

Exhibit B-1

Biological Resources Reconnaissance Survey Report

Johnson Property, 3363 State Route 128
Calistoga, Napa County, California (APN: 017-160-036)

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WRA Project #:

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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 eight vineyard blocks totaling approximately 9.28 gross acres (Project Area) located at the Johnson Property on State Highway 128 in unincorporated Napa County, California. WRA, Inc. performed field surveys on May 10, 2018. The Study Area is comprised of Douglas fir forest, oak woodlands, and developed areas, with streams and a man-made pond.

Approximately 2.43 acres of oak woodland, of a total 13.29 acres across the property (18.3 percent), will be converted to vineyard. Oak woodlands are considered sensitive under Napa County General Plan Conservation Element Policy CON-24. A ratio of 3:1 (7.29 acres) preservation would be applied to this impact. The remainder of the vineyard block is situated in the non-sensitive biological communities of Douglas fir forest and developed areas.

The Project Area is intentionally sited to avoid on-site streams and the man-made pond. A focused rare plant survey resulted in negative detections of special-status plants. Therefore, no impacts to jurisdictional waters and/or special-status plants are anticipated result from project implementation. Furthermore, the propose vineyard blocks meet or exceed the county required setbacks from the respective aquatic resources.

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

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DEFINITIONS

Study Area: The area throughout which the assessment and survey effort was performed, inclusive of the entire parcel, including the Project Area at 3363 State Route 128

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

LIST OF ACRONYMS

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
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
MBTA	Migratory Bird Treaty Act
NCBR	Napa County Baseline 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
CRPR	California Rare Plant Ranks
RWQCB	Regional Water Quality Control Board
SFP	State Fully Protected Species
SSC	Species of Special Concern
SWRCB	State Water Resource Control Board
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group

1.0 INTRODUCTION

1.1 Purpose of Assessment

On May 10, 2018, WRA, Inc. (WRA) performed an assessment of biological resources at a private residence located at 3363 State Route 128, unincorporated Napa County (APN: 017-160-036; 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 previously document in the Study Area; however, protocol-level surveys for wildlife may or may not be included as part of the survey. This survey is not a formal wetland delineation; in instances where such a delineation may be required for project approval by local, state, or federal agencies, results would be reported herein, but may be presented elsewhere in separate reports. This survey is based on information available at the time of the study and on-site conditions that were observed on the date(s) the site was visited.

This report describes the results of the site visit, which assessed the 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 assessment were documented and their presence is discussed herein. Specific findings on the habitat suitability or presence of special-status species or sensitive habitats may require that protocol-level surveys or other studies be conducted; recommendations for additional studies are provided.

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 Project Areas 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 eight vineyard blocks totaling approximately 9.28 gross acres scattered throughout the approximately 40-acre property. Associated with the installation of the grape vines will be vineyard avenues, fences, irrigation lines, etc. Site preparation (ripping, installation of erosion control measures, seeding cover crop, and installation of irrigation pipelines and trellis) will occur during the grading window of April 1 through October 15. By October 15, the site will be winterized with placement of straw wattles, seeding of vineyard avenues and planting areas, and straw mulch spread over disturbed areas as required by the Erosion Control Plan (ECP) prepared for the Project.

2.0 REGULATORY BACKGROUND

This report is intended to facilitate conformance of the Project with the standards outlined in the Napa County Code and General Plan. In addition to the requirements of Napa County, the Project may also be subject to several federal and state regulations designed to protect sensitive natural resources. Full analysis of these requirements in the context of the Project is addressed herein.

2.1 Federal and State Regulatory Setting

2.2.1 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.

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

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

2.2.2 *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 NCBR 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 Napa County Baseline Report (NCBR; 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 NCBP (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 NCBP (Napa County 2005). In addition to those biological communities identified by CDFW, the NCBP 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 caused 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 ratio¹ 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, to 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 States 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:

¹ In April 2019, Napa County proposed a change from 2:1 to approximately 3:1 for retention of oak woodland

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.

3.0 ENVIRONMENTAL SETTING

The Project Area is set in a single parcel of approximately 40 acres, located in northern Napa County, approximately 2.5 miles west of the downtown Calistoga. It is situated in the Mayacama Mountains, south of Mount Saint Helena across Knights Valley/northern Napa Valley. Detailed descriptions of the local setting are below.

3.1 Topography and Soils

The overall topography of the Study Area is gently- to moderately-sloped with no dominant aspect, and elevations ranging from approximately 470 to 580 feet above sea level. According to the *Soil Survey of Napa County* (USDA 1978), the Study Area is underlain by three soil mapping units: Forward silt loam, 5 to 39 percent slopes; Forward silt loam, 12 to 57 percent slopes; and Forward-Kidd complex, 50 to 75 percent slopes. The parent soil series of these mapping units are summarized below.

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

Kidd Series: This series consists of very shallow gravelly loam soils formed from weathered rhyolitic tuff and rhyolite situated on upland hillslopes at elevations ranging from 500 to 4,300 feet. These soils are not considered hydric, and are well- to excessively drained with medium to very rapid runoff, and moderately rapid to rapid permeability (CSRL 2018, USDA 1978). Native and naturalized vegetation include hoary manzanita (*Arctostaphylos canescens*), chamise (*Adenostoma fasciculatum*), ceanothus (*Ceanothus* spp.), scrub oak (*Quercus berberidifolia*), knobcone pine (*Pinus attenuata*), ponderosa pine (*P. ponderosa*), and mixed herbs. Typical land use is for watershed, recreation, and limited grazing.

3.2 Climate and Hydrology

The Study Area is located outside of the coastal fog belt of the Bay Area, but does experience interior valley fog. The average monthly maximum temperature of Calistoga (041312) is 92.5 degrees Fahrenheit, while the average monthly minimum temperature is 36.2 degrees Fahrenheit. Precipitation falls as rain with an annual average of 37.55 inches. Precipitation-bearing weather systems are predominantly from the west and south with the majority of rainfalls between November and March, with a combined average of 31.52 inches (USDA 2018). Snows are infrequent, but moisture accumulated on rooves, trees, and other tall structures (“fog drip”) contributes to soil moisture throughout the year in periods of heavy fog.

The local watershed is Upper Napa River (HUC 12: 180500020201) and the regional watershed is Napa River (HUC 8: 18050002). There are no mapped blue-line streams according to the U.S. Geological Survey (USGS) 7.5-minute quadrangles (USGS 1980, USGS 1993) or in the National Wetlands Inventory (NWI; USFWS 2018a); however, the California Aquatic Resources Inventory (CARI; SFEI 2018) maps several drainages. All three have mapped the man-made ponds. The primary hydrologic sources are direct precipitation and consequent sheetflow. Precipitation infiltrates quickly with excessive events resulting in short-lived sheetflows that either exit the site or collect in two narrow swales (see Section 5.1). The parcel is located within the Upper Napa River Planning Watershed (Napa County 2018).

3.3 Biota and Land Use

The majority of the Study Area (excluding the vineyards) was burned in the Tubbs Fire of October 2017, including the single-family residence. The fire intensity was at a level which charred trees and large shrubs, but cleared the herbaceous layer and killed smaller trees and shrubs. The Study Area is composed of development (hardscape and vineyards) within a mosaic oak woodland and conifer forest. Detailed plant community descriptions are included in Section 5.1 below and all observed plant species are included in Appendix B.

Currently the Study Area supports vineyards, a man-made pond, and burned single-family residence with associated infrastructure. Regional land-uses include rural residential, vineyards, and row crops (Google Earth 2018). Historically, the region was open rangeland, vineyards, orchards, and timber. There is nothing in the historical record that suggests the Study Area was dense chaparral, open grasslands, or extensive wetland, and there is no history of quarrying, mining, or industrial timbering (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)
- Mark West Springs 7.5-minute quadrangle (USGS 1993)
- Calistoga 7.5-minute quadrangle (USGS 1980)
- Contemporary aerial photographs (Google Earth 2018)
- Historical aerial photographs (Historic 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., CNDDDB, CNPS) focused on the Mount Saint Helena, Detert Reservoir, Aetna Springs, Mark West Springs, Calistoga, Saint Helena, Santa Rosa, Kenwood, and Rutherford 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 Project Area.

Following the remote assessment, a botanist with 40-hour Corps wetland delineation and wildlife biologist training traversed the entire Project 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 present².

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 (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 evaluation³. Additionally, any sensitive natural communities as described in the Napa County Baseline Report (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, 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 were noted. In these areas WRA biologists performed sample points following the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory

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

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

1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps 2008).

When present, streams potentially jurisdictional under the CWA and/or the CFGC were delineated using a mix of surveyed topography data, high resolution aerial photographs, and a sub-meter GPS unit. The ordinary high water mark was used to determine the extent of potential Section 404 jurisdiction, while the top-of-bank was 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.

A site visit was made on May 10, 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. CNDDDB, 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, a targeted or focused survey was conducted across the entirety of the Study Area on May 10, 2018. This survey corresponds to the period sufficient to observe and identify those special-status plants determined to have the potential to occur. The field survey was conducted by a botanist familiar with the flora of Napa and surrounding counties. The survey was 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 a few species have the potential to occur in the Study Area. Targeted assessments (e.g., in-depth evaluation of ponds for aquatic organisms) and protocol-level surveys were deemed inapplicable at the time of the site visit, 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 NCBR (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 six biological communities within the Study Area: developed, vineyards, blue oak woodland, mixed oak woodland, Douglas fir forest, perennial (man-made) pond, and streams. Biological communities within the Study Area are illustrated in Figure 2 (Appendix A) and detailed below.

5.1.1 Terrestrial Biological Communities

Non-sensitive

Developed Area and Vineyards (no vegetation alliance). Rank: None. The majority of the property consists of developed areas and vineyards. Development includes a burned single-family residence and other buildings, paved access road and parking areas, landscaped areas, and existing vineyards, totaling approximately 17.38 acres. Where there is an overstory in the developed areas, it is composed of coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), blue oak (*Q. douglasii*), and Pacific madrone (*Arbutus menziesii*). The majority of the understory is composed of landscape plants, common garden weeds, and naturalized exotic herbs. The vineyards are dominated by wine grape (*Vitis vinifera*), with common field weeds such as field bindweed (*Convolvulus arvensis*), wild carrot (*Daucus carota*), field burweed (*Siliva sessilis*), black mustard (*Brassica nigra*), and bur medic (*Medicago polymorpha*). The developed area is synonymous with the Urban/Built-up NCLC type, while the vineyards are synonymous with Agricultural Cropland (Thorne et al. 2004). Neither of these areas are considered sensitive by CDFW, Napa County, or other regulatory entity.

Sensitive

Mixed Oak Woodland (*Quercus* spp. Woodland Alliance). CDFW Rank: G4 S4: Mixed oak woodlands occur in the outer and inner Coast Ranges from Sonoma and Napa counties south to Santa Barbara County. They are typically situated in valleys to gently to steeply rising slopes underlain by moderately deep substrates (Sawyer et al. 2009). The property contains 8.73 acres of mixed live oak woodland, of which 1.03 acres is situated in the Project Area (11.8 percent of the total community type on the property).

There is no clear dominant tree in canopy, but rather a relatively even mix of coast live oak (*Quercus agrifolia*), blue oak (*Q. douglasii*), valley oak (*Q. lobata*), and California black oak (*Q. kelloggii*). Secondary scattered trees include Oregon white oak (*Q. garryana*), Pacific madrone (*Arbutus menziesii*), and California buckeye (*Aesculus californica*). The understory contains a few scattered shrubs of poison oak (*Toxicodendron diversilobum*), common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), and toyon (*Heteromeles arbutifolia*). The herbaceous is dense with grasses forbs responding to the October fires; dominant species include wild oat (*Avena barbata*), big rattlesnake grass (*Briza maxima*), dogtail grass (*Cynosurus echinatus*), Italian thistle (*Carduus pycnocephalus*), rose clover (*Trifolium hirtum*), cutleaf geranium (*Geranium dissectum*), and common bedstraw (*Galium aparine*).

This community is most closely synonymous with the Coast Live Oak-Blue Oak Alliance biotic community in the NCLC (Thorne et al. 2004). These woodlands provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status species associated with woodlands. This community would likely be considered sensitive by the CDFW in areas where the canopy covers the sites streams. Likewise, it is considered sensitive to Napa County under the General Plan Conservation Element Policy CON-24 (oak woodland retention).

Blue Oak Woodland (*Quercus douglasii* Woodland Alliance). CDFW Rank: G4 S4: Blue oak woodlands occur in the outer and inner Coast Ranges, Klamath Range, Sierra Nevada Foothills, and Transverse Range from Humboldt and Shasta counties south to Santa Barbara County. They are typically situated in valley bottoms, foothills, and rocky outcrops underlain by shallow, low fertility, well-drained soils (Sawyer et al. 2009). The property contains 4.56 acres of coast live oak woodland, of which 1.4 acres is situated in the Project Area (30.7 percent of the total community type on the property).

The overstory is dominated by blue oak (*Quercus douglasii*) intermixed with valley oak (*Q. lobata*), California black oak (*Q. kelloggii*), Oregon white oak (*Q. garryana*), and Pacific madrone (*Arbutus menziesii*). The understory contains a few scattered shrubs of poison oak (*Toxicodendron diversilobum*), common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), and toyon (*Heteromeles arbutifolia*). The herbaceous layer is dominated by non-native grasses, but contains a higher density of native forbs than the mixed oak woodland. Herbaceous species include wild oat (*Avena barbata*), soft chess (*Bromus hordeaceus*), miniature lupine (*Lupinus bicolor*), tomcat clover (*Trifolium willdenovii*), blue-eyed grass (*Sisyrinchium bellum*), golden globelily (*Calochortus amabilis*), winecup clarkia (*Clarkia purpurea* ssp. *quadrivulnera*), Chinese houses (*Collinsia heterophylla*), and blue wild rye (*Elymus glaucus*).

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

Douglas Fir Forest (*Pseudotsuga menziesii* Forest Alliance). CDFW Rank: G5 S4: Douglas fir forests occur in the outer Coast Ranges, Klamath Range, Cascade Range, and mid-elevation Sierra Nevada from Del Norte County south to San Luis Obispo and El Dorado counties. They occur on a variety of aspects, slopes and soil types, including serpentine (Sawyer et al. 2009). The property contains 7.83 acres of Douglas fir forest, of which 5.2 acres is situated in the Project Area (66.4 percent of the total community type on the property).

The overstory is dominated by Douglas fir (*Pseudotsuga menziesii*) intermixed with California black oak (*Quercus kelloggii*), Pacific madrone (*Arbutus menziesii*), ponderosa pine (*Pinus ponderosa*), and California bay (*Umbellularia californica*). The stand is mixed age, with the majority of trees estimated between 20 and 75 years in age. There are few large trees, but there was no evidence of broken tops, epicormics branching, platforming, or sizable cavities. The understory contains scattered shrubs and herbs tolerant of shade, including poison oak (*Toxicodendron diversilobum*), French broom (*Genista monspessulana*), common bedstraw (*Galium aparine*), Geyer's onion grass (*Melica geyeri*), and Robert's geranium (*Geranium robertianum*).

This community is synonymous with the Douglas Fir Forest Alliance biotic community in the NCLC (Thorne et al. 2004). These forests provide habitat for numerous common native plants and wildlife, as well as have the potential to support several special-status species associated with woodlands. This community would likely be considered sensitive by the CDFW in areas where the canopy covers the sites streams. Likewise, it is considered sensitive to Napa County under the General Plan Conservation Element Policy CON-24 (oak woodland retention).

5.1.2 Aquatic Natural Resources

Man-made Pond (no vegetation alliance). Section 404/401 CWA, Section 1600 CFGC: Man-made reservoirs are common throughout California, particularly in agricultural areas. Generally, there are in-line and off-line reservoirs, with the former composed of dammed stream channels, frequently supplemented by pumped groundwater. An in-line man-made pond, totaling approximately 1.5 acres, is situated in the southeastern portion of the Study Area.

The water level fluctuates throughout and between years, but a clear OHWM is impressed on the bank of the pond. The pond supports true aquatic plants, such as mosquito fern (*Azolla filiculoides*) and hydrophytes on the margins, such as broadleaf cattail (*Typha latifolia*) and arroyo willow (*Salix lasiolepis*). This margin is narrow and generally below the OHWM.

This community is synonymous with the Streams and Reservoirs biotic community in the NCLC (Thorne et al. 2004). Because this man-made pond is situated in-line, it is likely to be considered jurisdictional under Section 404 of the Clean Water Act and Section 1600 of the California Fish and Game Code.

Intermittent and Ephemeral Streams (no vegetation alliance). Section 404/401 CWA, Section 1600 CFGC: The Study Area contains four ephemeral and three intermittent streams. There is no distinctly riparian vegetation associated with these drainages. Flows in the intermittent streams run for the entire wet season and receive groundwater discharge to the channel extending their surface hydrology later in the season, but likely dry out by late spring/early summer. The ephemeral streams run during and following rain events, but draw down quickly after storms have subsided. All of the Study Area streams are moderate-gradient and narrowed channel.

These drainages are synonymous with the Streams and Reservoirs biotic community in the NCLC (Thorne et al. 2004). All of the drainages contain clear OHWM and top-of-bank; therefore, all are likely jurisdictional under Section 404 of the CWA and Section 1600 of the CFGC.

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, 102 special-status plant species have been documented in the greater vicinity of the Project Area. Thirteen of these species have the potential to occur in the Study Area. The remaining species documented from the greater vicinity of the Study Area are unlikely or have no potential to occur for one or more of the following:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the Study Area;
- Edaphic (soil) conditions (e.g., volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the Study Area;
- Topographic conditions (e.g., north-facing slope, montane) necessary to support the special-status plant species are not present in the Study Area;
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the Study Area;

- Associated natural communities (e.g., interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the Study Area;
- The Study Area is geographically isolated (e.g. below elevation, coastal environ) from the documented range of the special-status plant species;
- 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.

WRA performed a focused survey during a period sufficient to identify all thirteen special-status plant species with the potential to occur. The following special-status plants have the potential to occur within the Study Area based on database searches discussed above, but were not observed during focused surveys conducted during the appropriate bloom season for the species:

- Napa false indigo (*Amorpha californica* var. *napensis*); CRPR 1B
- Bent-flowered fiddleneck (*Amsinckia lunaris*); CRPR 1B
- Brewer's milk-vetch (*Astragalus breweri*); CRPR 4
- Clara Hunt's milk-vetch (*A. claranus*); FE, ST, CRPR 1B
- Big-scale balsamroot (*Balsamorhiza macrolepis*); CRPR 1B
- Narrow-anthered Brodiaea (*Brodiaea leptandra*); CRPR 1B
- Nodding harmonia (*Harmonia nutans*); CRPR 4
- Bristly leptosiphon (*Leptosiphon acicularis*); CRPR 4
- Jepson's leptosiphon (*L. jepsonii*); CRPR 1B
- Redwood lily (*Lilium rubescens*); CRPR 4, LR
- Lobb's buttercup (*Ranunculus lobbii*); CRPR 4, LR
- Slender-leaved pondweed (*Stuckenia filiformis* ssp. *alpina*); CRPR 2B
- 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). Five of these species have a moderate to high potential to occur in the Study Area and Project Area. The remaining 53 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.

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

Special-status Wildlife that Occur in the Study Area

No special-status wildlife 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

Pallid bat (*Antrozous pallidus*). CDFW Species of Special Concern, WBWG High Priority. Moderate Potential. The pallid bat is broadly distributed throughout much of western North America and typically occurs in association with open, rocky areas. Occupied habitats are highly variable and range from deserts to forests in lowland areas, and include higher-elevation forests. Roosting may occur singly or in groups of up to hundreds of individuals. Roosts must offer protection from high temperatures and are typically in rock crevices, mines, caves, or tree hollows; manmade structures are also used, including buildings (both vacant and occupied) and bridges. Pallid bats are primarily insectivorous, feeding on large prey that is usually taken on the ground but sometimes in flight (WBWG 2018). Trees within the Study Area may contain cavities/hollows suitable for roosting, and there are documented occurrences in the vicinity (CDFW 2018a). Additionally, the on-site pond provides a perennial source of freshwater.

Fringed myotis (*Myotis thysanodes*). WBWG High Priority. Moderate Potential. The fringed myotis ranges throughout much of western North America from southern British Columbia to southern Mexico. This species is most common in drier woodlands (e.g. oaks, pinyons-junipers); a variety of other habitats are used including desert scrubland, grassland, and coniferous and mixed (coniferous-deciduous) forests. Maternity roosting occurs in colonies of 10 to 2,000 individuals, although large colonies are rare (WBWG 2018). Caves, buildings, mines, rock crevices in cliff faces, and bridges are used for maternity and night roosts; tree cavities/hollows are also commonly used (WBWG 2018). Trees within the Study Area (e.g., oaks, conifers) may contain cavities/hollows suitable for roosting by this species, and the on-site pond provides a perennial source of freshwater.

Long-legged myotis (*Myotis volans*). WBWG High Priority. Moderate Potential. The long-legged myotis ranges across western North America from southeastern Alaska to Baja California and east to the Great Plains and central Texas. This species is usually found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Roost substrates are variable and include abandoned buildings, cliff crevices, hollows within tree snags, and exfoliating tree bark. Caves and mines are used as hibernation roosts. This species forages in and around the forest canopy and feeds on moths and other soft-bodied insects (WBWG 2018). Trees within the Study Area (e.g., oaks, conifers) may contain cavities/hollows suitable for roosting by this species, and the on-site pond provides a perennial source of freshwater.

Olive-sided flycatcher (*Contopus cooperi*). CDFW Species of Special Concern. High Potential. The olive-sided flycatcher is a summer resident in California, wintering in Latin America. It breeds in a variety of forested habitats, typically coniferous forests at higher elevations, but also in mixed

forest and woodlands at lower elevations. Breeding habitat is often associated with forest openings and edges, both natural (e.g., meadows, canyons) and man-made (e.g., logged areas) (Shuford and Gardali 2008). Nests are usually in conifers, and placed at variable height on the outer portions of branches. This species forages for insects, usually from prominent tree snags. Coniferous and mixed forest stands within the Study Area includes forest edges and provide suitable breeding habitat for this species.

Western pond turtle (*Emys marmorata*). CDFW Species of Special Concern. Moderate Potential.

The western pond turtle is the only freshwater turtle native to most of California and occurs throughout much of the state. This species is highly aquatic, typically inhabiting perennial waters including lakes, ponds/reservoirs, rivers, streams, and canals that provide submerged cover and suitable exposed basking structures such as rocks, logs and mats of emergent vegetation. Nesting usually occurs in spring to early summer, with eggs hatching in the fall; nests are excavated in upland areas with friable soil, usually on unshaded slopes within approximately 300 feet of water (Thomson et al. 2016). Hatchlings require shallow water with relatively dense emergent and aquatic vegetation to provide forage (aquatic invertebrates; Thomson et al. 2016). The Study Area's on-site provides perennial aquatic habitat that includes aquatic vegetation, various basking substrates, and presumably forage (invertebrate, vegetation). Upland nesting is unlikely along the western and north sides of the pond given the existing disturbed vineyard/development footprint, but could occur within relatively unshaded, accessible areas on the undeveloped eastern and northeastern side of the pond.

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 (NMFS 2018).

As per Caltrans (2010) approximately half of the Study Area (the western portion) is located within a portion of the California Bay Area Linkage Network, specifically a corridor running roughly north-south that is approximately 1.4 to 1.8 miles wide on the threshold between eastern Sonoma and northwestern Napa Counties. The Study Area is not within a mapped Natural Landscape Block or Essential Connectivity Area (Caltrans 2010). At the scale of landscape linkages, this relatively broad linkage/corridor provides connectivity between baylands of San Pablo Bay and areas from northwestern Napa County northward. The Study Area is a relatively very small portion of this linkage block, and much of it (greater than one-third) already hosts vineyard development; additional on-site vineyard blocks are unlikely to impact the functionality of the linkage. At a more local scale, the Study Area provides connectivity between a patchwork of undeveloped lands (primarily forest and woodland) and low-density residential and agricultural developments. While the proposed project (vineyard blocks) will result in portions of the site being largely unsuitable for wildlife movement, the preservation of forest and oak woodland stands within the Study Area, as well as the condition of surrounding lands, will still allow for movement through the vicinity. At a highly local scale, the preservation of forest/woodland stands as well as on-site stream courses will provide movement and shelter habitat for a variety of common wildlife species.

6.0 PROJECT ANALYSIS AND RECOMMENDATIONS

6.1 Land Cover Types

6.1.1 Oak Woodlands

Neither blue oak woodlands nor mixed 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 [3:1 ratio]. The Study Area contains 13.29 acres of oak woodlands (4.56 blue oak, 8.73 mixed oak); in order to ensure that a 2:1 ratio [3:1 ratio] is maintained of 2 [3] acres of oak woodland preserved for each 1 acre impacted, only 4.43 [3.32] acres can be converted to vineyard. The Project Area currently contains 2.43 acres of oak woodland (1.4 blue oak, 1.03 mixed oak). The following recommendation is put forward to meet Policy CON-24.

Recommendation 1: Prior to project approval, 7.29 acres of oak woodland in the Study Area shall be set aside to compensate for the loss of 2.43 acres in the Project Area.

6.1.2 Aquatic Resources

The man-made pond and streams will be entirely avoided by the Project. Ground-breaking shall occur during the dry season and protective setbacks will buffer effects to the on-site aquatic resources. The following recommendations are put forward to protect aquatic resources.

Recommendation 2: Setbacks ranging 50 feet or greater are provided in compliance with Napa County Code 18.108.025 for county-definitional streams. The setbacks will include a mix of undisturbed native-naturalized vegetation and vegetation vineyard avenue.

Grading shall occur during the dry season (April 1 through October 15) and should be suspended during unseasonable rainfalls of greater than one-half inch over a 24-hour period. If rainfall is in the forecast, standard erosion control measures (e.g., straw wattles, bales, silt fencing) should be deployed on the vineyard block edge paralleling the aquatic feature. Fence posts shall be located above the top-of-bank of the Study Area's streams.

Construction personnel should be informed of the location of the site's aquatic resources with high-visibility flagging or staking prior to construction. No materials or equipment shall be laid down in or near the aquatic resources, and spill prevention materials shall be deployed for all construction equipment.

6.2 Special-status Species

6.2.1 Special-status Plants

The Project Area does not support special-status plants; therefore, the Project will result in no impacts to such.

6.2.2 *Special-status Wildlife*

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

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

Recommendation 3: WRA recommends that any tree removal be performed from September through March, outside of the general bat maternity season. If tree removal during this period is not feasible, it is recommended that a bat habitat assessment and survey effort (the latter if needed) be performed by a qualified biologist prior to tree removal to determine if bats are present in the trees. If no suitable roosting habitat for bats is found, then no further study is warranted. If special-status bat species or bat maternity roosts are detected, then roost trees should be avoided until the end of the maternity roosting season. If this avoidance is not feasible, appropriate species- and roost-specific mitigation measures should be developed in consultation with CDFW. Irrespective of time of year, all felled trees should remain on the ground for at least 24 hours prior to chipping, off-site removal, or other processing to allow any bats present within the felled trees to escape.

All Bird Species (including non-special-status): In addition to the 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 4: WRA recommends that tree/vegetation removal and initial ground disturbance occur from August 16 to January 31, outside of the general bird nesting season. If tree/vegetation removal during this time is not feasible, a pre-construction nesting bird survey should be performed by a qualified biologist no more than 14 days prior to the initiation of tree removal or ground disturbance is recommended. The survey should cover the Project Area (including tree removal areas) and surrounding areas within 500 feet. If active bird nests are found during the survey, an appropriate no-disturbance buffer should be established by the qualified biologist. Once it is determined that the young have fledged (left the nest) or the nest otherwise becomes inactive (e.g., due to predation), the buffer may be lifted and work may be initiated within the buffer.

Western Pond Turtle: Western pond turtle has the potential to be present in the on-site pond, and nesting may occur in upland areas adjacent to the pond. Proposed project activities will avoid the pond and its immediate shoreline (including basking substrates), reducing the risk of harm to adult pond turtles. However, ground disturbance within the two proposed vineyard blocks east and northeast of the pond has the potential to impact turtle nests in the substrate, and also adult turtles

and/or hatchlings moving to/from the pond to upland areas. To avoid any potential impacts to these species, the following measures are provided.

Recommendation 5: WPT requires aquatic habitat, but may move away from such areas (i.e., man-made ponds) to disperse to nest in adjacent uplands. To prevent WPT (if such are present) from entering the proposed grading area and thereby reducing the potential for an impact to such, the following measures are recommended:

- Exclusion fence shall be installed during the wet season (prior to April 1) around the proposed blocks in such a manner as to preclude any of these species from entering ground disturbance areas from on-site aquatic features. The fencing shall have a minimum height above ground of 38 inches, the bottom of the fence buried to a minimum depth of 4 inches. Erosion control fencing (silt fencing) may serve as the exclusion fence, provided that it meets the requirements above. The area(s) of fence installation will be inspected by a qualified biologist prior to installation, the installed fencing again inspected by the biologist to ensure that it is effective. The fencing shall remain installed until on-site mechanized ground disturbance is completed.
- Following fencing installation and within 48 hours of the initiation of ground disturbance, a pre-construction survey covering all ground disturbance areas shall be performed by the qualified biologist. If either of the subject species are observed within the covered areas, ground disturbance shall not proceed, and other measures will be derived in coordination with the CDFW, as well as the USFWS if CRLF is observed.
- Following the pre-construction survey and prior to the initiation of work, a biological education program shall be provided by the qualified biologist to all personnel that will be present at the site during ground disturbance and related activities. The worker education program shall include information regarding the identification and identification and natural history of CRLF and WPT (including photographs), the potential for occurrence of these species within work areas, the legal status of each and the ramifications for take, the purpose of the exclusion fencing and importance of maintaining it, and specific measures being implemented to avoid impacts to such species (which will include halting all ground disturbance and immediately alerting the qualified biologist if either species is observed in the course of the work).

6.2.3 Wildlife Movement

As noted in Section 5.2.3, the Study Area is not within Critical Habitat or Essential Fish Habitat. The Study Area lies within a documented large migration corridor. The small size of the proposed project relative to the regional wildlife corridor will not affect regional migration as the regional setting is rural residential with intact woodlands, forests, and streams to provide continued regional movement. Likewise, at a highly local scale, the preservation of portions of forest/woodland stands and the stream courses will provide movement and shelter habitat for a variety of common wildlife species.

7.0 REFERENCES

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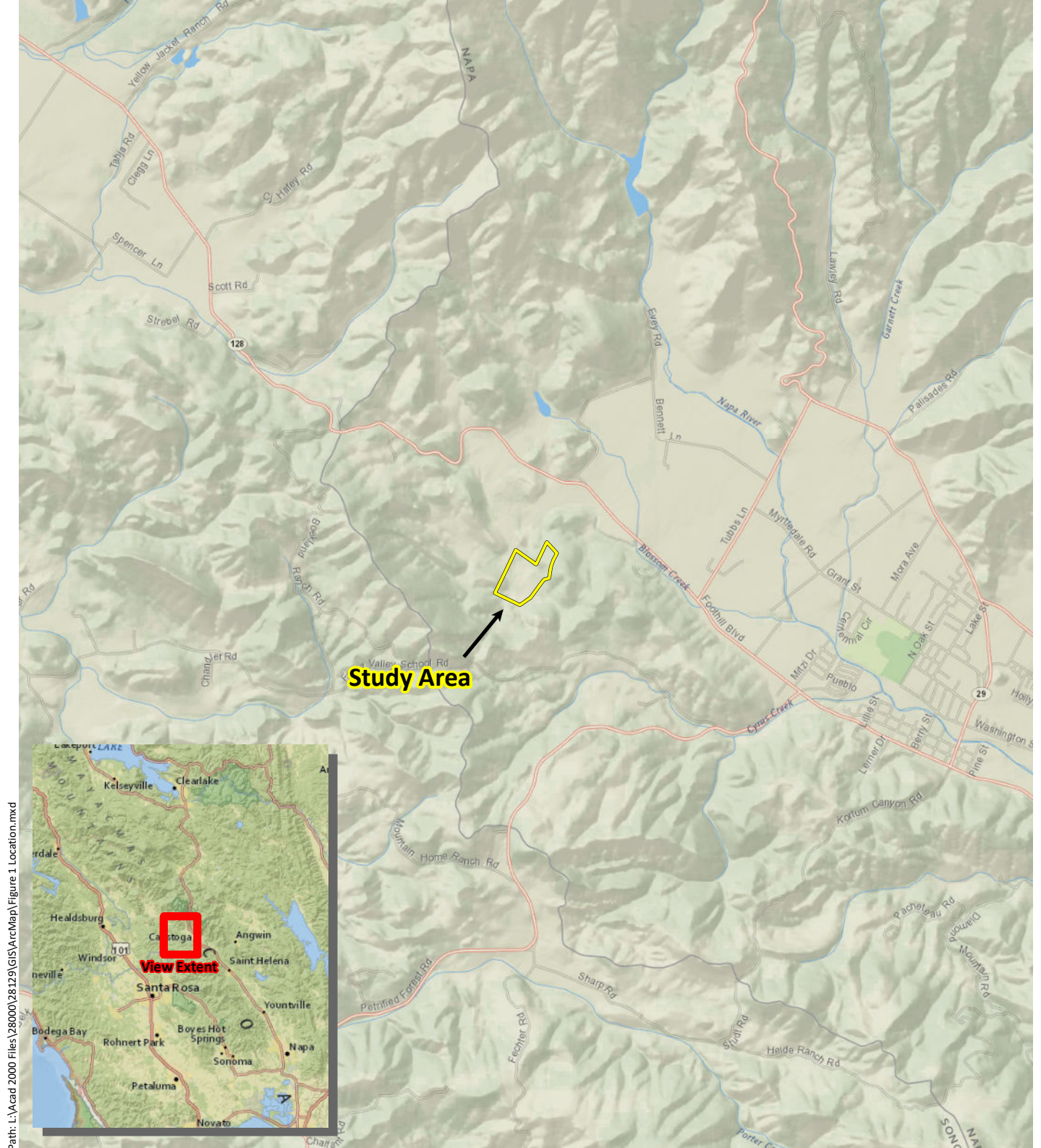
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Appendix A

Figures



Sources: National Geographic, WRA | Prepared By: pkobylarz, 10/10/2018

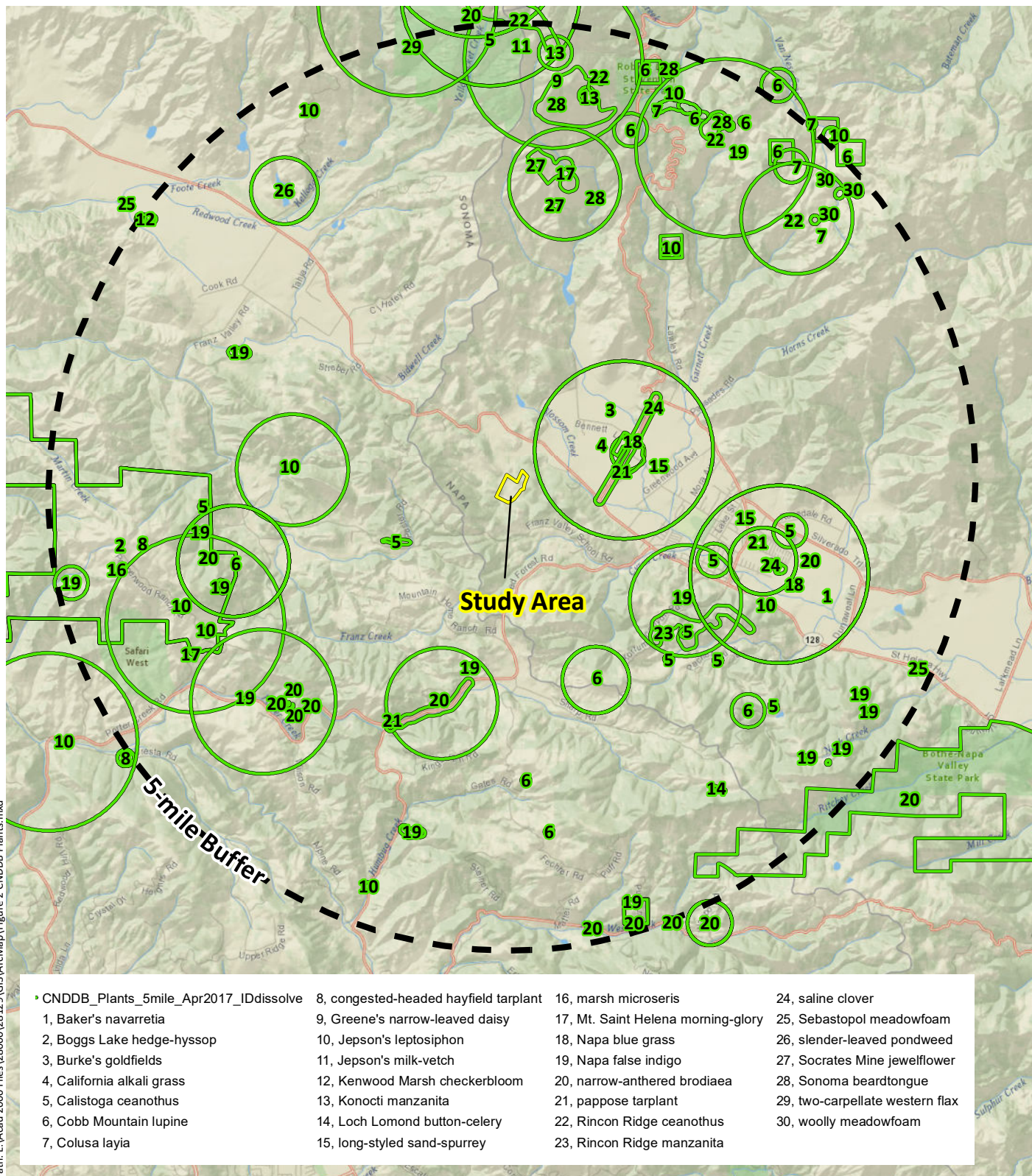
Figure A-1. Study Area Location

Johnson Napa Valley
Napa County, California

0 1 2 Miles



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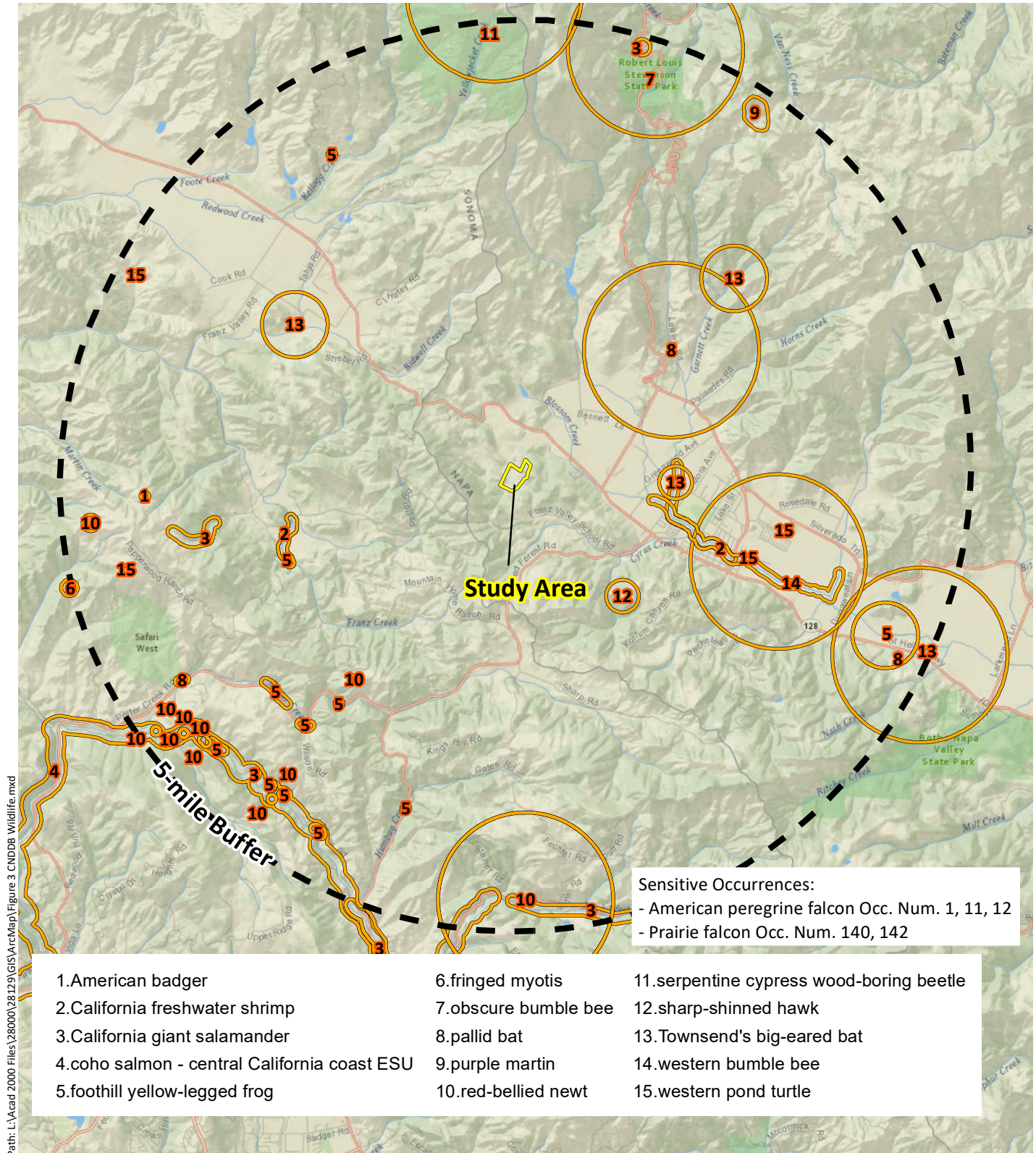
Sources: National Geographic, CNDDDB May 2018, WRA | Prepared By: pkobylarz, 10/10/2018

Figure A-2. Special-Status Plant Species Documented within 5-miles of the Study Area

Johnson Napa Valley
Napa County, California

0 1 2
Miles





Sources: National Geographic, CNDDB May 2018, WRA | Prepared By: pkobylarz, 10/10/2018

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

Johnson Napa Valley
Napa County, California

0 1 2 Miles

wra
ENVIRONMENTAL CONSULTANTS

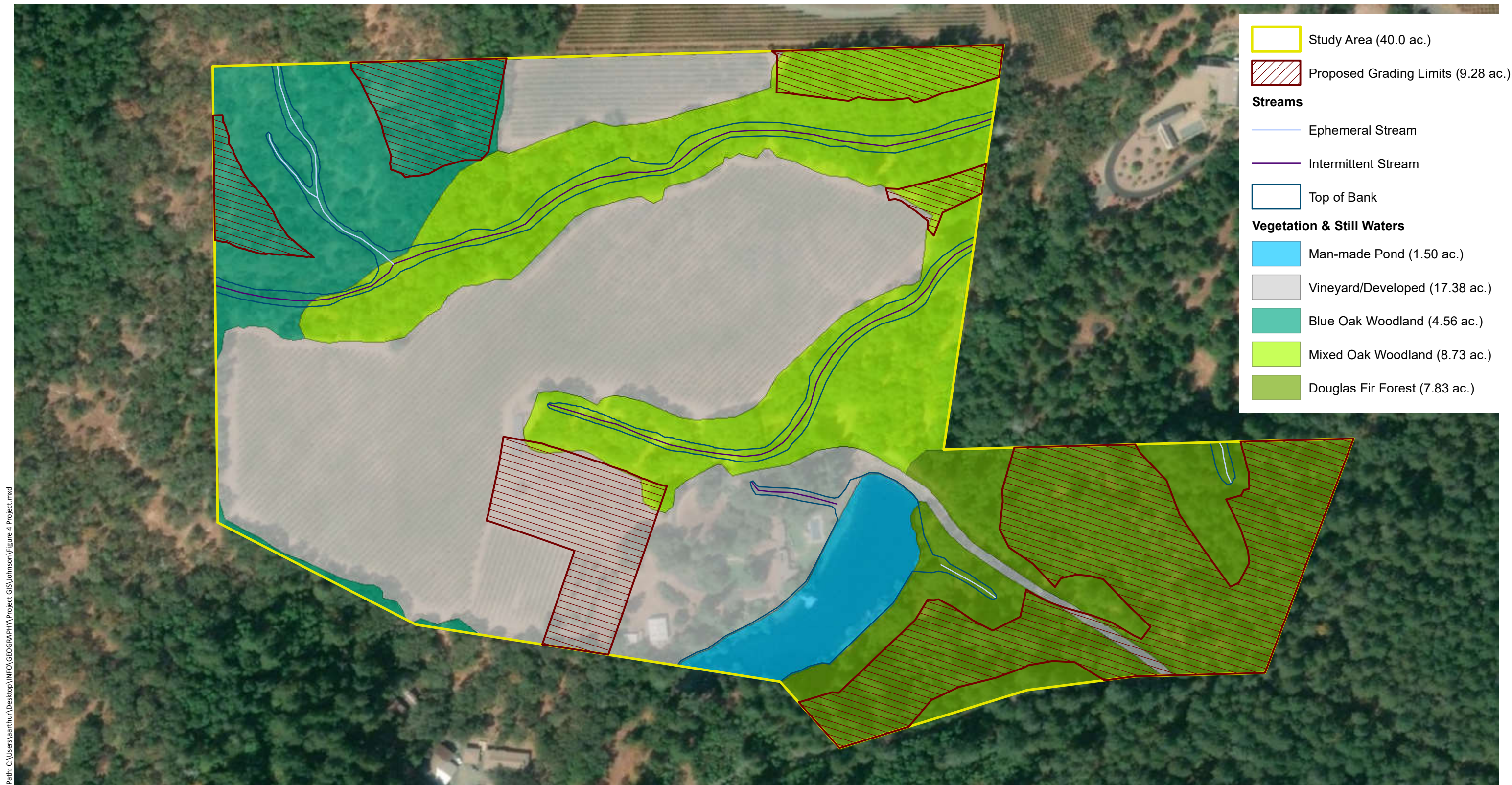


Figure A-4. Biological Communities

Appendix B

Species Observed in the Study Area

Table B-1. Plant species observed in the Study Area, May 10, 2018

Family	Scientific name	Common name	Life form	Origin	Rare Status ¹	Invasive Status ²	Wetland indicator ³
Adoxaceae	<i>Sambucus nigra</i> ssp. <i>caerulea</i>	blue elderberry	deciduous shrub	native	-	-	FAC
Agavaceae	<i>Chlorogalum pomeridianum</i> var. <i>pomeridianum</i>	common soap plant	perennial forb	native	-	-	NL
Anacardiaceae	<i>Toxicodendron diversilobum</i>	poison oak	deciduous shrub	native	-	-	NL
Apiaceae	<i>Anthriscus caucalis</i>	burr chervil	annual forb	non-native	-	-	NL
Apiaceae	<i>Daucus carota</i>	wild carrot	perennial forb	non-native	-	assessed	UPL
Apiaceae	<i>Osmorhiza berteroi</i>	sweet cicely	perennial forb	native	-	-	FACU
Apiaceae	<i>Sanicula bipinnatifida</i>	purple sanicle	perennial forb	native	-	-	NL
Apiaceae	<i>Sanicula crassicaulis</i>	Pacific sanicle	perennial forb	native	-	-	NL
Apiaceae	<i>Torilis arvensis</i>	hedge parsley	annual forb	non-native	-	moderate	NL
Asteraceae	<i>Baccharis pilularis</i>	coyote brush	evergreen shrub	native	-	-	NL
Asteraceae	<i>Carduus pycnocephalus</i>	Italian thistle	annual forb	non-native	-	moderate	NL
Asteraceae	<i>Centaurea melitensis</i>	totalote	annual forb	non-native	-	moderate	NL
Asteraceae	<i>Centaurea solstitialis</i>	yellow star thistle	annual forb	non-native	-	high	NL
Asteraceae	<i>Helianthella californica</i> var. <i>californica</i>	California helianthella	perennial forb	native	-	-	NL
Asteraceae	<i>Hypochaeris radicata</i>	rough cat's-ear	perennial forb	non-native	-	moderate	FACU
Asteraceae	<i>Lactuca serriola</i>	prickly lettuce	annual forb	non-native	-	assessed	FACU
Asteraceae	<i>Leontodon saxatilis</i> ssp. <i>longirostris</i>	hawkbit	annual forb	non-native	-	-	FACU
Asteraceae	<i>Logfia gallica</i>	narrowleaf cottonrose	annual forb	non-native	-	-	NL
Asteraceae	<i>Madia gracilis</i>	gumweed tarweed	annual forb	native	-	-	NL
Asteraceae	<i>Madia sativa</i>	coast tarweed	annual forb	native	-	-	NL
Asteraceae	<i>Micropus californicus</i>	Q-tips	annual forb	native	-	-	NL
Asteraceae	<i>Microseris douglasii</i>	Douglas' silverpuffs	annual forb	native	-	-	FACU
Asteraceae	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	annual forb	non-native	-	-	FAC
Asteraceae	<i>Senecio vulgaris</i>	old-man-in-the-spring	annual forb	non-native	-	-	FACU
Asteraceae	<i>Silybum marianum</i>	milk thistle	perennial forb	non-native	-	limited	NL
Asteraceae	<i>Soliva sessilis</i>	field burweed	annual forb	non-native	-	-	FACU

Family	Scientific name	Common name	Life form	Origin	Rare Status ¹	Invasive Status ²	Wetland indicator ³
Asteraceae	<i>Sonchus oleraceus</i>	common sow thistle	annual forb	non-native	-	-	NL
Asteraceae	<i>Tragopogon porrifolius</i>	purple salsify	perennial forb	non-native	-	-	NL
Azollaceae	<i>Azolla filiculoides</i>	Pacific mosquitofern	annual fern	native	-	-	OBL
Betulaceae	<i>Corylus cornuta</i> ssp. <i>californica</i>	California hazelnut	deciduous shrub	native	-	-	FACU
Brassicaceae	<i>Brassica nigra</i>	black mustard	annual forb	non-native	-	moderate	NL
Brassicaceae	<i>Hirschfeldia incana</i>	short podded mustard	perennial forb	non-native	-	moderate	NL
Brassicaceae	<i>Lepidium nitidum</i>	shining pepperweed	annual forb	native	-	-	FAC
Brassicaceae	<i>Raphanus sativus</i>	wild radish	perennial forb	non-native	-	limited	NL
Caprifoliaceae	<i>Lonicera interrupta</i>	chaparral honeysuckle	evergreen shrub	native	-	-	NL
Caprifoliaceae	<i>Symphoricarpos albus</i>	upright snowberry	deciduous shrub	native	-	-	FACU
Caryophyllaceae	<i>Cerastium glomeratum</i>	mouse-ear chickweed	annual forb	non-native	-	-	UPL
Convolvulaceae	<i>Convolvulus arvensis</i>	field bindweed	perennial forb	non-native	-	-	NL
Cyperaceae	<i>Eleocharis macrostachya</i>	common spikerush	perennial graminoid	native	-	-	OBL
Dennstaedtiaceae	<i>Pteridium aquilinum</i> var. <i>pubescens</i>	braken fern	perennial fern	native	-	-	FACU
Dryopteridaceae	<i>Polystichum munitum</i>	western swordfern	perennial fern	native	-	-	FACU
Ericaceae	<i>Arbutus menziesii</i>	Pacific madrone	evergreen tree	native	-	-	NL
Ericaceae	<i>Arctostaphylos manzanita</i> ssp. <i>manzanita</i>	whiteleaf manzanita	evergreen shrub	native	-	-	NL
Euphorbiaceae	<i>Euphorbia peplus</i>	petty spurge	annual forb	non-native	-	-	NL
Fabaceae	<i>Acmispon parviflorus</i>	small-flowered lotus	annual forb	native	-	-	NL
Fabaceae	<i>Acmispon wrangelianus</i>	Wrangel's lotus	annual forb	native	-	-	NL
Fabaceae	<i>Genista monspessulana</i>	French broom	evergreen shrub	non-native	-	high	NL
Fabaceae	<i>Lathyrus aphaca</i>	yellow pea	annual forb	non-native	-	-	NL
Fabaceae	<i>Lathyrus cicera</i>	red pea	annual forb	non-native	-	-	NL
Fabaceae	<i>Lathyrus vestitus</i> var. <i>vestitus</i>	common Pacific pea	perennial forb	native	-	-	NL
Fabaceae	<i>Lupinus bicolor</i>	miniature lupine	annual forb	native	-	-	NL
Fabaceae	<i>Medicago arabica</i>	spotted burclover	annual forb	non-native	-	-	NL
Fabaceae	<i>Medicago polymorpha</i>	bur medic	annual forb	non-native	-	limited	FACU

Family	Scientific name	Common name	Life form	Origin	Rare Status ¹	Invasive Status ²	Wetland indicator ³
Fabaceae	<i>Trifolium ciliolatum</i>	tree clover	annual forb	native	-	-	NL
Fabaceae	<i>Trifolium glomeratum</i>	clustered clover	annual forb	non-native	-	-	NL
Fabaceae	<i>Trifolium gracilentum</i>	pinpoint clover	annual forb	native	-	-	NL
Fabaceae	<i>Trifolium hirtum</i>	rose clover	annual forb	non-native	-	moderate	NL
Fabaceae	<i>Trifolium microdon</i>	thimble clover	annual forb	native	-	-	NL
Fabaceae	<i>Trifolium repens</i>	white clover	perennial forb	non-native	-	-	FACU
Fabaceae	<i>Trifolium subterraneum</i>	subterranean clover	annual forb	non-native	-	-	NL
Fabaceae	<i>Trifolium willdenovii</i>	tomcat clover	annual forb	native	-	-	NL
Fabaceae	<i>Vicia sativa ssp. nigra</i>	garden vetch	annual forb	non-native	-	-	FACU
Fabaceae	<i>Vicia villosa ssp. varia</i>	woollypod vetch	annual forb	non-native	-	-	NL
Fagaceae	<i>Quercus agrifolia</i>	coast live oak	evergreen tree	native	-	-	NL
Fagaceae	<i>Quercus douglasii</i>	blue oak	deciduous tree	native	-	-	NL
Fagaceae	<i>Quercus garryana</i> var. <i>garryana</i>	Oregon white oak	deciduous tree	native	-	-	UPL
Fagaceae	<i>Quercus kelloggii</i>	California black oak	deciduous tree	native	-	-	NL
Fagaceae	<i>Quercus lobata</i>	valley oak	deciduous tree	native	-	-	FACU
Geraniaceae	<i>Erodium moschatum</i>	musky stork's bill	annual forb	non-native	-	assessed	NL
Geraniaceae	<i>Geranium dissectum</i>	cutleaf geranium	annual forb	non-native	-	moderate	NL
Geraniaceae	<i>Geranium robertianum</i>	Robert's geranium	annual forb	non-native	-	assessed	NL
Iridaceae	<i>Sisyrinchium bellum</i>	blue-eyed grass	perennial forb	native	-	-	FACW
Juncaceae	<i>Luzula comosa</i>	Pacific woodrush	perennial graminoid	native	-	-	FAC
Lamiaceae	<i>Stachys rigida</i> var. <i>quercetorum</i>	rough hedgenettle	perennial forb	native	-	-	FACW
Liliaceae	<i>Calochortus amabilis</i>	golden globelily	perennial forb	native	-	-	NL
Liliaceae	<i>Fritillaria affinis</i>	checker lily	perennial forb	native	-	-	NL
Malvaceae	<i>Sidalcea hartwegii</i>	Hartweg checkerbloom	annual forb	native	-	-	NL
Montiaceae	<i>Calandrinia menziesii</i>	common redmaids	annual forb	native	-	-	FACU
Montiaceae	<i>Claytonia perfoliata</i>	miner's lettuce	annual forb	native	-	-	FAC
Myrsinaceae	<i>Lysimachia arvensis</i>	scarlet pimpernel	annual forb	non-native	-	-	NL
Onagraceae	<i>Clarkia purpurea</i> ssp. <i>quadrivulnera</i>	winecup clarkia	annual forb	native	-	-	NL

Family	Scientific name	Common name	Life form	Origin	Rare Status ¹	Invasive Status ²	Wetland indicator ³
Onagraceae	<i>Epilobium brachycarpum</i>	annual willowherb	annual forb	native	-	-	NL
Onagraceae	<i>Epilobium ciliatum</i>	fringed willowherb	perennial forb	native	-	-	FACW
Orobanchaceae	<i>Parentucellia viscosa</i>	yellow glandweed	annual forb	non-native	-	limited	FAC
Papaveraceae	<i>Eschscholzia californica</i>	California poppy	perennial forb	native	-	-	NL
Phrymaceae	<i>Mimulus guttatus</i>	common monkeyflower	perennial forb	native	-	-	OBL
Pinaceae	<i>Pinus ponderosa</i> var. <i>ponderosa</i>	ponderosa pine	evergreen tree	native	-	-	FACU
Pinaceae	<i>Pseudotsuga menziesii</i>	Douglas fir	evergreen tree	native	-	-	FACU
Plantaginaceae	<i>Collinsia heterophylla</i>	Chinese houses	annual forb	native	-	-	NL
Plantaginaceae	<i>Plantago lanceolata</i>	English plantain	perennial forb	non-native	-	limited	FAC
Poaceae	<i>Agrostis hallii</i>	Hall redtop	perennial graminoid	native	-	-	NL
Poaceae	<i>Aira caryophyllea</i>	silver hairgrass	annual graminoid	non-native	-	assessed	FACU
Poaceae	<i>Avena barbata</i>	wild oat	annual graminoid	non-native	-	moderate	NL
Poaceae	<i>Avena fatua</i>	wild oat	annual graminoid	non-native	-	moderate	NL
Poaceae	<i>Briza maxima</i>	big rattlesnake grass	annual graminoid	non-native	-	limited	NL
Poaceae	<i>Briza minor</i>	little rattlesnake grass	annual graminoid	non-native	-	-	FAC
Poaceae	<i>Bromus catharticus</i> var. <i>elatus</i>	Chilean brome	perennial graminoid	non-native	-	-	NL
Poaceae	<i>Bromus diandrus</i>	ripgut brome	annual graminoid	non-native	-	moderate	NL
Poaceae	<i>Bromus hordeaceus</i>	soft chess	annual graminoid	non-native	-	limited	FACU
Poaceae	<i>Bromus laevipes</i>	Chinook brome	perennial graminoid	native	-	-	NL
Poaceae	<i>Bromus madritensis</i>	foxtail chess	annual graminoid	non-native	-	-	NL
Poaceae	<i>Cynosurus echinatus</i>	dogtail grass	annual graminoid	non-native	-	moderate	NL
Poaceae	<i>Elymus glaucus</i>	blue wildrye	perennial graminoid	native	-	-	FACU
Poaceae	<i>Festuca bromoides</i>	brome fescue	perennial graminoid	non-native	-	-	FAC
Poaceae	<i>Hordeum brachyantherum</i>	meadow barley	perennial graminoid	native	-	-	FACW
Poaceae	<i>Hordeum murinum</i> ssp. <i>glaucum</i>	blue foxtail	annual graminoid	non-native	-	moderate	FAC
Poaceae	<i>Melica geyeri</i>	Geyer's onion grass	perennial graminoid	native	-	-	NL
Poaceae	<i>Melica torreyana</i>	Torrey's onion grass	perennial graminoid	native	-	-	NL
Poaceae	<i>Phalaris aquatica</i>	harding grass	perennial graminoid	non-native	-	moderate	FACU

Family	Scientific name	Common name	Life form	Origin	Rare Status ¹	Invasive Status ²	Wetland indicator ³
Poaceae	<i>Poa annua</i>	annual bluegrass	annual graminoid	non-native	-	-	FACU
Poaceae	<i>Poa secunda</i>	one-sided blue grass	perennial graminoid	native	-	-	FACU
Poaceae	<i>Triticum aestivum</i>	bread wheat	annual graminoid	non-native	-	-	NL
Polemoniaceae	<i>Collomia heterophylla</i>	variable leaf collomia	annual forb	native	-	-	NL
Polygalaceae	<i>Polygala californica</i>	California milkwort	perennial forb	native	-	-	NL
Polygonaceae	<i>Rumex conglomeratus</i>	clustered dock	perennial forb	non-native	-	-	FACW
Polygonaceae	<i>Rumex pulcher</i>	fiddle dock	perennial forb	non-native	-	-	FAC
Pteridaceae	<i>Pentagramma triangularis</i>	gold back fern	perennial fern	native	-	-	NL
Ranunculaceae	<i>Ranunculus muricatus</i>	spiny buttercup	perennial forb	non-native	-	-	FACW
Ranunculaceae	<i>Ranunculus occidentalis</i>	western buttercup	perennial forb	native	-	-	FAC
Rosaceae	<i>Heteromeles arbutifolia</i>	toyon	evergreen shrub	native	-	-	NL
Rosaceae	<i>Rubus armeniacus</i>	Himalayan blackberry	evergreen shrub	non-native	-	high	FACU
Rubiaceae	<i>Galium aparine</i>	common bedstraw	annual forb	native	-	-	FACU
Rubiaceae	<i>Galium bolanderi</i>	Bolander galium	perennial forb	native	-	-	NL
Rubiaceae	<i>Galium californicum</i>	California bedstraw	perennial forb	native	-	-	NL
Rubiaceae	<i>Sherardia arvensis</i>	blue fieldmadder	annual forb	non-native	-	-	NL
Salicaceae	<i>Salix laevigata</i>	red willow	deciduous tree	native	-	-	FACW
Salicaceae	<i>Salix lasiolepis</i>	arroyo willow	deciduous tree	native	-	-	FACW
Sapindaceae	<i>Acer macrophyllum</i>	big leaf maple	deciduous tree	native	-	-	FAC
Sapindaceae	<i>Aesculus californica</i>	California buckeye	deciduous tree	native	-	-	NL
Themidaceae	<i>Dichelostemma capitatum</i>	blue dicks	perennial forb	native	-	-	NL
Themidaceae	<i>Dichelostemma congestum</i>	ookow	perennial forb	native	-	-	NL
Themidaceae	<i>Triteleia laxa</i>	Ithuriel's spear	perennial forb	native	-	-	NL
Typhaceae	<i>Typha latifolia</i>	common cattail	perennial forb	native	-	-	OBL
Vitaceae	<i>Vitis californica</i>	California wild grape	deciduous vine	native	-	-	FACU
Vitaceae	<i>Vitis vinifera</i>	wine grape	deciduous vine	non-native	-	-	NL

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

¹Rare Status: The CNPS Inventory of Rare and Endangered Plants (CNPS 2018a)

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

²Invasive 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

³Wetland Status: National List of Plant Species that Occur in Wetlands, Arid West Region (Lichvar et al. 2016)

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

Table B-2. Wildlife Species Observed in the Study Area on May 10, 2018

Scientific name	Common name (status if applicable)
BIRDS	
<i>Anas platyrhynchos</i>	mallard
<i>Baeolophus inornatus</i>	oak titmouse
<i>Branta canadensis</i>	Canada goose
<i>Buteo lineatus</i>	red-shouldered hawk
<i>Calypte anna</i>	Anna's hummingbird
<i>Carduelis psaltria</i>	lesser goldfinch
<i>Carpodacus mexicanus</i>	house finch
<i>Certhia americana</i>	brown creeper
<i>Corvus corax</i>	common raven
<i>Cyanocitta stelleri</i>	Steller's jay
<i>Empidonax difficilis</i>	Pacific-slope flycatcher
<i>Junco hyemalis</i>	dark-eyed junco
<i>Melanerpes formicivorus</i>	acorn woodpecker
<i>Pheucticus melanocephalus</i>	black-headed grosbeak
<i>Picoides nuttallii</i>	Nuttall's woodpecker
<i>Picoides pubescens</i>	downy woodpecker
<i>Polioptila caerulea</i>	blue-gray gnatcatcher
<i>Psaltiriparus minimus</i>	bushtit
<i>Sayornis nigricans</i>	black phoebe
<i>Spizella passerina</i>	chipping sparrow
<i>Turdus migratorius</i>	American robin
<i>Vireo cassinii</i>	Cassin's vireo
REPTILES & AMPHIBIANS	
<i>Lithobates catesbeianus</i>	American bullfrog (non-native)
<i>Sceloporus occidentalis</i>	western fence lizard

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 2018a), and CNPS Electronic Inventory (CNPS 2018a) searches. For plants, the Mount St. Helena, Detert Reservoir, Aetna Springs, Mark West Springs, Calistoga, St. Helena, Santa Rosa, Kenwood, and Rutherford 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				
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	Rank 1B	Cismontane woodland, valley and foothill grassland; on clay substrate, often derived from serpentine. Elevation range 170 – 985 feet. Blooms: May – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Alopecurus aequalis</i> var. <i>sonomensis</i> Sonoma alopecurus	FE, Rank 1B	Freshwater marshes and swamps, riparian scrub; closely associated with other wetland species. Elevation range: 15 – 1200 feet. Blooms: May – July.	Unlikely. Although there is a perennial lake on-site, this species is closely associated with intact, contiguous native marsh/riparian habitats.	Not Present. No further actions are recommended for this species.
<i>Amorpha californica</i> var. <i>napensis</i> Napa false indigo	Rank 1B	Openings in broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 395 – 6560 feet. Blooms: April – July.	High Potential. The Study Area contains woodland and forest that may provide habitat for this species.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	Rank 1B	Cismontane woodland, valley and foothill grassland, coastal bluff scrub; frequently situated on serpentine substrates. Elevation range: 10 – 1625 feet. Blooms: March – June.	Moderate Potential. The Study Area contains open woodlands that may support this species.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Antirrhinum virga</i> twig-like snapdragon	Rank 4	Chaparral, lower montane coniferous forest; located on rocky openings often derived from serpentine. Elevation range: 325 – 6550 feet. Blooms: June – July.	No Potential. The Study Area does not contain chaparral or the forest types associated with this species.	Not Present. No further actions are recommended for this species.
<i>Arctostaphylos manzanita</i> <i>ssp. elegans</i> Konocti manzanita	Rank 1B	Chaparral, cismontane woodland, lower montane coniferous forest; located on volcanic substrates. Elevation range: 1280 – 5250 feet. Blooms: March – July.	Unlikely. The Study Area does not contain chaparral or forest/woodland types associated with this species.	Not Present. No further actions are recommended for this species.
<i>Arctostaphylos stanfordiana</i> <i>ssp. decumbens</i> Rincon manzanita	Rank 1B	Chaparral, cismontane woodland; highly restricted to red rhyolitic soils. Elevation range: 245 – 1215 feet. Blooms: February – April.	Unlikely. The Study Area does not contain chaparral or forest/woodland types associated with this species.	Not Present. No further actions are recommended for this species.
<i>Asclepias solanoana</i> serpentine milkweed	Rank 4, LR	Chaparral, cismontane woodland, lower montane coniferous forest; located on serpentine substrate. Elevation range: 745 – 6045 feet. Blooms: May – August.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Astragalus breweri</i> 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.	Moderate Potential. The Study Area contains woodland underlain by volcanic substrate; however, this species more frequently situated in serpentine grassland and chaparral openings.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Astragalus claranus</i> 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.	Moderate Potential. The Study Area contains blue oak woodland and is underlain by volcanic substrate that may support this species. However, the understory contains dense non-native grass and consequent thatch that would reduce the opportunity for this species germinate.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.
<i>Astragalus clevelandii</i> 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 substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Astragalus rattanii</i> var. <i>jepsonianus</i> Jepson's milk-vetch	Rank 1B	Chaparral, cismontane woodland, valley and foothill grassland; typically situated on serpentine substrate in openings or grasslands; often on roadsides. Elevation range: 955 – 2275 feet. Blooms: March – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	Rank 1B	Valley and foothill grassland, cismontane woodland; situated on volcanic and serpentine substrates. Elevation range: 295 – 3100 feet. Blooms: March – June.	Moderate Potential. The Study Area contains blue oak woodland and is underlain by volcanic substrate that may support this species.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Blennosperma bakeri</i> 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 seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Brodiaea leptandra</i> narrow-anthered brodiaea	Rank 1B	Broadleaf upland forest, chaparral, lower montane coniferous forest; located on volcanic substrates. Elevation range: 360 – 3000 feet. Blooms: May – July.	Moderate Potential. The Study Area contains volcanic soils that may support this species; however, it is more frequently associated with openings in chaparral and scrub woodlands.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.
<i>Calamagrostis ophitidis</i> 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.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Calandrinia breweri</i> 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. Although the site has been burned, it does not contain scrub or chaparral to support this species.	Not Present. No further actions are recommended for this species.
<i>Calochortus uniflorus</i> large-flowered mariposa lily	Rank 4, LR	Coastal prairie, coastal scrub, meadows and seeps, North Coast coniferous forest. Elevation range: 30 – 3480 feet. Blooms: April – June.	No Potential. The Study Area does not contain meadow, prairie, scrub, or coastal forest 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
<i>Calyptridium quadripetalum</i> four-petaled pussypaws	Rank 4	Chaparral, lower montane coniferous forest; located on sandy or gravelly substrate, typically derived from serpentine. Elevation range: 1020 – 6630 feet. Blooms: April – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Calystegia collina</i> ssp. <i>oxyphylla</i> Mt. Saint Helena morning-glory	Rank 4	Chaparral; located on serpentine barrens, slopes, and hillsides. Elevation range: 815 – 3315 feet. Blooms: April – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Castilleja ambigua</i> ssp. <i>ambigua</i> 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 vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Ceanothus confusus</i> 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.	No Potential. The Study Area does not contain dense chaparral to support this species.	Not Present. No further actions are recommended for this species.
<i>Ceanothus divergens</i> Calistoga ceanothus	Rank 1B	Chaparral, cismontane woodland; on rocky, serpentine sites. Elevation range: 560 – 3115 feet. Blooms: February – March.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Ceanothus gloriosus</i> var. <i>exaltatus</i> Point Reyes ceanothus	Rank 4	Chaparral. Elevation range: 95 – 1985 feet. Blooms: March – June, sometimes August.	No Potential. The Study Area does not contain dense chaparral to support this species.	Not Present. No further actions are recommended for this species.
<i>Ceanothus purpureus</i> holly-leaved ceanothus	Rank 1B	Chaparral, cismontane woodland; located on rocky, volcanic slopes. Elevation range: 395 – 3000 feet. Blooms: February – June.	No Potential. The Study Area does not contain dense chaparral to support this species.	Not Present. No further actions are recommended for this species.
<i>Ceanothus sonomensis</i> Sonoma ceanothus	Rank 1B	Chaparral; located on sandy serpentine or volcanic substrates. Elevation range: 705 – 2625 feet. Blooms: February – April.	No Potential. The Study Area does not contain dense chaparral to support this species.	Not Present. No further actions are recommended for this species.
<i>Centromadia parryi</i> ssp. <i>parryi</i> pappose tarplant	Rank 1B	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland; in vernal mesic sites, often with alkali substrate. Elevation range: 5 – 1380 feet. Blooms: May – November.	No Potential. The Study Area does not contain grassland or alkali substrates to support this species.	Not Present. No further actions are recommended for this species.
<i>Clarkia breweri</i> Brewer's clarkia	Rank 4	Chaparral, cismontane woodland, coastal scrub; frequently on serpentine substrate. Elevation range: 695 – 3625 feet. Blooms: April – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Clarkia gracilis</i> ssp. <i>tracyi</i> Tracy's clarkia	Rank 4	Chaparral; located in openings and situated on substrates often derived from serpentine. Elevation range: 210 – 2115 feet. Blooms: April – July.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Collomia diversifolia</i> serpentine collomia	Rank 4	Chaparral, cismontane woodland; situated on rocky to gravelly serpentine substrates. Elevation range: 975 – 1950 feet. Blooms: May – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Cordylanthus tenuis</i> ssp. <i>brunneus</i> serpentine bird's-beak	Rank 4	Closed-cone coniferous forest, chaparral, cismontane woodland; typically located serpentine substrate. Elevation range: 1540 – 2975 feet. Blooms: July – August.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Cryptantha dissita</i> serpentine cryptantha	Rank 1B	Chaparral; located on serpentine outcrops. Elevation range: 1280 – 1885 feet. Blooms: April – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Cuscuta howelliana</i> Boggs Lake dodder	LR	Vernal pool; situated on the margins; hosts on <i>Eryngium</i> spp., <i>Navarretia</i> spp., <i>Polygonum polygaloides</i> , and <i>Epilobium campestre</i> . Elevation range: 455 – 5365 feet. Blooms: August – September.	No Potential. The Study Area does not contain vernal pools to support this species.	Not Present. No further actions are recommended for this species.
<i>Cypripedium montanum</i> mountain lady's-slipper	Rank 4	Broadleaf upland forest, cismontane woodland, lower montane coniferous forest, North Coast coniferous forest. Elevation range: 600 – 7235 feet. Blooms: March – August.	Unlikely. Although the Study Area contains woodland and forest, this species is closely associated with mesic areas and higher elevations.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Delphinium uliginosum</i> 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 serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Downingia pusilla</i> 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 vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Erigeron biolettii</i> Streamside daisy	Rank 3	Broadleaf upland forest, cismontane woodland, North Coast coniferous forest; on mesic rock outcrops and scarps, frequently above rivers or seeps. Elevation range: 95 – 3610 feet. Blooms: June – October.	Unlikely. The Study Area does contain outcrops or scarps to support this species.	Not Present. No further actions are recommended for this species.
<i>Erigeron greenei</i> Greene's narrow-leaved daisy	Rank 1B	Chaparral; located on volcanic or serpentine substrate. Elevation range: 260 – 3270 feet. Blooms: May – September.	No Potential. The Study Area does not contain chaparral to support this species.	Not Present. No further actions are recommended for this species.
<i>Eriogonum nervulosum</i> Snow Mountain buckwheat	Rank 1B	Chaparral; located on serpentine substrate. Elevation range: 975 – 6845 feet. Blooms: June – September.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Eriogonum umbellatum</i> var. <i>bahiiforme</i> Bay buckwheat	Rank 4	Cismontane woodland, lower montane coniferous forest; situated on rocky substrates derived from serpentine. Elevation range: 2275 – 7150 feet. Blooms: July – September.	Unlikely. The Study Area does contain woodland, but serpentine substrate is absent.	Not Present. No further actions are recommended for this species.
<i>Eryngium constancei</i> Loch Lomond coyote thistle	FE; SE; Rank 1B	Vernal pools; located on volcanic ash flow vernal pools. Elevation range: 1495 – 2780 feet. Blooms: April – June.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Eryngium jepsonii</i> Jepson's coyote thistle	Rank 1B	Valley and foothill grassland, vernal pools; situated on clay substrate that is vernal saturated. Elevation range: 10 – 975 feet. Blooms: April – August.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Erythronium helenae</i> St. Helena fawn lily	Rank 4	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland; located on volcanic or serpentine substrate, located in mesic sites frequently north-facing sites. Elevation range: 1135 – 3965 feet. Blooms: March – May.	Unlikely. Although the Study Area contains woodlands with volcanic soils, the site is too xeric to support this species.	Not Present. No further actions are recommended for this species.
<i>Fritillaria liliacea</i> fragrant fritillary	Rank 1B	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland; located in grassy sites underlain by clay, typically derived from volcanics or serpentine. Elevation range: 10 – 1335 feet. Blooms: February – April.	Unlikely. Although the Study Area contain woodlands, rocky heavy clay substrate to support this species is not present.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Fritillaria pluriflora</i> adobe lily	Rank 1B	Chaparral, cismontane woodland, valley and foothill grassland; typically located on adobe clays, often derived from serpentine. Elevation range: 195 – 2295 feet. Blooms: February – April.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Fritillaria purdyi</i> Purdy's fritillary	Rank 4	Chaparral, cismontane woodland, lower montane coniferous forest; usually situated on serpentine substrates. Elevation range: 565 – 7330 feet. Blooms: March – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Gratiola heterosepala</i> Boggs Lake hedge hyssop	SE, Rank 1B	Marshes and swamps, vernal pools; situated on vernal saturated clay soil, often lake margins. Elevation range: 30 – 7720 feet. Blooms: April – August.	Unlikely. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species. Although there is a man-made lake, the margin is very narrow due to steep slopes; this margin is not sufficient to support this species.	Not Present. No further actions are recommended for this species.
<i>Harmonia hallii</i> Hall's harmonia	Rank 1B	Chaparral, rock outcrops; situated on rocky serpentine substrates; often roadsides and roadcuts. Elevation range: 1625 – 3170 feet. Blooms: April – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Harmonia nutans</i> nodding harmonia	Rank 4	Chaparral, cismontane woodland; located on rocky to gravelly substrates derived from volcanics. Elevation range: 240 – 3170 feet. Blooms: March – May.	Moderate Potential. The Study Area contains rocky volcanic substrate with open woodland that may support this species.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.
<i>Helianthus exilis</i> serpentine sunflower	Rank 4	Chaparral, cismontane woodland; located along serpentine seeps. Elevation range: 485 – 4960 feet. Blooms: June – November.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Hemizonia congesta</i> ssp. <i>congesta</i> Hayfield tarplant	Rank 1B	Coastal scrub, valley and foothill grassland. Elevation range: 65 – 1840 feet. Blooms: April – October.	No Potential. The Study Area does not contain grassland or coastal scrub to support this species.	Not Present. No further actions are recommended for this species.
<i>Hesperolinon bicarpellatum</i> Two-carpellate western flax	Rank 1B	Chaparral; located on serpentine substrate. Elevation range: 195 – 3270 feet. Blooms: May – July.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Hesperolinon breweri</i> Brewer's western flax	Rank 1B	Chaparral, cismontane woodland, valley and foothill grassland; typically located in serpentine grassland and serpentine chaparral underlain by rocky substrates. Elevation range: 95 – 2925 feet. Blooms: May – July.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Hesperolinon sharsmithiae</i> Sharsmith's western flax	Rank 1B	Chaparral; located on serpentine substrate. Elevation range: 875 – 975 feet. Blooms: May – July.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Iris longipetala</i> coast iris	Rank 4	Coastal prairie, lower montane coniferous forest, meadows and seeps; located on mesic sites. Elevation range: 0 – 1950 feet. Blooms: March – May.	Unlikely. The Study Area does not contain prairie, meadows, or coastal forests which this species is closely associated with.	Not Present. No further actions are recommended for this species.
<i>Juncus luciensis</i> Santa Lucia dwarf rush	Rank 1B	Chaparral, Great Basin scrub, lower montane coniferous forest, meadows and seeps, vernal pools. Elevation range: 975 – 6630 feet. Blooms: April – July.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Lasthenia burkei</i> Burke's goldfields	FE; SE; Rank 1B	Vernal pools, meadows and seeps; typically located in pools and swales. Elevation range: 45 – 1950 feet. Blooms: April – June.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Lasthenia conjugens</i> 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 vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Layia septentrionalis</i> Colusa layia	Rank 1B	Chaparral, cismontane woodland, valley and foothill grassland; on sandy, serpentine substrate; typically in fields and grassy slopes. Elevation range: 330 – 3595 feet. Blooms: April – May.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Leptosiphon acicularis</i> 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.	Moderate Potential. The Study Area contains rhyolitic soils in oak woodlands that may support this species.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.
<i>Leptosiphon jepsonii</i> Jepson's leptosiphon	Rank 1B	Chaparral, cismontane woodland; on open to partially shaded grassy slopes on volcanic or the periphery of serpentine substrate. Elevation range: 330 – 1640 feet. Blooms: April – May.	Moderate Potential. The Study Area contains rhyolitic soils in oak woodlands that may support this species.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.
<i>Lessingia hololeuca</i> woolly-headed lessingia	Rank 3, LR	Broadleaf upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland; typically on clay, serpentine substrate. Elevation range: 3 – 2885 feet. Blooms: April – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Lilium bolanderi</i> Bolander's lily	Rank 4	Chaparral, lower montane coniferous forest; typically situated on serpentine substrate. Elevation range: 95 – 5200 feet. Blooms: June – July.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Lilium rubescens</i> redwood lily	Rank 4, LR	Broadleaf upland forest, chaparral, lower montane coniferous forest, upper montane coniferous forest, North Coast coniferous forest; often located on serpentine substrates, and along roadcuts. Elevation range: 95 – 6210 feet. Blooms: April – September.	Moderate Potential. The Study Area contains coniferous forest that may support this species.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.
<i>Limnanthes floccosa</i> ssp. <i>floccosa</i> woolly meadowfoam	Rank 4	Chaparral, cismontane woodland, valley and foothill grassland, vernal pools; situated in vernal mesic settings. Elevation range: 195 – 4340 feet. Blooms: March – June.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Limnanthes vinculans</i> 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, primarily of the Santa Rosa Plain on heavy adobe clay substrate. Elevation range: 3 – 2885 feet. Blooms: April – June.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Lomatium repostum</i> Napa Lomatium	Rank 4	Chaparral, cismontane woodland; located on serpentine substrate. Elevation range: 290 – 2700 feet. Blooms: March – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Lupinus sericatus</i> 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.	Unlikely. Although the Study Area contains woodland, this species is typically located in mixed pine woodlands.	Not Present. No further actions are recommended for this species.
<i>Lythrum californicum</i> California loosestrife	LR	Yellow pine forest, cismontane woodland, chaparral, valley and foothill grassland, meadows and seeps; located in perennial wetlands and banks of perennial streams. Elevation range: 0 – 7150 feet. Blooms: April – September.	Unlikely. Although the Study Area contains streams, this species is closely associated with perennially saturated areas.	Not Present. No further actions are recommended for this species.
<i>Micropus amphibolus</i> 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.	Unlikely. This species is closely associated with natural bare openings in grassland or woodlands which are created by very thin soils, frequently derived sandstone. The Study Area does not contain such bare openings.	Not Present. No further actions are recommended for this species.
<i>Microseris paludosa</i> marsh microseris	Rank 1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation range: 5 – 300 feet. Blooms: April – June.	Unlikely. The Study Area does not contain coastal woodland or forest, or grassland 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
<i>Monardella viridis</i> green monardella	Rank 4	Broadleaf upland forest, chaparral, cismontane woodland. Elevation range: 325 – 3285 feet. Blooms: June – September.	Unlikely. The Study Area does not contain chaparral. Likewise, this species is associated with California bay, knobcone pine, and blue oak woodlands mixed with thick chaparral which is not in the Study Area.	Not Present. No further actions are recommended for this species.
<i>Navarretia cotulifolia</i> cotula navarretia	Rank 4, LR	Chaparral, cismontane woodland, valley and foothill grassland; located on adobe substrate. Elevation range: 10 – 5950 feet. Blooms: May – June.	No Potential. The Study Area does not contain open herbaceous (grassland) of adobe clay soils to support this species.	Not Present. No further actions are recommended for this species.
<i>Navarretia heterandra</i> 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 vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Navarretia jepsonii</i> Jepson's navarretia	Rank 4	Chaparral, cismontane woodland, valley and foothill grassland; situated on serpentine substrates. Elevation range: 565 – 2780 feet. Blooms: April – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> 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 vernal pool or similar seasonal wetland 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
<i>Navarretia leucocephala</i> ssp. <i>plieantha</i> many-flowered navarretia	FE, SE, Rank 1B	Vernal pools underlain by substrate derived from volcanic ash flows. Elevation range: 95 – 3120 feet. Blooms: May – June.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Navarretia myersii</i> ssp. <i>deminuta</i> Myer's navarretia	Rank 1B	Vernal pool; underlying substrate is clay loam. Elevation range: undocumented. Blooms: April – May.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Navarretia paradoxinota</i> Porter's navarretia	Rank 1B	Meadow and seep; typically situated in vernal mesic openings underlain by serpentine substrate. Elevation range: 535 – 2730 feet. Blooms: May – June, sometimes July.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Navarretia rosulata</i> 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.	No Potential. The Study Area does not contain chaparral or closed-cone coniferous forest to support this species.	Not Present. No further actions are recommended for this species.
<i>Orobanche valida</i> ssp. <i>howellii</i> Howell's broomrape	Rank 4	Chaparral; located on serpentine or volcanic substrate. Elevation range: 585 – 5655 feet. Blooms: June – September.	No Potential. The Study Area does not contain chaparral to support this species.	Not Present. No further actions are recommended for this species.
<i>Penstemon newberryi</i> var. <i>sonomensis</i> Sonoma beardtongue	Rank 1B	Chaparral; crevices in rock outcrops and talus slopes. Elevation range: 2295 – 4495 feet. Blooms: April – August.	No Potential. The Study Area does not contain large rock outcrops and/or talus slopes on high ridgelines (e.g., peak of Mt. St. Helena).	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Plagiobothrys strictus</i> Calistoga popcornflower	FE; ST; Rank 1B	Broadleaf upland forest, meadows and seeps, valley and foothill grassland, vernal pools; located on heavy dark adobe alkali clay substrate near hot springs and vernal pools. Elevation range: 290 – 520 feet. Blooms: March – June.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Poa napensis</i> Napa bluegrass	FE; SE; Rank 1B	Meadows and seeps, valley and foothill grassland; located in moist alkaline substrate near hot springs. Elevation range: 325 – 650 feet. Blooms: May – August.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Pogogyne douglasii</i> Douglas' mesamint	LR	Valley and foothill grassland, cismontane woodland, yellow pine forest, mixed evergreen forest, vernal pool; situated in vernal pools, swales, and similar seasonal wetlands. Elevation range: 0 – 2925 feet. Blooms: March – July.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Puccinellia simplex</i> California alkali grass	Rank 1B	Chenopod scrub, meadow and seep, valley and foothill grassland, vernal pool; situated vernal mesic alkaline substrate in sinks, flats, and lake margins. Elevation range: 5 – 3025 feet. Blooms: March – May.	No Potential. The Study Area does not contain alkali habitats (e.g., playas, chenopod scrubs) 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
<i>Ranunculus lobbii</i> Lobb's buttercup	Rank 4, LR	Cismontane woodland, North Coast coniferous forest, valley and foothill grassland, vernal pools; located in mesic, vernal wet areas. Elevation range: 45 – 1530 feet. Blooms: February – May.	Moderate Potential. The lower depths (edges) of the man-made pond may provide habitat for this species.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.
<i>Senecio clevelandii</i> var. <i>clevelandii</i> 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 substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Sidalcea hickmanii</i> ssp. <i>napensis</i> Napa checkerbloom	Rank 1B	Chaparral; located on rhyolitic substrates. Elevation range: 1345 – 1985 feet. Blooms: April – June.	Unlikely. Although the Study Area contains rhyolitic substrates, it does not contain chaparral to support this species.	Not Present. No further actions are recommended for this species.
<i>Sidalcea oregana</i> ssp. <i>hydrophila</i> 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.	Unlikely. Although the Study Area contains streams, this species is closely associated with perennial, high elevation wet meadows with braided streams and associated riparian which is absent from the Study Area.	Not Present. No further actions are recommended for this species.
<i>Sidalcea oregana</i> ssp. <i>valida</i> Kenwood Marsh checkerbloom	FE; SE; Rank 1B	Freshwater marshes and swamps, on the edges of marshes. Elevation range: 375 – 495 feet. Blooms: June – September.	No Potential. The Study Area does not contain freshwater marsh to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Streptanthus batrachopus</i> Tamalpais jewel-flower	Rank 1B	Closed-cone coniferous forest, chaparral; located on serpentine talus slopes. Elevation range: 990 – 2115 feet. Blooms: April – July.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Streptanthus brachiatus</i> ssp. <i>brachiatus</i> Socrates Mine jewel-flower	Rank 1B	Chaparral, closed-cone coniferous forest; located on serpentine substrates. Elevation range: 1770 – 3250 feet. Blooms: May – June.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Streptanthus brachiatus</i> ssp. <i>hoffmanii</i> Freed's jewel-flower	FSC; Rank 1B	Chaparral, cismontane woodland; located on serpentine outcrops, primarily in geothermal areas. Elevation range: 1590 – 3965 feet. Blooms: May – July.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Streptanthus hesperidis</i> green jewelflower	Rank 1B	Chaparral, cismontane woodland; located in openings in brushy/wooded sites on rocky serpentine substrate. Elevation range: 420 – 2470 feet. Blooms: May – July.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Streptanthus morrisonii</i> ssp. <i>elatus</i> Three Peaks jewel-flower	Rank 1B	Serpentine chaparral. Elevation range: 90 – 815 feet. Blooms: June – September.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Streptanthus morrisonii</i> ssp. <i>kruckebergii</i> Kruckeber's jewel-flower	Rank 1B	Serpentine chaparral on rocky talus. Elevation range: 120 – 585 feet. Blooms: May – September.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Streptanthus vernalis</i> early jewel-flower	Rank 1B	Closed-cone coniferous forest, chaparral; situated on serpentine. Elevation range: undocumented. Blooms: March – May.	No Potential. The Study Area does not contain serpentine substrate to support this species.	Not Present. No further actions are recommended for this species.
<i>Stuckenia filiformis</i> ssp. <i>alpina</i> slender-leaved pondweed	Rank 2B	Marshes and swamps; located in shallow freshwater. Elevation range: 975 – 6990 feet. Blooms: May – July.	Moderate Potential. The man-made pond may provide habitat for this species; however, it is more frequently known from higher elevation lakes and ponds.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.
<i>Toxicoscordion fontanum</i> marsh zigzag	Rank 4	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps; located in vernal mesic sites, often underlain by serpentine. Elevation range: 45 – 3250 feet. Blooms: April – July.	No Potential. The Study Area does not contain serpentine seeps or meadows to support this species.	Not Present. No further actions are recommended for this species.
<i>Trichostema ruygtii</i> Napa bluecurls	Rank 1B	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.	No Potential. The Study Area does not contain vernal pool or similar seasonal wetland habitat to support this species.	Not Present. No further actions are recommended for this species.
<i>Trifolium amoenum</i> 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.	No Potential. The Study Area does not contain grassland or coastal scrub 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
<i>Trifolium buckwestiorum</i> Santa Cruz clover	Rank 1B	Broadleaf upland forest, cismontane woodland, coastal prairie endangered margins. Elevation range: 105 – 610 feet. Blooms: April – October.	Unlikely. This species is associated with coastal forests (e.g., California bay, coast redwood).	Not Present. No further actions are recommended for this species.
<i>Trifolium hydrophilum</i> 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 vernal pools or similar seasonal wetlands to support this species.	Not Present. No further actions are recommended for this species.
<i>Viburnum ellipticum</i> 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 woodland that may support this species.	Not Observed. Not observed during a survey conducted at time sufficient to identify this species. No further actions are recommended.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
WILDLIFE				
Mammals				
<i>Antrozous pallidus</i> pallid bat	SSC, WBWG High	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various manmade structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate Potential. Tree cavities within the Study Area are suitable for roosting; there are several CNDDDB occurrences in the greater vicinity (CDFW 2018a).	Presence Unknown. Tree removal outside of maternity roosting season, or conduct pre-construction roost habitat assessment.
<i>Bassariscus astutus</i> 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
<i>Corynorhinus townsendii townsendii</i> 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.
<i>Eumops perotis californicus</i> 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 CNDDDB occurrences of this species in Napa County.	Presumed Absent. No further recommendations for this species.
<i>Lasiurus blossevillii</i> 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 stands of mature/large, broadleaved trees of the type typically used for roosting (maples, sycamores, etc.).	Presumed Absent. No further recommendations for this species.
<i>Myotis thysanodes</i> fringed myotis	WBWG High	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Building, mines, and large trees and snags are important day and night roosts.	Moderate Potential. Oak woodland within the Study Area provides trees suitable for roosting.	Presence Unknown. Tree removal outside of maternity roosting season, or conduct pre-construction roost habitat assessment.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Myotis volans</i> long-legged myotis	WBWG High	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices, buildings, mines, and caves are important day roosts.	Moderate Potential. Coniferous and mixed forest within the Study Area provides trees suitable for roosting.	Presence Unknown. Tree removal outside of maternity roosting season, or conduct pre-construction roost habitat assessment.
<i>Reithrodontomys raviventris</i> 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.
<i>Sorex ornatus sinuosus</i> 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.
<i>Taxidea taxus</i> American badger	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	Unlikely. Outside of existing vineyards, the Study Area is largely forested, with limited open habitats.	Presumed Absent. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Birds				
<i>Agelaius tricolor</i> 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.	Unlikely. The on-site pond provides marginal nesting habitat, but as is known local breeding is restricted to Pope Valley in north-central Napa County (Smith 2003, CDFW 2018a).	Presumed Absent. No further recommendations for this species.
<i>Ammodramus savannarum</i> 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. Outside of existing vineyard development, the Study Area is largely forested and lacks open grasslands.	Presumed Absent. No further recommendations for this species.
<i>Aquila chrysaetos</i> golden eagle	FEPA, 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 cliffs or typical large trees for nesting; may forage in the vicinity. As per Smith (2003), in Napa County known nesting territories were located in its eastern half.	Presumed Absent. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Ardea alba</i> 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 on-site pond provides foraging resources, but local breeding restricted to the Napa Valley floor (Smith 2003, eBird 2018).	Presumed Absent. Not observed during the site visit. No further recommendations for this species.
<i>Ardea herodias</i> great blue heron	LR (breeding sites protected by CDFW)	Year-round resident. Nests colonially or semi-colonially in tall trees and cliffs, also sequestered 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 on-site pond provides foraging resources, but local breeding restricted to the Napa Valley floor (Smith 2003, eBird 2018).	Presumed Absent. Not observed during the site visit. No further recommendations for this species.
<i>Asio flammeus</i> 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
<i>Asio otus</i> 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 wintering observations located on the Napa Valley floor (eBird 2018a), and known breeding only in the northeastern-most portion of the County (Smith 2003, eBird 2018a).	Presumed Absent. No further recommendations for this species.
<i>Athene cunicularia</i> 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. Grassland is limited in area and extent within the Study Area. This species' breeding and wintering distribution within Napa County is restricted to the vicinity of Lake Berryessa and southern baylands (Smith 2003, CDFW 2018a).	Presumed Absent. No further recommendations for this species.
<i>Buteo swainsoni</i> 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.	No Potential. The Study Area is largely forested; Napa County's small breeding population is restricted to the Napa Valley floor in association with the Napa River and baylands (CDFW 2018a).	Not Present. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Charadrius alexandrinus nivosus</i> 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.
<i>Circus cyaneus</i> 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. Outside of existing vineyard development, the Study Area is largely forested and lacks open grasslands and/or wetlands.	Presumed Absent. No further recommendations for this species.
<i>Contopus cooperi</i> 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.	High Potential. Coniferous and mixed forest within the Study Area provides suitable nesting habitat.	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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Cypseloides niger</i> black swift	SSC	Summer resident with a fragmented breeding distribution; most occupied areas in California either montane or coastal. Breeds in small colonies on cliffs behind or adjacent to waterfalls, in deep canyons, and sea-bluffs above surf. Forages aerially over wide areas. No modern nesting records in Napa County.	No Potential. The Study Area does not contain waterfalls; there are no modern breeding records for Napa County (Smith 2003, Shuford and Gardali 2008).	Not Present. No further recommendations for this species.
<i>Dendroica petechia brewsteri</i> (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. Riparian cover (e.g., willows) around the on-site pond is limited, and the ephemeral streams lack suitable riparian cover.	Presumed Absent. Likely occurs during migration; nesting unlikely. No further recommendations for this species.
<i>Egretta thula</i> 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 on-site pond provides foraging resources, but local breeding restricted to limited areas of the the Napa Valley floor (Smith 2003).	Presumed Absent. Not observed during the site visit. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Elanus leucurus</i> 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.	Unlikely. Outside of existing vineyard development, the Study Area is largely forested and lacks favored open habitats.	Presumed Absent. No further recommendations for this species.
<i>Falco peregrinus anatum</i> 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 cliffs or suitable man-made structures for nesting.	Presumed Absent. No further recommendations for this species.
<i>Geothlypis trichas sinuosa</i> San Francisco (saltmarsh) common yellowthroat	SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	No Potential. As per Shuford and Gardali (2008), the sinuosa subspecies range in Napa County is restricted to southern baylands.	Presumed Absent. No further recommendations for this species.
<i>Haliaeetus leucocephalus</i> bald eagle	FEPA, 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. Suitably large 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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Icteria virens</i> 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 (<i>Salix</i> spp.), blackberry (<i>Rubus</i> spp.), and wild grape (<i>Vitis californicus</i>).	Unlikely. The Study Area lacks dense riparian understory vegetation favored by this species; the known range in Napa County is restricted to the Napa Valley and immediately adjacent low-elevation areas (Smith 2003, eBird 2018).	Presumed Absent. No further recommendations for this species.
<i>Lanius ludovicianus</i> 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. Outside of existing vineyard development, the Study Area is largely forested and lacks favored open habitats.	Presumed Absent. No further recommendations for this species.
<i>Laterallus jamaicensis coturniculus</i> 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.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Melospiza melodia samuelis</i> 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.
<i>Nycticorax nycticorax</i> black-crowned night heron	no status (breeding sites protected by CDFW)	Year-round resident. Nests colonially, usually in trees but also in patches of emergent vegetation. Rookery sites are often on islands and usually located adjacent to foraging areas: margins of lakes and bays.	Unlikely. The on-site pond provides foraging resources, but local breeding restricted to the Napa Valley floor (Smith 2003, eBird 2018).	Presumed Absent. Not observed during the site visit. No further recommendations for this species.
<i>Passerculus sandwichensis alaudinus</i> 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. Outside of existing vineyard development, the Study Area is largely forested and lacks favored open grassland/wetland habitats.	Presumed Absent. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Progne subis</i> purple martin	SSC, LR	Summer resident. Inhabits woodlands and low-elevation coniferous forests. Nests in old woodpecker cavities and man-made structures (bridges, utility towers). Nest is often located in tall, isolated tree or snag.	Moderate Potential. The Study Area contains coniferous forest with some larger trees, and the on-site pond provides highly suitable foraging habitat.	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.
<i>Rallus obsoletus obsoletus</i> 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
<i>Riparia riparia</i> 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.
<i>Spizella atrogularis</i> black-chinned sparrow	LR	Summer resident. Typically occurs on arid, rocky slopes with brushy vegetation, e.g. mixed chaparral and sagebrush.	Unlikely. The Study Area does not contain chaparral or similar habitats with dense, mature brush.	Presumed Absent. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Strix occidentalis caurina</i> 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.	Unlikely. While coniferous and mixed forest is present within and adjacent to the Study Area, the dense forest stand currently features relatively young trees that lack typical habitat characteristics (e.g., multi-tiered canopy, platform like substrates). The nearest documented territory center is located approximately 1.7 miles to the southeast, with additional territories further to the south (CDFW 2018a).	Presumed Absent. No further recommendations for this species.
<i>Xanthocephalus xanthocephalus</i> 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.	Unlikely. The on-site pond lacks suitably dense and extensive emergent vegetation; known breeding areas in Napa County restricted to baylands (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
Reptiles and Amphibians				
<i>Dicamptodon ensatus</i> 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, clear permanent or semi-permanent streams. Larvae usually remain aquatic for over a year.	Unlikely. Ephemeral streams within the Study Area appear to have insufficient hydrology (duration and depth) to support breeding.	Presumed Absent. No further recommendations for this species.
<i>Emys marmorata</i> Pacific (western) pond turtle	SSC	Thoroughly aquatic, inhabiting ponds, marshes, rivers/streams and irrigation ditches with aquatic vegetation. Requires 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.	High Potential. The on-site pond and portions of the directly adjacent uplands provide high-quality year-round habitat.	Presence Unknown. This species was not observed on-site; however, the site visit was not a protocol-level or focused survey. Recommendations to avoid impacts are provided in Section 6.2.
<i>Rana boylei</i> foothill yellow-legged frog	SC (T), SSC	Found in or adjacent to 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. Although this species is known from several watersheds in western Napa and eastern Sonoma Counties (CDFW 2018a), ephemeral streams within the Study Area lack sufficient hydrology (duration) and characteristics (suitably rocky substrates) to support occupation by this species.	Presumed Absent. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
<i>Rana draytonii</i> 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 pond holds predatory fish, and ephemeral streams within the Study Area do not provide any typical aquatic habitat. The nearest occurrence in CNDDB is located greater than 10 miles to the east (east of Napa Valley; CDFW 2018a).	Presumed Absent. No further recommendations for this species.
<i>Scaphiopus hammondi</i> 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.	No Potential. The Study Area lacks vernal pools and similar temporary water features; this species' known range in Napa County is restricted to a very small area in its eastern portion.	Not Present. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Fishes				
<i>Acipenser medirostris</i> 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.
<i>Eucyclogobius newberryi</i> 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.
<i>Hypomesus transpacificus</i> 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
<i>Lampetra ayresi</i> 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.
<i>Oncorhynchus mykiss irideus</i> 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.
<i>Oncorhynchus tshawytscha</i> 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
<i>Pogonichthys macrolepidotus</i> 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.
<i>Spirinchus thaleichthys</i> longfin smelt	FC, ST, SSC	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15 to 30 ppt, but can be found in completely freshwater to almost pure seawater.	No Potential. The Study Area does not contain riverine or estuarine waters.	Not Present. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RESULTS AND RECOMMENDATIONS
Invertebrates				
<i>Branchinecta lynchi</i> 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 sufficiently deep and ponded to support this species).	Not Present. No further recommendations for this species.
<i>Desmocerus californicus dimorphus</i> valley elderberry longhorn beetle	FT	Found in riparian and oak savannah where elderberry (<i>Sambucus</i> sp.), the host plant, is present.	Unlikely. Although elderberry is present on-site; CNDDDB occurrences are restricted to the southeastern-most portion of Napa County (CDFW 2018a).	Not Present. No further recommendations for this species.
<i>Speyeria callippe callippe</i> Callippe silverspot butterfly	FE	Two populations are recognized, on San Bruno Mountain and the Cordelia Hills. Host plant is Johnny jump-up (<i>Viola pedunculata</i>), which is found on serpentine soils. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	No Potential. Johnny jump-up was not observed within the Study Area during the site visit; 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
<i>Syncaris pacifica</i> 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. The Study Area does not contain perennial streams with associated required habitat characteristics.	Not Present. No further recommendations for this species.

***Key to status codes:**

BGEPA	Bald and Golden Eagle Protection Act Species
FC	Federal Candidate for Listing
FE	Federal Endangered
FT	Federal Threatened
LR	Locally Rare as per Napa County Baseline Report
SC (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. CNDDDB, 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: The species has the potential to be present, but no dedicated surveys to determine absence/presence were performed.

Appendix D

Representative Photographs



Developed area (background) and vineyard (foreground)



Vineyard in the southern portion of the property



Coast live oak woodland and developed area intersection



Blue oak woodland with ephemeral stream



Douglas fir forest understory



Ephemeral stream



Intermittent stream



Man-made pond

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.

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.