G4 S4: Leather oak chaparral typically occurs on varied topography where soils are shallow, rocky and derived from ultramafic substrates. Leather oak is dominant or co-dominant in the open to continuous shrub layer (CNPS 2018b). The Study Area contains 4.90 acres of leather oak chaparral, of which 3.12 acres are located within the Project Area (approximately 64 percent of the total community type in the Study Area). Leather oak is dominant with chamise and interior live oak (*Quercus wislizenii*) as co-dominants. The understory is sparse due to shade and very rocky substrate. This community is synonymous with Sclerophyllous Shrubland biotic community in the NCLC as it does not occur on serpentine soils (Thorne et. al. 2004). The leather oak chaparral within the Study Area best fits the leather oak-chamise-interior live oak vegetation association (CDFW 2018b), which is not considered sensitive (CDFW 2018b). This community is considered sensitive by Napa County if it occurs on serpentine soils (Napa County 2005); however, within the Study Area, this community occurs on volcanic soils. This community is not considered sensitive by CDFW, or any other regulatory entity.

Barren/Rock (no vegetation alliance). CDFW Rank: None: The Study Area contains 0.09 acre of barren rock outcrop, none of which is within the Project Area. The rock outcrop is located in the southern portion of the Study Area. Vegetation is sparse, however two special-status plants occur on the rock outcrop, including nodding harmonia (*Harmonia nutans*), and Green's narrow-leaved daisy (*Erigeron greenei*). This community is synonymous with the Rock Outcrop biotic community in the NCLC (Thorne et. al. 2004). This community is not considered sensitive by Napa County, CDFW or any other regulatory agency.

*Sensitive*

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 2018b). 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 Area contains 18.75 acres of coast live oak woodland, with 2.12 acres situated in the Project Area (approximately 11 percent of the total community type in the Study Area). The dominant tree is coast live oak (*Quercus agrifolia*), with scattered cover of California bay (*Umbellularia californica*) where soils are shallow. Predominant understory species is similar to non-native grasslands described above. This community is synonymous with the Coast Live

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

Agriculture Pond (no vegetation alliance). Not jurisdictional under 404/401: The Study Area contains one 0.21 acre agriculture pond located in the middle of the vineyards. The pond is lined with cement and was dug in uplands during the installation of the existing vineyards (Historical Aerials 2018). The pond is located outside of the Project Area. As the pond is not a natural feature it is most likely not within the jurisdiction of the Section 401/404 of the CWA or the Porter-Cologne Act.

### *5.1.2 Aquatic Natural Resources*

Ephemeral Streams (no vegetation alliance). Section 404/401 CWA: The Study Area contains two primary drainages, one of which is an unnamed dashed blue-line stream on the Yountville 7.5-minute quadrangle (USGS 1978). Neither of the streams are located within the Project Area. All streams in the Study Area drain off-site into Conn Creek. Flows of the ephemeral streams run during and following rain events, but draw down quickly after storms have subsided. The upper reaches of the drainages are primarily high-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 is a natural topographic barrier to Conn Creek as there is a notable drop in elevation of the topography just south of the Study Area.

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 easternmost ephemeral stream meets the Napa County stream definition pursuant to Napa County Code 18.108.025. While these streams are in the Study Area, they are located outside of the Project Area and neither stream will be impacted by the development of the proposed vineyard.

## 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, 82 special-status plant species have been documented in the vicinity of the Study Area. CNDDB occurrences of these species within 5 miles of the Study Area are shown in Figure 3 (Appendix A). Thirty two of these plants were determined to have the potential to occur in the Study Area. Special-status plants with potential to occur in the Study Area were the focus of surveys, and summarized in Appendix C. 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, alkaline) 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., conifer forest, 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;
- The historical landscape and/or habitat(s) of the Study Area were not suitable habitat prior to land/type conversion (e.g., reclaimed shoreline) to support the special-status plant species;
- Land use history and contemporary management (e.g., grading, intensive grazing) has degraded the localized habitat necessary to support the special-status plant species.

*Special-status Plants Present in the Study Area*

Six special-status plant species were located in the Study Area during protocol-level surveys; locations of these species overlain with the proposed vineyard blocks are shown in Figure 4 (Appendix A), and each species is described below.

Narrow-anthered brodiaea (*Brodiaea leptandra*). CRPR 1B. Narrow-anthered brodiaea is a perennial herb in the brodiaea family (Themidaceae) that blooms from May to July. It typically occurs in broadleaf upland forest, chaparral, and lower montane coniferous forest habitat at elevations ranging from 360 to 3,000 feet (CDFW 2018a, CNPS 2018a) within Sonoma, Napa, and Lake Counties. Soil survey data from documented locations suggest this species is associated with gravelly loam and clay loam substrates derived from rhyolites, metavolcanics, and serpentine (CSRL 2018, CDFW 2018a). Known associated species include chamise, mountain mahogany (*Cercocarpus betuloides*), scrub oak (*Quercus berberidifolia*), white oak (*Q. garryana*), Ponderosa pine (*Pinus ponderosa*), knobcone pine (*P. attenuata*), Pacific madrone (*Arbutus menziesii*), manzanitas (*Arctostaphylos* spp.), buck brush (*Ceanothus cuneatus*), harvest brodiaea (*Brodiaea elegans*), California oat grass (*Danthonia californica*), narrow leaf mules ears (*Wyethia angustifolia*), and Sonoma sage (CDFW 2018a).

There are 24 herbaria records (CCH 2018), 39 CNDDB records (CDFW 2018a), and 61 Calflora records (2018) throughout California, with the bulk of the records from Napa County. An estimated 0.31 acre in five subpopulations were located within the Study Area; approximately 0.005 acre (approximately 18 percent of the entire Study Area) is within the Project Area. They were observed on thin, rocky soils within open chamise chaparral. The Study Area is situated in the center of the broader distribution in Napa County of this species (i.e., it is not a fringe or edge population).

Holly-leaved ceanothus (*Ceanothus purpureus*). CRPR 1B. Holly-leaved ceanothus is an evergreen shrub in the buckhorn family (Rhamnaceae) that blooms from February to April, but is typically identifiable by vegetative structures throughout the year. It typically occurs on rocky slopes underlain by volcanic substrate in chaparral and cismontane woodland habitat at elevations ranging from 390 to 2080 feet (CDFW 2018a, CNPS 2018a). Known associated species include Stanford manzanita (*Arctostaphylos stanfordiana*), hoary manzanita (*A. canescens*), Sonoma sage, pitcher sage (*Lepechinia calycina*), wavy-leaf ceanothus (*Ceanothus foliosus*), toyon (*Heteromeles arbutifolia*), coyote brush (*Baccharis pilularis*), sticky monkey

(*Diplacus aurantiacus*), redberry (*Rhamnus crocea*), chamise, and Fremont star lily (*Toxicoscordion fremontii*) (CDFW 2018a).

There are 121 herbaria records (CCH 2018), 43 CNDDB records (CDFW 2018a), and 116 Calflora records (2018) throughout California, with the bulk of the records from Napa County. An estimated 23.23 acres in several subpopulations were located within the Study Area; approximately 5.56 acres (approximately 24 percent of the entire Study Area) is within the Project Area. They were observed on thin, rocky soils within open chamise chaparral. The Study Area is situated in the center of the broader distribution in Napa County of this species (i.e., it is not a fringe or edge population).

Greene's narrow-leaved daisy (*Erigeron greenei*). CRPR 1B**.** Greene's narrow-leaved daisy (or fleabane) is a perennial forb in the sunflower family (Asteraceae) that blooms from May to September. It typically occurs on rocky substrate derived from volcanics or serpentine within shrubby vegetation in chaparral habitat at elevations ranging from 260 to 3270 feet (CDFW 2018a, CNPS 2018a). Known associated species include chamise, musk brush (*Ceanothus jepsonii*), leather oak, Baker's manzanita (*Arctostaphylos bakeri* ssp. *bakeri*), serpentine monardella (*Monardella purpurea*), whickerstem buckwheat (*Eriogonum vimineum*), yellow hayfield tarweed (*Hemizonia congesta* ssp. *lutescens*), vinegar weed (*Trichostema laxum*) (CDFW 2018a).

There are 36 herbaria records (CCH 2018), 20 CNDDB records (CDFW 2018a), and 52 Calflora records (2018) throughout California, with the bulk of the records from Napa and Sonoma Counties. An estimated 0.04 acre in one population was located within the Study Area but entirely outside of the Project Area. They were observed on thin, rocky soils on a large rock outcrop in the southern portion of the Study Area.

Nodding harmonia (*Harmonia nutans*). CRPR 4. Nodding harmonia is an annual forb in the sunflower family (Asteraceae) that blooms from March through May. It typically occurs on rocky or gravelly substrates derived from volcanic rock within chaparral and cismontane woodland habitat at elevations ranging from 240 to 3,170 feet (CNPS 2018a). Associated species include ponderosa pine (*Pinus ponderosa*), California black oak (*Quercus kelloggii*), Pacific madrone, toyon, Cobb Mountain lupine (*Lupinus sericatus*), rough cat's-ear (*Hypochaeris radicata*), and small fescue (*Festuca microstachys*) (CCH 2018).

There are 71 herbaria records (CCH 2018), 0 CNDDB records (CDFW 2018a), and 121 Calflora records (2018) throughout California, with the bulk of the records from Napa County. An estimated 0.03 acres in one population was located in the Study Area, but entirely outside of the Project Area. They were situated on thin, rocky soils on a rocky outcrop (Appendix A). The Study Area is situated in the center of the broader distribution in Napa County of this species (i.e., it is not a fringe or edge population).

Sharsmith's western flax (*Hesperolinon sharsmithiae*). CRPR 1B. Sharsmith's western flax is an annual herb in the flax (Linaceae) family that blooms from May through July. It typically occurs on serpentinite in open chaparral habitat ranging in elevations from 884 through 1,000 feet (CNPS 2018a). Known associated species includes sergeant cypress, white leaf manzanita, leather oak, brewer's jewelflower (*Streptanthus breweri*), green jewelflower (*Streptanthus hesperidis*) Jepson's Navarretia (*Navarretia jepsonii*), popcorn flower (*Cryptantha microstachys*), Napa cryptantha (Cryptantha hispidula), and Fringed onion (*Allium fimbriatum*) (CDFW 2018a).

There are 21 herbaria records (CCH 2018), 32 CNDDB records (CDFW 2018a), and 71 Calflora records (2018) throughout California, with the bulk of the records from Lake and Napa County.

An estimated 2.64 acres in five subpopulations were located in the Study Area, approximately 0.48 acre (approximately 18 percent of the entire Study Area) is within the Project Area. They were situated on thin, rocky soils in open chamise chaparral. The Study Area is situated in the center of the broader distribution in Napa County of this species (i.e., it is not a fringe or edge population).

Green monardella (*Monardella viridis*). CRPR 4. Green monardella is a perennial rhizomatous herb in the mint (Lamiaceae) family that blooms June through September. It typically occurs on volcanic and serpentine soils in broadleaf upland forests, chaparral, or cismontane woodland habitat in elevations ranging from 300 to 3,000 feet (CNPS 2018a). Known associated species include silk tassel (*Garrya congdonii*), ceanothus (*Ceanothus* spp.), mountain mahogany (*Cercocarpus betulodies*, leather oak, lace fern (*Aspidotis densa*), sickle leaf onion (*Allium falcifolium*), gold wire (*Hypericum concinnum*), yerba santa (*Eriodictyon californicum*, white leaf manzanita (*Arctostaphylos viscida*), and Standford's manzanita (*Arctostaphylos stanfordiana*) (CCH 2018).

There are 126 herbaria records (CCH 2018), 0 CNDDB records (CDFW 2018a), and 86 Calflora records (2018) throughout California, with the bulk of the records from Napa County. An estimated 0.29 acres in six subpopulations were located within the Study Area, but entirely outside of the Project Area. They were observed on thin, rocky soils within open chamise chaparral. The Study Area is situated in the center of the broader distribution in Napa County of this species (i.e., it is not a fringe or edge population).

*Special-status Plants Not Observed in the Study Area*

The following special-status plants were determined to 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:

- Bent-flowered fiddleneck (*Amsinckia lunaris*); CRPR 1B
- Franciscan onion (*Allium peninsulare* var. *franciscanum*; CRPR 1B
- Modest rockcress (*Arabis modesta*); CRPR 4
- Twig-like snapdragon (*Antirrhinum virga*); CRPR 4
- Rincon manzanita (*Arctostaphylos stanfordiana* ssp. *decumbens*); CRPR 1B
- Big-scale balsamroot (*Balsamorhiza macrolepis*); CRPR 1B
- Small-flowered Calycadenia (*Calycadenia micrantha*); CRPR 1B
- Rincon Ridge ceanothus (*Ceanothus confusus*); CRPR 1B
- Sonoma ceanothus (*Ceanothus sonomensis*); CRPR 1B
- Tracy's clarkia (*Clarkia gracilis* ssp. *tracyi*); CRPR 4
- Streamside daisy (*Erigeron biolettii*); CRPR 3
- Colusa layia (*Layia septentrionalis*); CRPR 1B
- Bristly leptosiphon (*Leptosiphon acicularis*); CRPR 4
- Jepson's leptosiphon (*L. jepsonii*); CRPR 1B
- Broad-lobed leptosiphon (*L. latisectus*); CRPR 4
- Redwood lily (*Lilium rubescens*); CRPR 4
- Napa lomatium (*Lomatium repostum*); CRPR 4
- Cobb Mountain lupine (*Lupinus sericatus*); CRPR 1B
- Mt. Diablo cottonweed (*Micropus amphibolus*); CRPR 3
- Sonoma beardtongue (*Penstemon newberryi* var. *sonomensis*); CRPR 1B
- Napa checkerbloom (*Sidalcea hickmanii* ssp. *napensis*); CRPR 1B

- Marin checkerbloom (*S. hickmanii* ssp. *viridis*); CRPR 1B
- Keck's checkerbloom (*S. keckii*); FE, CRPR 1B
- Napa bluecurls (*Trichostema ruygtii*); 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 58 special-status wildlife species have been documented in Napa County (CDFW 2018a, Napa County 2005); these species are summarized in Appendix C. CNDDB occurrences of these species within 5 miles of the Study Area are shown in Figure 5 (Appendix A). One of these species has a moderate potential to occur in the Study Area and Project Area. The remaining 57 species are unlikely or have no potential to occur due to one or more of the following reasons:

- 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 that Occur in the Study Area*

No special-status wildlife species were observed in the Study Area; however, without targeted assessments or protocol-level surveys, their presence cannot be ruled out. Those with the potential to occur, but their presence is unknown are discussed below.

*Special-status Wildlife with the Potential to Occur, but Presence Unknown*

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

### *5.2.3 Critical Habitat, Essential Fish Habitat, and Wildlife Corridors*

The Study Area does not contain any designated Critical Habitat (USFWS 2018b) or Essential Fish Habitat (EFH). In terms of the potential to support anadromous fishes, the on-site ephemeral streams lack suitable hydrology and are effectively isolated from downstream waters by natural topographic barriers.

As per CDFW and Caltrans (2010) most of the Study Area (including the Project 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 western edge of this mapped area, which is approximately 8.6 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 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, the Study Area provides connectivity between a patchwork of undeveloped lands (primarily chaparral, grassland, and woodlands), and agricultural (vineyards) and low-density, rural developments. While the Project (vineyard blocks north of Long Ranch Road) will result in portions of the site having reduced potential for on-site wildlife movement, the retention of other on-site areas of contiguous chaparral and woodland, with direct connectivity with similar habitats on neighboring properties, will allow for continued local wildlife movement. The primary example is the relatively large area of intact chaparral, oak woodland , and grassland south of Long Ranch Road, allowing for movement from south of the property to its northwest. A narrower localized corridor between existing and proposed vineyard development (both on- and off-site) will allow for movement from the center of the property to a larger block of contiguous habitat to its northwest. Additionally, the on-site ephemeral streams presumably provide at least some corridor function for seasonal localized movement, and these will be completely avoided by the Project.

# 6.0 PROJECT ANALYSIS AND RECOMMENDATIONS

## 6.1 Biological Communities

### *6.1.1 Terrestrial Biological Communities*

*Coast Live Oak Woodland*

Although coast live oak woodlands are not considered sensitive by CDFW or included as sensitive in the NCBDR; however, the Napa County General Plan Conservation Element Policy CON-24 requires that oak woodland be maintained and/or improved to the extent feasible to provide for oak woodland and wildlife habitat, slope stabilization, soil protection, and species diversity. Policy CON-24c specifically calls for the preservation of oak woodland (on an acreage basis) at a 2:1 ratio. The Study Area contains 18.75 acres of oak woodland; in order to ensure that a 2:1 ratio is maintained of two acres of oak woodland preserved for each one acre impacted, only 6.25 acres can be converted to vineyard. The Project Area currently contains 2.12 acres of oak woodland, all of which are scheduled for removal. The following recommendation is put forward to meet Policy CON-24.

Recommendation 1: Prior to project approval, 4.24 acres of coast live oak in the Study Area shall be set aside to compensate for the loss of 2.12 acres in the Project Area (i.e., 2:1 preservation). An approximately 14.5-acre area in the southeastern portion of the Study Area containing 4.25 acres of coast live oak woodland is proposed for preservation; this area is shown in Figures 2 and 3. Much of this area will function to preserve special-status plant populations as well (see Section 6.2.1 below).

### *6.1.2 Aquatic Natural Resources*

The Study Area supports two ephemeral streams that are greater than 500 feet from the Project Area. Likewise, the land cover across that 500 or greater foot span is moderately to extremely dense shrubs and small trees which will provide a sufficient buffer from effects of the proposed project. Because of this, there will be no impact to these streams and there are no additional recommendations outside of those actions given in the ECP Application (e.g., seasonal grading restrictions.

## 6.2 Special-status Species

### *6.2.1 Special-status Plants*

The Study Area supports six special-status plants, three of which have populations within the Project Area: approximately 5.56 acres of holly-leaved ceanothus; approximately 0.0055 acre of narrow-anthered brodiaea; and approximately 0.48 acre of Sharsmith's western flax. These acreages equate to approximately 24 percent, 18 percent, and 18 percent of the total populations across the Study Area for holly-leaved ceanothus, narrow-anthered brodiaea, and Sharsmith's western flax, respectively.

Table 3. Summary of Special-Status Plant Species in the Study Area

| Species | CRPR | Acres Within Study Area | Acres Within Project Area | % Retention |
|---|---|---|---|---|
| Green monardella | 4 | 0.29 | 0 | 100 |
| Greene's narrow-leaved daisy | 1B | 0.04 | 0 | 100 |
| Holly-leaved ceanothus | 1B | 23.23 | 5.56 | 76 |
| Nodding harmonia | 4 | 0.03 | 0 | 100 |
| Narrow-anthered brodiaea | 1B | 0.31 | 0.0055 | 82 |
| Sharsmith's western flax | 1B | 2.64 | 0.48 | 82 |

Retention for these species will be 75 percent or greater. All three are prevalent in the Study Area and are very likely present on adjacent properties as well. Retention of some on-site populations along with the following recommendations should maintain the viability of these species within the Study Area.

Recommendation 2: Prior to project approval, areas within the Study Area containing special-status plants shall be preserved to compensate for impacts to these species during project implementation. An approximately 3.3-acre area in the northeastern portion of the

Study Area is proposed for preservation; this area contains populations of all three species subject to impacts and is shown in Figures 2 and 4. Additionally, the proposed oak woodland preservation area will also function to preserve on-site special-status plant populations, including all observed populations for two species (i.e., nodding harmonia, Greene's narrow-leaved daisy).

Recommendation 3: Clearing limits should be clearly and accurately flagged by the engineer using GPS equipment. Those populations immediately adjacent to the proposed vineyard boundary should be demarcated with construction flagging or fencing, and incursions into the boundary should be conducted only by qualified personnel. No equipment or materials should be laid down in or near the boundary. Any remediation seed mixes for bare ground should not contain species known to be aggressive weeds; non-native grasses should be sterile varieties. The fencing may be removed following construction, but signage at regular intervals should be installed informing vineyard personnel of the sensitivity of the area. Spraying of herbicide should be limited to those products that do not pose a negative affect to evergreen shrubs (i.e., holly-leaved ceanothus) and forbs (i.e., narrow-leaved brodiaea, Sharsmith's western flax).

Installation of a water line is proposed within the northernmost portion of the Proposed Preservation Area (north of Long Ranch Road). To minimize impacts to special-status plants that may be present in that area, the following recommendations are provided.

Recommendation 4. Prior to ground disturbance associated with installation of the water line, the footprint of the water line within the Proposed Preservation Area should be surveyed by a qualified botanist, and any special-status plants found within the footprint should be mapped. To the fullest extent practicable, impacts to special-status plants should be minimized via adjustments to the precise installation locations(s). To preserve the local soil characteristics and seed bank, all native soil that is excavated/disturbed within the Proposed Preservation Area shall be retained and replaced *en situ*; no imported (off-site) soil should be utilized or introduced within the Proposed Preservation Area.

### *6.2.2 Special-status Wildlife*

The Project Area has the potential to support one special-status wildlife species, white-tailed kite. The following measures are recommended to avoid or otherwise minimize potential impacts to this species as well as non-status birds.

*Bird species (including non-special-status species)*

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 Project Areas for nesting. Pre-construction surveys are recommended to ensure that the implementation of the Proposed Project would not impact any nesting birds.

Recommendation 5: 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. The survey should cover the Project Area (including tree removal areas) and surrounding areas within 500 feet. If active bird nests are found during the survey, an appropriate no-disturbance buffer should

be established by the qualified biologist. Once it is determined that the young have fledged (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 Corridors*

As stated in Section 5.2.3 above, the Study Area's streams and a majority of the terrestrial biological communities will remain intact and unfenced. Consequently, the proposed project, as designed will not create a significant impact to wildlife movement in the Study Area. Therefore, no recommendations are included at this time.

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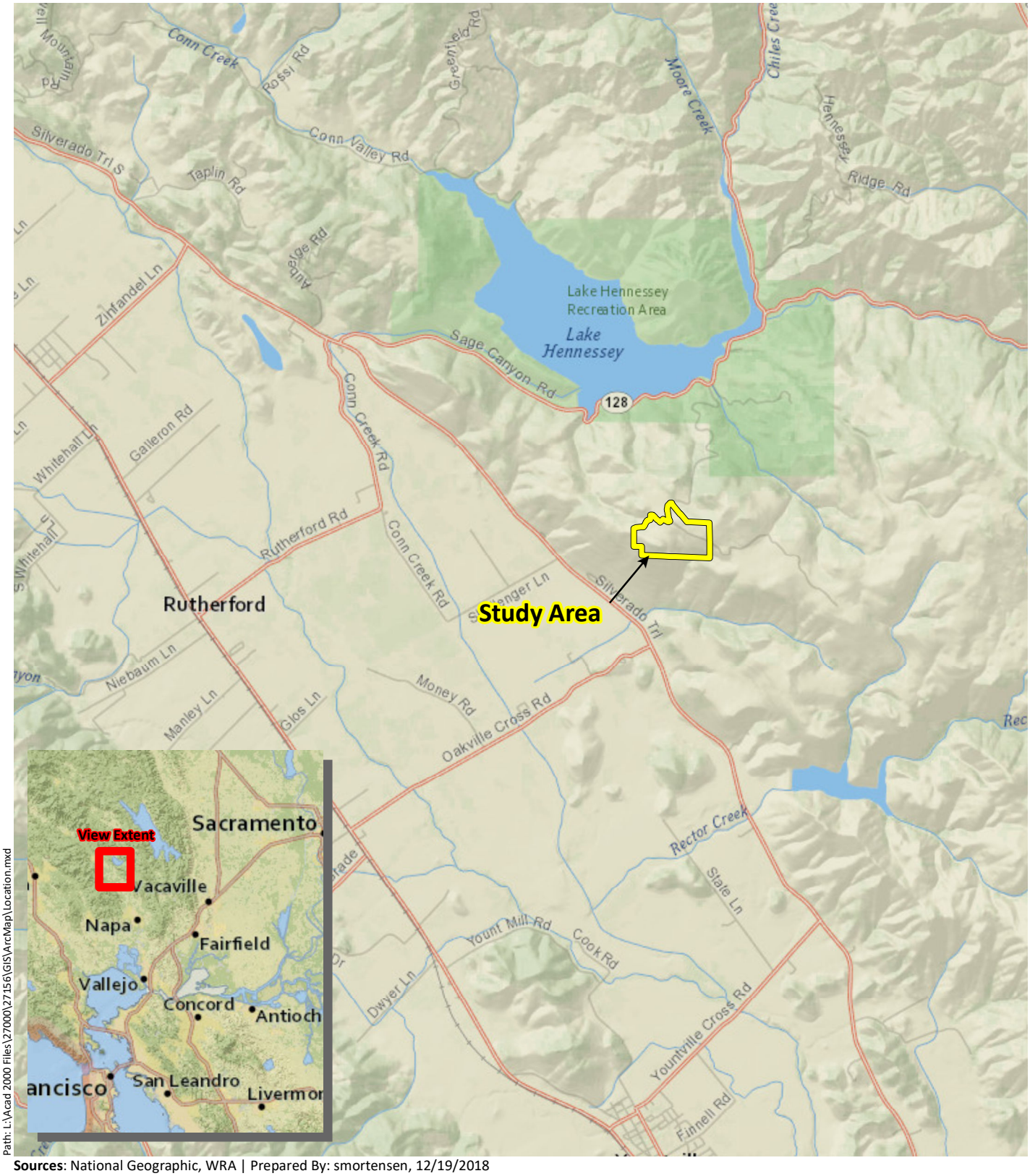
# Appendix A

## Figures

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**Sources**: National Geographic, WRA | Prepared By: smortensen, 12/19/2018

# Figure 1. Study Area Location

Wappo Land Company, LLC
Napa County, California

0 0.5 1 Miles

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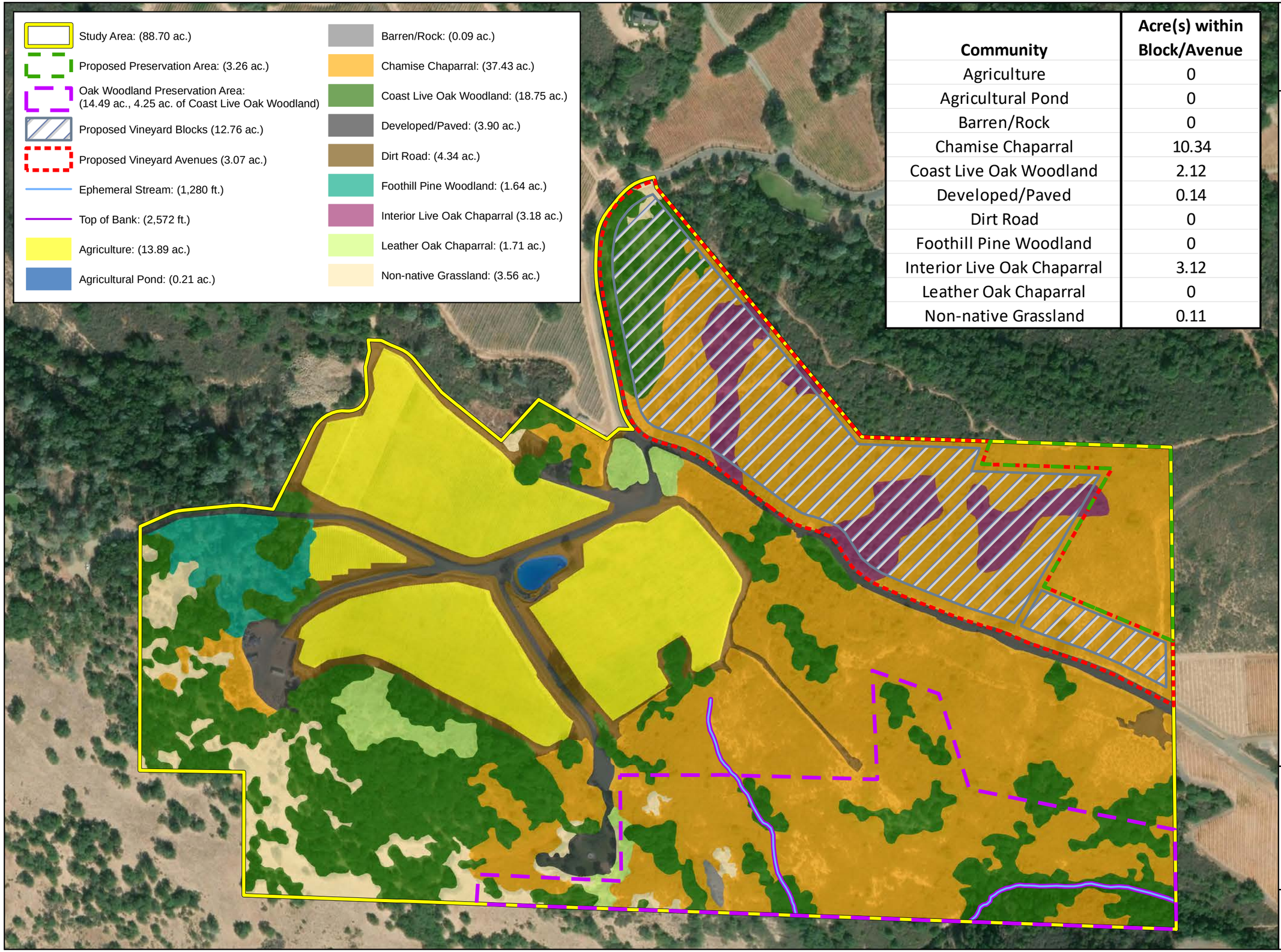


| Community | Acre(s) within Block/Avenue |
|---|---|
| Agriculture | 0 |
| Agricultural Pond | 0 |
| Barren/Rock | 0 |
| Chamise Chaparral | 10.34 |
| Coast Live Oak Woodland | 2.12 |
| Developed/Paved | 0.14 |
| Dirt Road | 0 |
| Foothill Pine Woodland | 0 |
| Interior Live Oak Chaparral | 3.12 |
| Leather Oak Chaparral | 0 |
| Non-native Grassland | 0.11 |

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Wappo Land Company, LLC
Napa County, California

Figure 2.

Biological Communities

N
W E
S

0 200 400
Feet

Map Prepared Date: 2/6/2019
Map Prepared By: mrochelle
Base Source: Esri Streaming - NAIP 2016
Data Source(s): WRA

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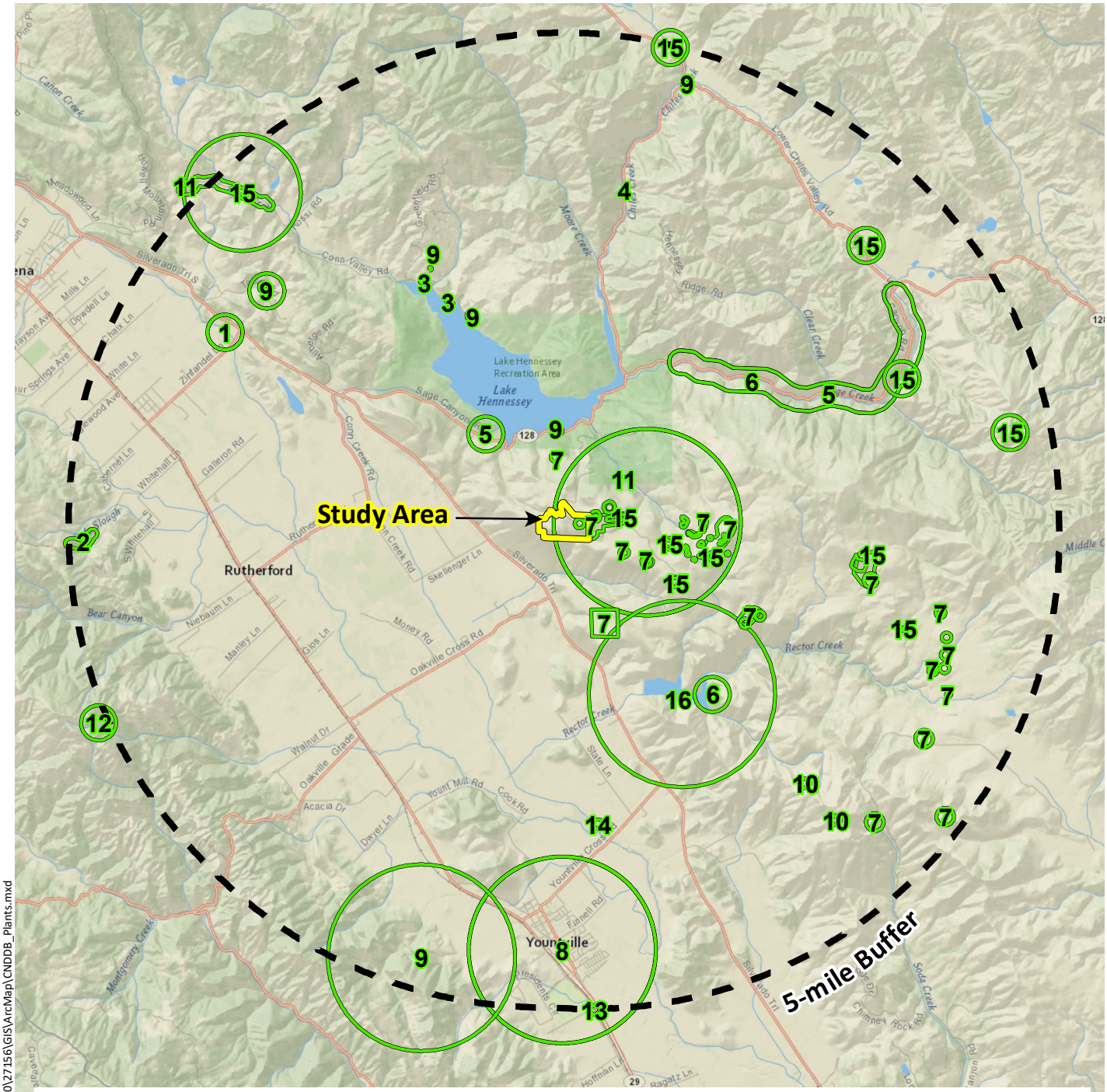


1. bent-flowered fiddleneck
2. Calistoga ceanothus
3. Clara Hunt's milk-vetch
4. Colusa layia
5. green jewelflower
6. Greene's narrow-leaved daisy
7. holly-leaved ceanothus
8. Jepson's coyote-thistle
9. Jepson's leptosiphon
10. Napa bluecurls
11. narrow-anthered brodiaea
12. Rincon Ridge ceanothus
13. Sanford's arrowhead
14. Sebastopol meadowfoam
15. Sharsmith's western flax
16. Sonoma beardtongue

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**Sources**: National Geographic, CNDDB December 2018, WRA | Prepared By: smortensen, 12/19/2018

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

Wappo Land Company, LLC
Napa County, California

0 1 2 Miles

N

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| Species | Within Proposed Blocks/Avenues | |
|---|---|---|
| | Acre(s) | % Retention |
| Green monardella | 0 | 100% |
| Greene's narrow-leaved daisy | 0 | 100% |
| Holly-leaved ceanothus | 5.56 | 76% |
| Nodding harmonia | 0 | 100% |
| Narrow-anthered brodiaea | 0.055 | 82% |
| Sharsmiths western flax | 0.48 | 82% |

- Study Area: (88.70 ac.)
- Proposed Preservation Area: (3.26 ac.)
- Oak Woodland Preservation Area: (14.49 ac.)
- Proposed Vineyard Blocks (12.76 ac.)
- Proposed Vineyard Avenues (3.07 ac.)
- Unsurveyed Area (32.49 ac.)
- Green monardella: (0.29 ac.)
- Greene's narrow-leaved daisy: (0.04 ac.)
- Holly-leaved ceonothus: (23.23 ac.)
- Nodding harmonia: (0.03 ac.)
- Narrow-anthered brodiaea: (0.31 ac.)
- Sharsmiths western flax: (2.64 ac.)

Block A

Block B

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Wappo Land Company, LLC
Napa County, California

Figure 4.

Special-status

Plants

N
W E
S

0 200 400

Feet

Map Prepared Date: 2/6/2019
Map Prepared By: mrochelle
Base Source: Esri Streaming - NAIP 2016
Data Source(s): WRA

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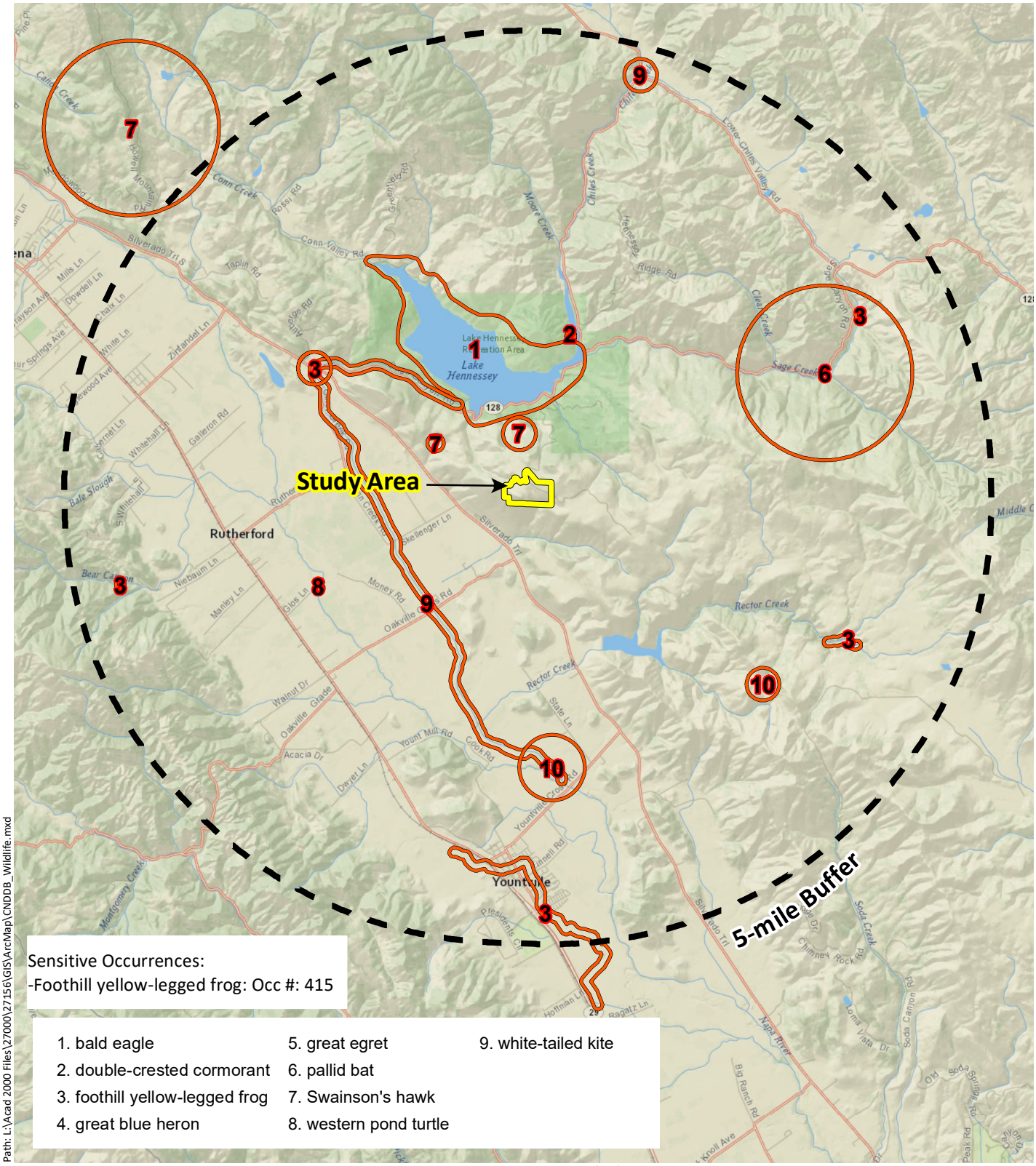


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**Sources**: National Geographic, CNDDB December 2018, WRA | Prepared By: smortensen, 12/19/2018

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

Wappo Land Company, LLC
Napa County, California

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# Appendix B

## Species Observed in the Study Area

Table B-1. Plant species observed in the Study Area, May 10, June 14, and October 25, 2017; March 12 and June 27, 2018

| Family | Scientific name | Common name | Life form | Origin | Rare Status[1] | Invasive Status[2] | Wetland indicator[3] |
|---|---|---|---|---|---|---|---|
| Agavaceae | *Chlorogalum pomeridianum* var. *pomeridianum* | common soap plant | perennial forb | native | - | - | NL |
| Anacardiaceae | *Rhus aromatica* | fragrant sumac | deciduous shrub | native | - | - | FACU |
| Anacardiaceae | *Toxicodendron diversilobum* | poison oak | deciduous shrub | native | - | - | NL |
| Apiaceae | *Daucus carota* | wild carrot | perennial forb | non-native | - | assessed | UPL |
| Apiaceae | *Lomatium dasycarpum* ssp. *dasycarpum* | woollyfruit desertparsley | perennial forb | native | - | - | NL |
| Apiaceae | *Torilis arvensis* | hedge parsley | annual forb | non-native | - | moderate | NL |
| Asteraceae | *Achillea millefolium* | common yarrow | perennial forb | native | - | - | FACU |
| Asteraceae | *Agoseris glauca* var. *glauca* | pale agoseris | perennial forb | native | - | - | FACU |
| Asteraceae | *Anthemis cotula* | stinking chamomile | annual forb | non-native | - | assessed | FACU |
| Asteraceae | *Baccharis pilularis* ssp. *consanguinea* | coyote brush | evergreen shrub | native | - | - | NL |
| Asteraceae | *Carduus pycnocephalus* ssp. *pycnocephalus* | Italian thistle | annual forb | non-native | - | moderate | NL |
| Asteraceae | *Centaurea melitensis* | tocalote | annual forb | non-native | - | moderate | NL |
| Asteraceae | *Centaurea solstitialis* | yellow star thistle | annual forb | non-native | - | high | NL |
| Asteraceae | *Cirsium vulgare* | bull thistle | perennial forb | non-native | - | moderate | FACU |
| Asteraceae | *Erigeron canadensis* | Canadian horseweed | annual forb | native | - | - | FACU |
| Asteraceae | *Erigeron greenei* | Greene's narrow-leaved daisy | perennial forb | native | Rank 1B | - | NL |
| Asteraceae | *Eriophyllum lanatum* var. *achilleoides* | common woolly sunflower | perennial forb | native | - | - | NL |
| Asteraceae | *Eurybia radulina* | roughleaf aster | perennial forb | native | - | - | NL |
| Asteraceae | *Harmonia nutans* | nodding harmonia | annual forb | native | Rank 4 | - | NL |
| Asteraceae | *Hypochaeris radicata* | rough cat's-ear | perennial forb | non-native | - | moderate | FACU |
| Asteraceae | *Leontodon saxatilis* ssp. *longirostris* | hawkbit | annual forb | non-native | - | - | FACU |
| Asteraceae | *Logfia gallica* | narrowleaf cottonrose | annual forb | non-native | - | - | NL |

| Family | Scientific name | Common name | Life form | Origin | Rare Status[1] | Invasive Status[2] | Wetland indicator[3] |
|---|---|---|---|---|---|---|---|
| Asteraceae | *Pseudognaphalium beneolens* | cudweed | perennial forb | native | - | - | NL |
| Asteraceae | *Pseudognaphalium californicum* | ladies' tobacco | perennial forb | native | - | - | NL |
| Asteraceae | *Sonchus asper* ssp. *asper* | prickly sow thistle | annual forb | non-native | - | assessed | FAC |
| Asteraceae | *Uropappus lindleyi* | silver puffs | annual forb | native | - | - | NL |
| Asteraceae | *Wyethia glabra* | Coast Range mule ears | perennial forb | native | - | - | NL |
| Boraginaceae | *Eriodictyon californicum* | California yerba santa | evergreen shrub | native | - | - | NL |
| Brassicaceae | *Hirschfeldia incana* | short podded mustard | perennial forb | non-native | - | moderate | NL |
| Brassicaceae | *Raphanus sativus* | wild radish | perennial forb | non-native | - | limited | NL |
| Brassicaceae | *Sinapis arvensis* | charlock | annual forb | non-native | - | limited | NL |
| Calycanthaceae | *Calycanthus occidentalis* | sweet shrub | evergreen shrub | native | - | - | FAC |
| Caprifoliaceae | *Lonicera interrupta* | chaparral honeysuckle | evergreen shrub | native | - | - | NL |
| Caryophyllaceae | *Cerastium glomeratum* | mouse-ear chickweed | annual forb | non-native | - | - | UPL |
| Caryophyllaceae | *Spergularia rubra* | red sandspurry | perennial forb | non-native | - | - | FAC |
| Cistaceae | *Crocanthemum scoparium* | Bisbee Peak rushrose | evergreen shrub | native | - | - | NL |
| Convolvulaceae | *Calystegia occidentalis* ssp. *occidentalis* | chaparral false bindweed | perennial forb | native | - | - | NL |
| Convolvulaceae | *Convolvulus arvensis* | field bindweed | perennial forb | non-native | - | assessed | NL |
| Cyperaceae | *Cyperus eragrostis* | tall flat-sedge | perennial graminoid | native | - | - | FACW |
| Ericaceae | *Arctostaphylos canescens* ssp. *canescens* | hoary manzanita | evergreen shrub | native | - | - | NL |
| Ericaceae | *Arctostaphylos manzanita* ssp. *manzanita* | whiteleaf manzanita | evergreen shrub | native | - | - | NL |
| Fabaceae | *Acmispon americanus* var. *americanus* | American lotus | annual forb | native | - | - | NL |
| Fabaceae | *Acmispon brachycarpus* | hairy lotus | annual forb | native | - | - | NL |
| Fabaceae | *Acmispon glaber* var. *glaber* | deer vetch | evergreen shrub | native | - | - | NL |
| Fabaceae | *Acmispon parviflorus* | small flowered lotus | annual forb | native | - | - | NL |
| Fabaceae | *Lathyrus vestitus* var. *vestitus* | common Pacific pea | perennial forb | native | - | - | NL |

| Family | Scientific name | Common name | Life form | Origin | Rare Status[1] | Invasive Status[2] | Wetland indicator[3] |
|---|---|---|---|---|---|---|---|
| Fabaceae | *Medicago polymorpha* | bur medic | annual forb | non-native | - | limited | FACU |
| Fabaceae | *Pickeringia montana* var. *montana* | chaparral pea | evergreen shrub | native | - | - | NL |
| Fabaceae | *Trifolium angustifolium* | narrowleaf crimson clover | annual forb | non-native | - | - | NL |
| Fabaceae | *Trifolium hirtum* | rose clover | annual forb | non-native | - | moderate | NL |
| Fabaceae | *Trifolium microdon* | thimble clover | annual forb | native | - | - | NL |
| Fabaceae | *Trifolium willdenovii* | tomcat clover | annual forb | native | - | - | NL |
| Fabaceae | *Vicia sativa* ssp. *nigra* | garden vetch | annual forb | non-native | - | - | FACU |
| Fagaceae | *Quercus agrifolia* var. *agrifolia* | coast live oak | evergreen tree | native | - | - | NL |
| Fagaceae | *Quercus berberidifolia* | scrub oak | evergreen tree | native | - | - | NL |
| Fagaceae | *Quercus durata* var. *durata* | leather oak | evergreen shrub | native | - | - | NL |
| Fagaceae | *Quercus wislizeni* var. *wislizeni* | interior live oak | evergreen tree | native | - | - | NL |
| Garryaceae | *Garrya congdonii* | Interior silktassel | evergreen shrub | native | - | - | NL |
| Gentianaceae | *Zeltnera muehlenbergii* | Monterey centaury | annual forb | native | - | - | FACW |
| Geraniaceae | *Erodium brachycarpum* | foothill filaree | annual forb | non-native | - | limited | NL |
| Geraniaceae | *Erodium cicutarium* | redstem stork's bill | annual forb | non-native | - | limited | NL |
| Geraniaceae | *Geranium dissectum* | cutleaf geranium | annual forb | non-native | - | moderate | NL |
| Hypericaceae | *Hypericum concinnum* | goldwire | perennial forb | native | - | - | NL |
| Iridaceae | *Iris macrosiphon* | bowltube iris | perennial forb | native | - | - | NL |
| Iridaceae | *Sisyrinchium bellum* | blue-eyed grass | perennial forb | native | - | - | FACW |
| Lamiaceae | *Monardella viridis* | green monardella | perennial forb | native | Rank 4 | - | NL |
| Lamiaceae | *Salvia sonomensis* | Sonoma sage | perennial forb | native | - | - | NL |
| Lauraceae | *Umbellularia californica* | California bay | evergreen tree | native | - | - | FAC |
| Liliaceae | *Calochortus amabilis* | golden globelily | perennial forb | native | - | - | NL |
| Liliaceae | *Calochortus luteus* | yellow mariposa lily | perennial forb | native | - | - | NL |
| Liliaceae | *Calochortus superbus* | yellow mariposa | perennial forb | native | - | - | NL |

| Family | Scientific name | Common name | Life form | Origin | Rare Status[1] | Invasive Status[2] | Wetland indicator[3] |
|---|---|---|---|---|---|---|---|
| Linaceae | *Hesperolinon sharsmithiae* | Sharsmith's flax | annual forb | native | Rank 1B | - | NL |
| Linaceae | *Linum bienne* | pale flax | annual forb | non-native | - | - | NL |
| Lythraceae | *Lythrum hyssopifolia* | hyssop loosestrife | annual forb | non-native | - | moderate | OBL |
| Malvaceae | *Malva parviflora* | cheeseweed mallow | annual forb | non-native | - | - | NL |
| Melanthiaceae | *Toxicoscordion fremontii* | Fremot's star lily | perennial forb | native | - | - | NL |
| Myrsinaceae | *Lysimachia arvensis* | scarlet pimpernel | annual forb | non-native | - | - | NL |
| Onagraceae | *Clarkia purpurea* ssp. *quadrivulnera* | winecup clarkia | annual forb | native | - | - | NL |
| Orchidaceae | *Piperia elongata* | denseflower rein orchid | perennial forb | native | - | - | NL |
| Orobanchaceae | *Castilleja attenuata* | valley tassels | annual forb | native | - | - | NL |
| Orobanchaceae | *Castilleja foliolosa* | woolly Indian paintbrush | perennial forb | native | - | - | NL |
| Papaveraceae | *Dendromecon rigida* | tree poppy | evergreen shrub | native | - | - | NL |
| Papaveraceae | *Eschscholzia californica* | California poppy | perennial forb | native | - | - | NL |
| Phrymaceae | *Diplacus aurantiacus* | sticky monkey | evergreen shrub | native | - | - | NL |
| Pinaceae | *Pinus sabiniana* | digger pine | evergreen tree | native | - | - | NL |
| Plantaginaceae | *Kickxia elatine* | sharpleaf cancerwort | perennial forb | non-native | - | - | UPL |
| Plantaginaceae | *Plantago erecta* | foothill plantain | annual forb | native | - | - | NL |
| Plantaginaceae | *Plantago lanceolata* | English plantain | perennial forb | non-native | - | limited | FAC |
| Poaceae | *Aira caryophyllea* | silver hairgrass | annual graminoid | non-native | - | assessed | FACU |
| Poaceae | *Avena barbata* | wild oat | annual graminoid | non-native | - | moderate | NL |
| Poaceae | *Brachypodium distachyon* | false brome | perennial graminoid | non-native | - | moderate | NL |
| Poaceae | *Briza minor* | little rattlesnake grass | annual graminoid | non-native | - | - | FAC |
| Poaceae | *Bromus diandrus* | rip-gut brome | annual graminoid | non-native | - | moderate | NL |
| Poaceae | *Bromus hordeaceus* | soft chess | annual graminoid | non-native | - | limited | FACU |
| Poaceae | *Bromus madritensis* ssp. *madritensis* | foxtail chess | annual graminoid | non-native | - | - | NL |
| Poaceae | *Festuca bromoides* | brome fescue | perennial graminoid | non-native | - | - | FAC |

| Family | Scientific name | Common name | Life form | Origin | Rare Status[1] | Invasive Status[2] | Wetland indicator[3] |
|---|---|---|---|---|---|---|---|
| Poaceae | *Festuca perennis* | Italian rye grass | annual graminoid | non-native | - | moderate | FAC |
| Poaceae | *Gastridium phleoides* | nit grass | annual graminoid | non-native | - | - | FACU |
| Poaceae | *Melica californica* | California onion grass | perennial graminoid | native | - | - | NL |
| Poaceae | *Melica torreyana* | Torrey's onion grass | perennial graminoid | native | - | - | NL |
| Poaceae | *Phalaris aquatica* | harding grass | perennial graminoid | non-native | - | moderate | FACU |
| Poaceae | *Polypogon monspeliensis* | rabbit's-foot grass | annual graminoid | non-native | - | limited | FACW |
| Poaceae | *Stipa cernua* | nodding needlegrass | perennial graminoid | native | - | - | NL |
| Poaceae | *Stipa miliacea* var. *miliacea* | smilo grass | perennial graminoid | non-native | - | - | NL |
| Poaceae | *Stipa pulchra* | purple needlegrass | perennial graminoid | native | - | - | NL |
| Polemoniaceae | *Navarretia heterodoxa* | Calistoga pincushionplant | annual forb | native | - | - | NL |
| Polemoniaceae | *Navarretia squarrosa* | skunkbush | annual forb | native | - | - | FACU |
| Polygalaceae | *Polygala californica* | California milkwort | perennial forb | native | - | - | NL |
| Polygonaceae | *Eriogonum nudum* var. *nudum* | naked buckwheat | perennial forb | native | - | - | NL |
| Pteridaceae | *Pellaea mucronata* var. *mucronata* | bird's foot fern | perennial fern | native | - | - | NL |
| Pteridaceae | *Pentagramma triangularis* ssp. *triangularis* | gold back fern | perennial fern | native | - | - | NL |
| Rhamnaceae | *Ceanothus foliosus* var. *foliosus* | wavyleaf ceanothus | evergreen shrub | native | - | - | NL |
| Rhamnaceae | *Ceanothus purpureus* | Napa ceanothus | evergreen shrub | native | Rank 1B | - | NL |
| Rhamnaceae | *Frangula californica* ssp. *californica* | California coffeeberry | evergreen shrub | native | - | - | NL |
| Rhamnaceae | *Rhamnus crocea* | redberry buckthorn | evergreen shrub | native | - | - | NL |
| Rosaceae | *Adenostoma fasciculatum* var. *fasciculatum* | chamise | evergreen shrub | native | - | - | NL |
| Rosaceae | *Heteromeles arbutifolia* | toyon | evergreen shrub | native | - | - | NL |
| Rubiaceae | *Galium porrigens* var. *porrigens* | graceful bedstraw | perennial forb | native | - | - | NL |
| Sapindaceae | *Aesculus californica* | California buckeye | deciduous tree | native | - | - | NL |
| Tecophilaeceae | *Odontostomum hartwegii* | Hartweg's doll's lily | perennial forb | native | - | - | NL |

| Family | Scientific name | Common name | Life form | Origin | Rare Status[1] | Invasive Status[2] | Wetland indicator[3] |
|---|---|---|---|---|---|---|---|
| Themidaceae | *Brodiaea elegans* ssp. *elegans* | harvest brodiaea | perennial forb | native | - | - | FACU |
| Themidaceae | *Brodiaea leptandra* | narrow-anthered brodiaea | perennial forb | native | Rank 1B | - | NL |
| Themidaceae | *Dichelostemma capitatum* ssp. *capitatum* | blue dicks | perennial forb | native | - | - | FACU |

All species identified using the *Jepson Manual, 2nd Edition* (Baldwin et al. 2012); nomenclature follows *The Jepson Flora Project* (eFlora 2018) 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 2018)

- 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

# Appendix C

## Special-status Species Potential Table

Table C. Potential for Special-status Species to Occur in the Study Area. List compiled from the CDFW BIOS database (CDFW 2018a), USFWS IPaC Report (USFWS 2018), and CNPS Electronic Inventory (CNPS 2018a) searches. For plants, the Saint Helena, Chiles Valley, Lake Berryessa, Rutherford, Yountville, Capell Valley, Sonoma, Napa, and Mount George 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. | **No Potential.** The Study Area does not contain mesic grassland or vernal pool habitat to support this species. | **Not Present.** 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. | **Moderate Potential.** The Study Area contains open grassland woodland with rocky substrate that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions 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. | **Unlikely.** Although the Study Area contains scrub and woodlands, this species is known from cooler habitats. | **Not Present.** No further actions are recommended for this species. |
| *Amsinckia lunaris* bent-flowered fiddleneck | Rank 1B | Cismontane woodland, valley and foothill grassland, coastal bluff scrub; typically on volcanic or serpentine substrates. Elevation range: 10 – 1625 feet. Blooms: March – June. | **Moderate Potential.** The Study Area contains grassland and open woodland underlain by volcanic substrate. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Antirrhinum virga*<br>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. | **Moderate Potential.** The Study Area contains chaparral and volcanic soils that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Arabis modesta*<br>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. | **Moderate Potential.** The Study Area contains steep, shaded slopes in chaparral that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Arctostaphylos bakeri* ssp. *bakeri*<br>Baker's manzanita | SR, Rank 1B | Broadleaf upland forest, chaparral, closed-cone coniferous forest; located on serpentine substrate. Elevation range: 240 – 975 feet. Blooms: February – April. | **Unlikely.** Although the Study Area contains soils that are functionally similar to serpentine, this species is highly restricted to western/ central Sonoma County. | **Not Present.** No further actions are recommended for this species. |
| *Arctostaphylos stanfordiana ssp. decumbens*<br>Rincon manzanita | Rank 1B | Chaparral, cismontane woodland; highly restricted to red rhylolitic soils. Elevation range: 245 – 1215 feet. Blooms: February – April. | **Moderate Potential.** The Study Area contains chaparral and volcanic soils that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Astragalus breweri* Brewer's milk-vetch | Rank 4 | Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland; located on open, gravelly serpentine or volcanic substrate. Elevation range: 290 – 2375 feet. Blooms: April – June. | **Unlikely.** This species is known from meadows and mesic openings in chaparral and woodlands which are lacking in the Study Area. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Astragalus claranus* Clara Hunt's milk-vetch | FE; ST; Rank 1B | Cismontane woodland, valley and foothill grassland, chaparral; on open grassy hillsides, especially exposed shoulders with thin, volcanic clay soils. Elevation range: 245 – 900 feet. Blooms: March – May. | **No Potential.** The Study Area does not contain serpentine seeps 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 to support this species. | **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 mesic grassy areas on alkaline substrate. Elevation range: 0 – 195 feet. Blooms: March – June. | **No Potential.** The Study Area does not contain vernal pool or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Balsamorhiza macrolepis* big-scale balsamroot | Rank 1B | Valley and foothill grassland, cismontane woodland, chaparral; located on open, rocky slopes, underlain by volcanic or serpentine substrate. Elevation range: 295 – 3100 feet. Blooms: March – June. | **Moderate Potential.** The Study Area contains chaparral and volcanic soils that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Blennosperma bakeri* Sonoma sunshine | FE, SE, Rank 1B | Vernal pools, vernal swales, and mesic areas in valley grassland; highly restricted to the Santa Rosa Plain and Valley of the Moon. Elevation range: 35 – 360 feet. Blooms: March – April. | **No Potential.** The Study Area does not contain vernal pool or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *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. | **High Potential.** The Study Area contains chaparral and volcanic soils that may support this species. | **Observed**. Dozens of individuals in five subpopulations covering approximately 0.3 acre is located within the Study Area See Section 5.2 for population descriptions and Section 6.2 for recommendations. |
| *Calamagrostis ophitidis* serpentine reed grass | Rank 4 | Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland; located in openings, often north-facing, underlain by rocky serpentine substrate. Elevation range: 290 – 3465 feet. Blooms: April – July. | **Unlikely.** This species is known strictly from serpentine soils. | **Not Present.** 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. | **Unlikely.** The Study Area has not burned or recently disturbed to provide the opportunity for colonization. | **Not Present.** No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *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 chaparral and volcanic soils that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Calystegia collina* ssp. *oxyphylla* Mt. Saint Helena morning-glory | Rank 4 | Chaparral; located on serpentine barrens, slopes, and hillsides. Elevation range: 815 – 3315 feet. Blooms: April – June. | **Unlikely.** This species is situated strictly on serpentine soils with extensive, open barrens. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions 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. | **No Potential.** The Study Area does not contain mesic grasslands or mesic scrubs to support this species. | **Not Present.** 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. | **No Potential.** The Study Area does not contain vernal pool or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Ceanothus confusus*<br>Rincon Ridge ceanothus | Rank 1B | Closed-cone coniferous forest, chaparral, cismontane woodland; known from volcanic and serpentine substrate; typically on dry shrubby slopes. Elevation range: 245 – 3495 feet. Blooms: February – April. | **Moderate Potential.** The Study Area contains chaparral and volcanic soils that may support this species. Most occurrences from western Napa/eastern Sonoma counties. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Ceanothus divergens*<br>Calistoga ceanothus | Rank 1B | Chaparral, cismontane woodland; on rocky, serpentine sites. Elevation range: 560 – 3115 feet. Blooms: February – March. | **Unlikely.** This species occurs strictly on serpentine substrates. | **Not Present.** No further actions are recommended for this species. |
| *Ceanothus purpureus*<br>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 and volcanic soils that may support this species. Most occurrences from within the immediate vicinity of the Study Area. | **Observed**. Hundreds of individuals in approximately ten subpopulations covering approximately 23.2 acres is located within the Study Area See Section 5.2 for population descriptions and Section 6.2 for recommendations. |
| *Ceanothus sonomensis*<br>Sonoma ceanothus | Rank 1B | Chaparral; located on sandy serpentine or volcanic substrates. Elevation range: 705 – 2625 feet. Blooms: February – April. | **Moderate Potential.** The Study Area contains chaparral and volcanic soils that may support this species. Most occurrences from western Napa/eastern Sonoma counties. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Centromadia parryi* ssp. *rudis* Parry's rough tarplant | Rank 4 | Valley and foothill grassland, vernal pools; situated in alkaline, vernally mesic grasslands and wetland edges. Elevation range: 0 – 325 feet. Blooms: May – October. | **No Potential.** The Study Area does not contain mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Chorizanthe valida* Sonoma spineflower | FE; SE; Rank 1B | Coastal prairie; in sandy soils. Elevation range: 35 – 1000 feet. Blooms: June – August. | **No Potential.** The Study Area does not contain sandy coastal prairie to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Clarkia breweri* Brewer's clarkia | Rank 4 | Chaparral, cismontane woodland, coastal scrub; frequently on serpentine substrate. Elevation range: 695 – 3625 feet. Blooms: April – June. | **No Potential.** Documented occurrences of this species from Napa County is widely considered erroneous. | **Not Present.** No further actions are recommended for this species. |
| *Clarkia gracilis* ssp. *tracyi* Tracy's clarkia | Rank 4 | Chaparral; located in openings and situated on substrates often derived from serpentine, sometimes volcanics. Elevation range: 210 – 2115 feet. Blooms: April – July. | **Moderate Potential.** The Study Area contains chaparral that may support this species. Most occurrences on serpentine substrate. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions 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. | **Unlikely.** This species occurs strictly on serpentine substrates. | **Not Present.** No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Cordylanthus tenuis* ssp. *brunneus* serpentine bird's-beak | Rank 4 | Closed-cone coniferous forest, chaparral, cismontane woodland; located on serpentine substrate. Elevation range: 1540 – 2975 feet. Blooms: July – August. | **Unlikely.** This species occurs strictly on serpentine substrates. | **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. | **Unlikely.** This species occurs strictly on serpentine substrates. | **Not Present.** No further actions are recommended for this species. |
| *Delphinium uliginosum* swamp larkspur | Rank 4 | Chaparral, valley and foothill grassland; located in seeps and wet meadows underlain by serpentine substrate. Elevation range: 1105 – 1985 feet. Blooms: May – June. | **No Potential.** The Study Area does not contain mesic grassland or wet meadows underlain by serpentine substrate 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. | **No Potential.** The Study Area does not contain mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *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 woodland that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Erigeron greenei* Greene's narrow-leaved daisy | Rank 1B | Chaparral; located on volcanic or serpentine substrate. Elevation range: 260 – 3270 feet. Blooms: May – September. | **High Potential.** The Study Area contains chaparral and volcanic soils that may support this species. Numerous occurrences from within the immediate vicinity of the Study Area. | **Observed**. Dozens of individuals in one population covering approximately 0.04 acre is located within the Study Area See Section 5.2 for population descriptions and Section 6.2 for recommendations. |
| *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. | **No Potential.** The Study Area does not contain mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *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 mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Gilia capitata* ssp. *tomentosa* woolly-headed gilia | Rank 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 habitat 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 |
|---|---|---|---|---|
| *Harmonia nutans*<br>nodding harmonia | Rank 4 | Chaparral, cismontane woodland; located on rocky to gravelly substrates derived from volcanics. Elevation range: 240 – 3170 feet. Blooms: March – May. | **High Potential.** The Study Area contains chaparral and volcanic soils that may support this species. Most occurrences from within the immediate vicinity of the Study Area. | **Observed**. Dozens of individuals in one population covering approximately 0.03 acre is located within the Study Area See Section 5.2 for population descriptions and Section 6.2 for recommendations. |
| *Hemizonia congesta ssp. congesta*<br>Hayfield tarplant | Rank 1B | Coastal scrub, valley and foothill grassland. Elevation range: 65 – 1840 feet. Blooms: April – October. | **Unlikely.** Although the Study Area contains grassland open woodlands, this species is known from lower coastal hills and near the San Pablo Bay. | **Not Present.** No further actions are recommended for this species. |
| *Hesperolinon bicarpellatum*<br>Two-carpellate western flax | Rank 1B | Chaparral; located on serpentine substrate. Elevation range: 195 – 3270 feet. Blooms: May – July. | **Unlikely.** This species is known strictly from serpentine substrates. | **Not Present.** No further actions are recommended for this species. |
| *Hesperolinon breweri*<br>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. | **Unlikely.** This species is known strictly from serpentine substrates. | **Not Present.** No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Hesperolinon sharsmithiae* Sharsmith's western flax | Rank 1B | Chaparral; located on serpentine and volcanic substrate. Elevation range: 875 – 975 feet. Blooms: May – July. | **High Potential.** The Study Area contains volcanic chaparral that may support this species. | **Observed**. Hundreds of individuals in five subpopulations covering approximately 2.6 acres is located within the Study Area See Section 5.2 for population descriptions and Section 6.2 for recommendations. |
| *Horkelia tenuiloba* thin-lobed horkelia | Rank 1B | Broadleaf upland forest, coastal scrub, valley and foothill grassland, chaparral; in mesic openings, on sandy substrate. Elevation range: 165 – 1640 feet. Blooms: May – July. | **No Potential.** The Study Area lacks sandy soils 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. | **No Potential.** The Study Area is not within the historical range of 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 mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *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 marsh or similar type wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Layia septentrionalis* Colusa layia | Rank 1B | Chaparral, cismontane woodland, valley and foothill grassland; on sandy, serpentine substrate; typically in fields and grassy slopes underlain by serpentine or volcanic substrates. Elevation range: 330 – 3595 feet. Blooms: April – May. | **Moderate Potential.** The Study Area contains volcanic chaparral, woodland, and grassland that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Leptosiphon acicularis* bristly leptosiphon | Rank 4, LR | Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland; often located on shallow, rocky substrate in foothill positions. Elevation range: 175 – 4875 feet. Blooms: April – July. | **High Potential.** The Study Area contains shallow, rocky substrates with openings in chaparral and grasslands that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions 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. | **High Potential.** The Study Area contains grassland and open woodlands underlain by rocky volcanic soils that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Leptosiphon latisectus*<br>broad-lobed leptosiphon | Rank 4 | Broadleaf upland forest, cismontane woodland; frequently situated on serpentine, sometimes volcanic substrate. Elevation range: 550 – 4875 feet. Blooms: April – June. | **Moderate Potential.** The Study Area contains volcanic woodland that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Lilaeopsis masonii*<br>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 marsh or similar type wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Lilium rubescens*<br>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 or volcanic substrates, and along roadcuts. Elevation range: 95 – 6210 feet. Blooms: April – September. | **Moderate Potential.** The Study Area contains chaparral that may support this species; however most documented occurrences from Napa County are in the western and the northern areas. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Limnanthes vinculans*<br>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 mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Lomatium repostum*<br>Napa Lomatium | Rank 4 | Chaparral, cismontane woodland; located on serpentine or volcanic substrate. Elevation range: 290 – 2700 feet. Blooms: March – June. | **High Potential.** The Study Area contains volcanic chaparral that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Lupinus sericatus*<br>Cobb Mountain lupine | Rank 1B | Broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest; typically located in stands of knobcone pine-oak woodland, on open wooded slopes in gravelly substrate, sometimes serpentine. Elevation range: 890 – 4960 feet. Blooms: March – June. | **High Potential.** The Study Area contains volcanic chaparral that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Malacothamnus helleri*<br>Heller's bush-mallow | Rank 4 | Chaparral; situated on soils derived from sandstone. Elevation range: 3220 – 2065 feet. Blooms: June – August. | **Unlikely.** The Study Area does not contain sandstone chaparral to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Micropus amphibolus*<br>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 openings underlain by thin rocky soils. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Monardella viridis* green monardella | Rank 4 | Broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 325 – 3285 feet. Blooms: June – September. | **High Potential.** The Study Area contains volcanic chaparral that may support this species. | **Observed**. Hundreds of individuals in six subpopulations covering approximately 0.3 acre is located within the Study Area See Section 5.2 for population descriptions and Section 6.2 for recommendations. |
| *Navarretia cotulifolia* cotula navarretia | Rank 4, LR | Chaparral, cismontane woodland, valley and foothill grassland; located on adobe substrate. Elevation range: 10 – 5950 feet. Blooms: May – June. | **Unlikely.** Although the Study Area contains chaparral and woodland, but adobe soils are lacking. | **Not Present.** No further actions are recommended for this species. |
| *Navarretia heterandra* Tehama navarretia | Rank 4 | Valley and foothill grasslands, vernal pools; situated in pools and mesic grasslands. Elevation range: 95 – 3285 feet. Blooms: April – June. | **No Potential.** The Study Area does not contain mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Navarretia leucocephala* ssp. *bakeri* Baker's navarretia | Rank 1B | Wet, mesic sites underlain by adobe and/or alkaline substrate in cismontane woodland, meadows, seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Elevation range: 15 – 5710 feet. Blooms: April – July. | **No Potential.** The Study Area does not contain mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *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. | **No Potential.** The Study Area does not contain mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Navarretia rosulata* Marin County navarretia | Rank 1B | Closed-cone coniferous forest, chaparral; located on dry, rocky sites often formed from serpentine. Elevation range: 650 – 2065 feet. Blooms: May – July. | **Unlikely.** This species is known strictly from serpentine substrates. | **Not Present.** No further actions are recommended for this species. |
| *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. | **Moderate Potential.** The Study Area contains small rock outcrops and adjacent talus that may support this species; however, populations are from large outcrops on knife-back ridges of tall mountains. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions 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. | **No Potential.** The Study Area does not contain mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **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 marsh or similar type 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 |
|---|---|---|---|---|
| *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 marsh or similar type wetlands 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 seeps 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. | **Moderate Potential.** The Study Area contains volcanic chaparral that may support this species. Documented occurrences are few in Napa County. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions 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 volcanic chaparral that may support this species. Documented occurrences are few in Napa County. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Sidalcea keckii*<br>Keck's checkerbloom | FE; Rank 1B | Cismontane woodland, valley and foothill grassland; located in grassy areas in blue oak woodland typically underlain by serpentine substrate, sometimes sedimentary and volcanic soils. Elevation range: 240 – 2115 feet. Blooms: April – June. | **Moderate Potential.** The Study Area contains volcanic woodland and grassland that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *Sidalcea oregana* ssp. *hydrophila*<br>marsh checkerbloom | Rank 1B | Meadows and seeps, riparian forest; located on wet soils along streambanks and meadows. Elevation range: 3575 – 7475 feet. Blooms: July – August. | **No Potential.** The Study Area does not contain marsh or similar type wetlands to support this species. | **Not Present.** No further actions are recommended for this species. |
| *Streptanthus hesperidis*<br>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. | **Unlikely.** This species is known strictly from serpentine substrates. | **Not Present.** No further actions are recommended for this species. |
| *Symphyotrichum lentum*<br>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 marsh or similar type 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 |
|---|---|---|---|---|
| *Toxicoscordion fontanum* marsh zigzag | Rank 4 | Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps; located in vernally mesic sites, often underlain by serpentine. Elevation range: 45 – 3250 feet. Blooms: April – July. | **No Potential.** The Study Area does not contain mesic grassland or wet meadows underlain by serpentine substrate 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 openings in chaparral that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |
| *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. | **Unlikely.** There are no documented occurrences north of the City of Napa. | **Not Present.** 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. | **No Potential.** The Study Area does not contain mesic grasslands, vernal pool, or similar type seasonal wetlands to support this species. | **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 volcanic chaparral that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions recommended for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Viburnum ellipticum*<br>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 volcanic chaparral that may support this species. | **Not Observed.** This species was not observed during protocol-level rare plant surveys. No further actions 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. | Unlikely. The Study Area lacks cliffs as well as larger oaks and other trees with hollows suitable for roosting. | **Presumed Absent.** No further recommendations for this species. |
| *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*<br>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. | **Presumed Absent.** No further recommendations for this species. |
| *Eumops perotis californicus*<br>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*<br>western red bat | SSC, WBWG High | Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. It is associated with broad-leaved tree species including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. | **Unlikely.** The Study Area lacks large, broadleaved trees of the type typically used for roosting (maples, sycamores, etc.). | **Presumed Absent.** No further recommendations for this species. |
| *Myotis thysanodes*<br>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. | **Unlikely.** The Study Area lacks larger oaks and other trees with hollows suitable for roosting. | **Presumed Absent.** No further recommendations for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Myotis volans*<br>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*<br>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*<br>Suisun shrew | SSC | Tidal marshes of the northern shores of San Pablo and Suisun bays. Require dense low-lying vegetation cover, driftwood, and other litter above the mean high tide line for nesting and foraging. | **No Potential.** The Study Area contains no tidal or brackish marsh and is outside of this species' Napa County range. | **Not Present.** No further recommendations for this species. |
| *Taxidea taxus*<br>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 (CDFW 2018a). | **Presumed Absent.** No further recommendations for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| **Birds** | | | | |
| *Agelaius tricolor* tricolored blackbird | SC (E), SSC | Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential. | **No Potential.** The Study Area does not 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 in area 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 2018). | **Presumed Absent.** No further recommendations for this species. |
| *Aquila chrysaetos* golden eagle | BGEPA, SFP | Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas. | **Unlikely.** The Study Area does not provide large cliffs or typical large trees for nesting; may forage in the vicinity. | **Presumed Absent.** No further recommendations for this species. |

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

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Asio otus*<br>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 2018). | **Presumed Absent.** No further recommendations for this species. |
| *Athene cunicularia*<br>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 2018a). | **Presumed Absent.** No further recommendations for this species. |
| *Buteo swainsoni*<br>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 2018a). | **Presumed Absent.** No further recommendations for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Charadrius alexandrines nivosus*<br>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*<br>northern harrier | SSC | Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates. | **Unlikely.** Open grassland within the Study Area is limited in area and of low quality; 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. |
| *Contopus cooperi*<br>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*<br>yellow rail | SSC | Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation. Also a rare winter visitor along the coast and other portions of the state. Extremely cryptic. | **No Potential.** The Study Area lacks wetland or moist meadow habitat suitable for this species; there are no nesting records from Napa County (Smith 2003, CDFW 2018). | **Not Present.** No further recommendations for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Cypseloides niger*<br>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. | **Unlikely.** The Study Area does not contain streams and associated dense riparian thickets (e.g., willow cover) favored by this species for breeding. Individuals presumably occur during migration. | **Presumed Absent.** No further recommendations for this species. |
| *Egretta thula*<br>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*<br>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 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. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *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. |
| *Haliaeetus leucocephalus* bald eagle | BGEPA, SE, SFP | Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs, and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish. | **Unlikely.** Larger water bodies are not within or in close proximity to the Study Area. As per Smith (2003) and CDFW (2018a), 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 2018). | **Presumed Absent.** No further recommendations for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *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.** Open, relatively flat areas are limited within the Study Area. | **Presumed Absent.** No further recommendations for this species. |
| *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. | **No Potential.** The Study Area and adjacent lands lack aquatic foraging habitat. | **Not Present.** No further recommendations for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Passerculus sandwichensis alaudinus*<br>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 relatively arid, and this species has not been documented in this portion of the County as per available sources (Smith 2003, eBird 2018). | **Presumed Absent.** No further recommendations for this species. |
| *Progne subis*<br>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 2018). | **Presumed Absent.** No further recommendations for this species. |
| *Rallus obsoletus obsoletus*<br>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*<br>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*<br>(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.** On-site ephemeral streams lack dense riparian thickets (e.g., willow cover) favored by this species for breeding. Individuals presumably occur during migration. | **Presumed Absent.** No further recommendations for this species. |
| *Spizella atrogularis*<br>black-chinned sparrow | LR | Summer resident. Typically occurs on arid, rocky slopes with brushy vegetation, e.g. mixed chaparral, and sagebrush. | **Unlikely.** Chaparral within the Study Area is of moderate quality, but there are no recent observations in Napa County (Smith 2003, eBird 2018). | **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 lacks marsh vegetation suitable for nesting. | **Not Present.** No further recommendations for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| **Reptiles and Amphibians** | | | | |
| *Dicamptodon ensatus*<br>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. | **No Potential.** Ephemeral streams within the Study Area lack suitable hydrology (duration and extent of inundation) to support this species. The nearest documented occurrences in CNDDB are a minimum distance of 7.0 miles to the west and north (CDFW 2018). | **Not Present.** No further recommendations for this species. |
| *Emys marmorata*<br>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 on-site artificial (agriculture) pond is cement-lined and lacks natural characteristics (vegetation, uplands suitable for nesting) required by this species; on-site ephemeral streams have insufficient hydrology. | **Presumed Absent.** No further recommendations for this species. |
| *Rana boylii*<br>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.** The on-site ephemeral streams have marginal hydrology for this species, and presumably lack sufficient hydrology for aquatic breeding and any sustained presence. All on-site streams are located outside of the Project Area. | **Presumed Absent.** No further recommendations for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Rana draytonii*<br>California red-legged frog | FT, SSC | Lowlands and foothills in or near permanent sources of deep water with dense emergent and/or overhanging riparian vegetation. Favors perennial to intermittent ponds, marshes, and stream pools. Requires 11 to 20 weeks of continuous inundation for larval development. Disperses through upland habitats during and after rains. | **Unlikely.** The on-site artificial (agriculture) pond is cement-lined and lacks natural characteristics required by this species (e.g., emergent and riparian vegetation); on-site ephemeral streams have insufficient hydrology. The nearest occurrences in CNDDB in Napa County are located greater than 8.0 miles to north and southeast (CDFW 2018). | **Presumed Absent.** No further recommendations for this species. |
| *Scaphiopus hammondii*<br>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*<br>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.** Ephemeral streams within the Study Area lack suitable hydrology (e.g., duration of inundation) to support this species; the known range does not include Napa County (CDFW 2018). | **Not Present.** No further recommendations for this species. |

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

| 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 (T), 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. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| **Invertebrates** | | | | |
| *Branchinecta lynchi*<br>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*<br>valley elderberry longhorn beetle | FT | Found in riparian and oak savannah where elderberry (*Sambucus* sp.), the host plant, is present. | **No Potential.** Elderberry was not observed during the site visit; CNDDB occurrences are restricted to the southeastern-most portion of Napa County (CDFW 2018a). | **Not Present.** No further recommendations for this species. |
| *Speyeria callippe callippe*<br>Callippe silverspot butterfly | FE | Two populations are recognized, on San Bruno Mountain and the Cordelia Hills. Host plant is *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.** This species' known range with Napa County is restricted to the immediate vicinity of the Cordelia Hills. | **Not Present.** No further recommendations for this species. |

| SPECIES | STATUS* | HABITAT REQUIREMENTS | POTENTIAL TO OCCUR IN THE STUDY AREA | RESULTS AND RECOMMENDATIONS |
|---|---|---|---|---|
| *Syncaris pacifica*<br>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.** Ephemeral streams within the Study Area lack suitable hydrology (duration and extent of inundation to support this species). Additionally, the only documented occurrence in Napa County is from Huichica Creek in the southwest portion of the county (Martin and Wicksten 2004, CDFW 2018a). | **Presumed Absent.** No further recommendations for this species. |

***Key to status codes:**

| | |
|---|---|
| FC | Federal Candidate for Listing |
| FE | Federal Endangered |
| BGEPA | Bald and Golden Eagle Protection Act Species |
| FT | Federal Threatened |
| LR | Locally Rare as per Napa County Baseline Report |
| SC (E/T) | State Candidate for Listing (Endangered/Threatened) |
| SE | State Endangered |
| SFP | State Fully Protected Animal |
| SR | State Rare |
| SSC | State Species of Special Concern |
| ST | State Threatened |
| 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

## Site Photographs

Photo 1. Foothill pine woodland located in the western portion of the Study Area.

Photo 2. Scrub oak chaparral in the southwest portion of the Study Area.

Photo 3. Upper reach of the ephemeral stream located in the central portion of the Study Area.

Photo 4. Coast live oak woodland associated with ephemeral stream.

Photo 5. Southern portion of Study Area; chamise chaparral is in the foreground, while coast live oak woodland is in the background. The ephemeral drainage is between.

Photo 6. Chamise chaparral.

Photo 7. Existing agricultural areas within the Study Area.

Photo 8. Coast live oak woodland and non-native grassland in the southern portion of the Study Area.

Photo 9. Coast live oak woodlands and non-native grasslands.

Photo 10. Sharsmith's western flax found in the Study Area.

Photo 11. Holly-leaved ceanothus within the Study Area.

Photo 12. Narrow-anthered brodiaea found in the Study Area.

# Appendix E

## Statement of Qualifications

Appendix E. Statement of Qualifications

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

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

Aaron Arthur, MS, 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, Associate 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.