Exhibit B-1

Biological Resource Survey

Laird Family Vineyards

200 Kirkland Ranch Road, American Canyon
APNs: 057-140-002, 013, 014, 015, 016
Napa County, CA

Prepared
For

NAPA VALLEY VINEYARD ENGINEERING, INC
By

Kjeldsen Biological Consulting
923 St. Helena Ave.
Santa Rosa, CA 95404

July 2017

Biological Resource Survey
Laird Family Vineyards
200 Kirkland Ranch Rd., American Canyon
APNs: 057-140-002, 013, 014, 015, 016
Napa County, CA

PROPERTY APPLICANT: Laird Family Vineyards
Jamieson Vineyards

Parcel Total: 300.35-Acres
Existing Vineyards: 125-Acres
Project Size: 99.2+/- Acres Total Disturbed
82.4+/- Acres Total Planted

APNs: 057-140-002, 013, 014, 015, 016

SITE ADDRESS: 200 Kirkland Ranch Rd.,
American Canyon
Napa County, CA

PROJECT ENGINEER Napa Valley Vineyard Engineering, Inc
176 Main St. Suite B
St. Helena, CA 94574

REPORT PREPARED BY: Kjeldsen Biological Consulting
923 St. Helena Ave.
Santa Rosa, CA 95404
(707) 544-3091
Fax:(707) 575-8030
kjeldsen@sonic.net

PERIOD OF STUDY: 2017

Biological Resource Survey
Laird Family Vineyards
200 Kirkland Ranch Rd., American Canyon
APNs: 057-140-002, 013, 014, 015, 016
Napa County, CA

TABLE OF CONTENTS

Biological Resource Survey
Laird Family Vineyards
200 Kirkland Ranch Rd., American Canyon
APNs: 057-140-002, 013, 014, 015, 016
Napa County, CA

Executive Summary

This study was conducted at the request of Napa Valley Vineyard Engineering, Inc, on behalf of the owner as background information for project permits from the Napa County Planning, Building and Environmental Services Department.

The project proposes to develop 99.2 gross acres/82.4 net acres of vineyard on land that has been used for decades as pastoral grassland. The 300.35-acre property consists of a residence with infrastructure, existing vineyards with infrastructure, pastoral grassland, reservoirs, winery, Sheeny Creek and riparian corridor of Fagan Creek. The property is located on the north side of State Highway 12 (Jamison Canyon Road) in hills above Jamison Canyon. The property is within the USGS Cordelia Quadrangle.

The purpose of this report is to identify biological resources that may be affected by the proposed project. The fieldwork studied the proposed project envelope and surrounding environment. The findings presented below are the results of fieldwork conducted in September 2016 and the spring of 2017 by Kjeldsen Biological Consulting:

- Floristic surveys were conducted to determine the presence of special-status species or habitat for special-status species that could be impacted by the proposed project;

- No special-status plants were identified on the project site or surrounding environment;

- **California Red-legged Frog *(Rana draytonii)*** A small portion of the property is with U.S.FWS California Red-Legged Frog (CRLF) Critical Habitat (Block 20E). No CRLF were observed on the property. The reservoir contains potential habitat, but open grassland on the project site contain low potential for CRLF. The potential for the project to impact this species is low;

- **Tricolored Blackbird (*Agelaius tricolor*)** This species was observed within reservoir. The project will not impact the reservoir. It is unknown if the reservoir is used as a breeding site. The potential is low for the project to impact this species;

- **Peregrine Falcon (*Falco peregrinus*)** The Cordelia Quadrangle is listed as a sensitive Element Occurrence by the CDFW CNDDB. The project site does not contain habitat for this species. The potential for the project to impact this species is low;

- **Northwestern Pond Turtle (*Emys marmorata)*** This species is recorded within a reservoir north of the property. This species is likely to occur within the reservoir on-site. We did not observe this species during our surveys. The potential for the project to impact this species is low;

- The habitat and or vegetation types found on the project site would be termed semi-natural annual grassland. The project site is surrounded by vineyards, seasonal drainages and the riparian corridor of Fagan Creek;

- The project site does not contain any Sensitive Communities, Critical Habitat or Biotic Communities of Limited Distribution listed by Napa County, California Department of Fish and Wildlife (CDFW);

- The project as proposed will not directly impact any Federal and State protected wetlands or "Waters of the U.S" as defined by Section 404 of the Clean Water Act;

- No significant native wildlife species, wildlife corridors, and or native wildlife nursery sites were identified within the proposed project site. The new proposed vineyard area is within existing deer fencing;

- The proposed project will not significantly contribute to habitat loss or habitat fragmentation;

- No bat roosting habitat was identified within the proposed project site, the riparian corridor of Fagan Creek may support local bats;

- Two active raptor nests were observed adjacent to the project site; and

- A complete list of all plants and animals encountered on and near the project site is included in Appendix A.

Assessment of Impacts

The proposed project will remove semi-natural grassland habitat. The loss of habitat for local wildlife is incremental but on a regional or local scale will be immeasurable. Portions of the property outside of the vineyard blocks will be retained in a natural state and continue to function as wildlife habitat, open space and watershed.

- A direct or indirect impact to local drainages has the potential to result in negative impacts to special-status species known or expected to occur downstream in the watershed.

- The mapped Critical Habitat for CRLF of Vineyard Block 20E is not likely to support this species based on grassland habitat.

- The Tricolored Blackbird (*Agelaius tricolor*) was observed in tule's within the reservoir on the property. The project has the potential to disturb nesting birds if present. Breeding typically occurs between April and July.

Mitigation Considerations and Recommendations

The following measures are recommended to reduce potential biological impacts by the proposed project to a less than significant level pursuant to the California Environmental Quality Act (CEQA).

Best Management Practices including silt and erosion control measures included within the Erosion Control Plan must be implemented to prevent off-site movement of sediment and dust during and post construction.

Any impact to seasonal drainages will require agency consultation and permits (if agency consultation determines jurisdiction) from the California Department of Fish and Wildlife, U.S. Army Corps of Engineers, and Regional Water Quality Control Board for impacts to "Waters of the State".

A preconstruction raptor survey will be necessary for the blocks adjacent to the recorded nests and the riparian corridor of Fagan Creek. The preconstruction survey shall consider all potential nesting habitat for birds within 500 feet of earthmoving activities and related project construction activities. A qualified wildlife biologist shall be hired to conduct the survey, which shall determine through field inspection whether occupied raptor nests are present within the proximity of the project site (i.e. within a minimum 500 feet of the areas disturbed).

We recommend a 100-foot buffer around the reservoir with the Tricolored Black Bird must be implemented. If ground disturbance near the buffer zone is proposed between April and July a preconstruction survey should be conducted to determine if the Tricolored Black Bird is nesting in the reservoir.

It is recommended that the project applicant review the PRESCRIBE Online Database. The PRESCRIBE online database application was developed to help pesticide applicators find out if they have any endangered species in the vicinity of their application site, and the use limitations applicable to the pesticide product(s) they intend to use. This site provides information consistent with the U.S. Environmental Protection Agency Interim Measures Bulletins for Protection of Endangered Species for user-selected sites and pesticides. This program is implemented by the Department of Pesticide Regulation on behalf of U.S. EPA under Section 7(a)(1) of the Endangered Species Act.

Deer fencing should be designed with exit gates and limited to vineyard blocks to allow wildlife movement around the project. Any new fencing should use a design that has 6-inch square gaps at the base instead of the typical 3" by 6" rectangular openings to allow small mammals to move through the fence.

Whenever possible Integrated Pest Management practices should be employed with minimally toxic pest control methods. Trapping or raptors should be used for rodent control. Sustainable Farming Practices should be used to insure that use of herbicides toxic to amphibians should be minimized.

Biological Resource Survey
Laird Family Vineyards
200 Kirkland Ranch Rd., American Canyon
APNs: 057-140-002, 013, 014, 015, 016
Napa County, CA

A. PROJECT DESCRIPTION

This study was conducted at the request of Valley Vineyard Engineering, Inc, on behalf of the owner as background information for project permits from the Napa County Planning, Building and Environmental Services Department.

The project proposes to develop 99.2 gross acres 82.4 net acres of vineyards on land that has been used for decades as pastoral grassland. The 300-acre property consists of a residence with infrastructure, existing vineyards with infrastructure, pastoral grassland, reservoirs, winery, Sheeny Creek and riparian corridor of Fagan Creek. The study area is located on the north side of State Highway 12 Jamison Canyon Road in hills above Jamison Canyon. The property is within the USGS Cordelia Quadrangle. Plate I provides a site and location map of the property. Plate III provides an aerial photograph of the survey area.

A.1 Introduction

This biological assessment provides general information on the potential presence of sensitive species and habitats. This biological assessment is not an official protocol-level survey for listed species that may be required for project approval by local, state, or federal agencies. This assessment is based on information available at the time of the study and on site conditions that were observed on the date of the site visit.

The project site is located within close proximity to known occurrences for the California Red-legged Frog (CRLF). The Endangered Species Act of 1973 (FESA), 15 United States Code (U.S.C.) Section 1531 et seq., provides for the protection and conservation of various species of fish, wildlife, and plants that have been federally listed as threatened or endangered. Section 9 of the FESA prohibits the "take" of any fish or wildlife species that is listed as endangered under the FESA unless such take is otherwise specifically authorized pursuant to either Section 7 or Section 10(a)(l)(B) of the Act. Pursuant to the implementing regulations of the FESA, the take of fish or wildlife species listed as threatened is also prohibited unless otherwise authorized by the U.S. Fish and Wildlife Service.

“Take” is defined in the FESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Federal regulation 50 Code of Federal Regulations (CFR) 17.3 further defines the term "harm" in the “take” definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Activities otherwise prohibited under FESA Section 9 and subject to the civil and criminal enforcement provisions under FESA Section 11 may be authorized under FESA Section 7 for actions by federal agencies and under FESA Section 10 for non-federal entities.

A.2 Purpose

The purpose of this report is to identify biological resources that may be affected by the proposed project as listed below:

- To determine the presence or potential for special-status plant and animal species that would be impacted by the proposed project, including habitat types that may have the potential for supporting special-status species (target species that are known for the region, habitat, the Quadrangle and surrounding Quadrangles);
- To identify if the project will have a substantial adverse effect on Sensitive Habitats or Communities regulated by the California Department of Fish and Wildlife;
- To identify and assess potential impacts to Federal or State protected Wetlands and Waters of the U.S. as defined by Section 404 of the Clean Water Act;
- To determine if the project will substantially interfere with native wildlife species, wildlife corridors, and or native wildlife nursery sites;
- Identify any State or Federal biological permits required by the proposed project; and
- Recommend measures to reduce biological impacts to a less than significant level pursuant to the California Environmental Quality Act (CEQA).

B. SURVEY METHODOLOGY

Our seasonal spring survey of the project site follows California Department of Fish and Wildlife CDFW and California Native Plant Society CNPS protocols. The background for our work included a site introduction by Diane Willson, Valley Vineyard Engineering, Inc. and scoping available through CDFW California Natural Diversity Data Base CNDDB records. The purpose of our survey is to identify habitat on the project site, provide a faunal and floristic study of the project site with emphasis on any potential habitat for special-status animals, plants, unique plant populations and or critical habitat associated with the proposed project.

B.1 Project Scoping

The scoping for the project considered location and type of habitat and or vegetation types present on the property or associated with potential special-status species known for the Quadrangle, surrounding Quadrangles, the County or the region. Our scoping also considered records in the most recent version of the Department of Fish and Wildlife California Natural Diversity Data Base (CDFW CNDDB Rare Find) and the California Native Plant Society (CNPS) Electronic Inventory of Rare or Endangered Plants. "Target" special-status species are those listed by the State, the Federal Government or the California Native Plant Society or considered threatened in the region. Our scoping is also a function of our familiarity with the local flora and fauna as well as previous projects on other properties in the area.

Section 15380 of the California Environmental Quality Act [CEQA (September, 1983)] has a discussion regarding non-listed (State) taxa. This section states that a plant (or animal) must be treated as Rare or Endangered even if it is not officially listed as such. If a person (or organization) provides information showing that a taxa meets the State's definitions and criteria, then the taxa should be treated as such.

Tables II and III present target species from CDFW CNDDB Rare Find species and U.S. Fish and Wildlife Service listed species known for the Quadrangle and surrounding Quadrangles.

B.2 Field Survey Methodology

Our studies were made by walking transects through and around the project site. Our fieldwork focused on locating suitable habitat for organisms or indications that such habitat exists on the proposed vineyard site. Digital photographs were taken during our studies to document conditions and selected photographs are included within this report. A floristic and seasonally appropriate survey was conducted in the field at the time of year when rare, threatened, or endangered species are both evident and identifiable for all the species expected to occur within the study areas.

Fieldwork was conducted on September 27, 2016, March 15, April 18, May 15 and June 13, 2017.

Plants

Field surveys were conducted identifying and recording all species on the site and in the near proximity. Transects through the proposed project site were made methodically by foot. In some of the project site an Intuitive Controlled approach was used that calls for the qualified surveyor to conduct a survey of the area by walking through it and around its perimeters, and closely examining portions where target species are especially likely to occur.

The fieldwork for identifying special-status plant species is based on our knowledge and many years of experience in conducting special-status plant species surveys in the region. Plants were identified in the field or reference material was collected, when necessary, for verification using laboratory examination with a binocular microscope and reference materials. Herbarium specimens from plants collected on the project site were made when relevant. Voucher material for selected individuals is in the possession of the authors. All plants observed (living and/or remains from last season's growth) were recorded in field notes.

Typically, blooming examples are required for identification however it is not the only method for identifying the presence of or excluding the possibility of rare plants. Vegetative morphology and dried flower or fruit morphology, which may persist long after the blooming period, may also be used. Skeletal remains from previous season's growth can also be used for identification. Some species do not flower each year or only flower at maturity and therefore must be identified from vegetative characteristics. Algae, fungi, mosses, lichens, ferns, Lycophyta and Sphenophyta have no flowers and there are representatives from these groups that are now considered to be special-status species, that require non-blooming identification. For some plants unique features such as the aromatic oils present are key indicator. For some trees and shrubs with unique vegetative characteristics flowering is not needed for proper identification. The vegetative evaluation as a function of field experience can be used to identify species outside of the blooming period to verify or exclude the possibility of special-status plants in a study area.

Habitat is also a key characteristic for consideration of special-status species in a study area. Many special-status species are rare in nature because of their specific and often very narrow habitat or environmental requirements. Their presence is limited by specific environmental conditions such as: hydrology, microclimate, soils, nutrients, interspecific and intraspecific competition, and aspect or exposure. In some situations special-status species particularly annuals may not be present each year and in this case one has to rely on skeletal material from previous years. A site evaluation based on habitat or environmental conditions is therefore a reliable method for including or excluding the possibility of special-status species in an area.

Animals

Wildlife was identified in the field by their sight, sign, or call. Our field techniques consisted of surveying the area with binoculars and walking the perimeter of the project site. Existing site conditions were used to identify habitat, which could potentially support special-status animal species. All animal life was recorded in field notes and is presented in Appendix A.

Trees were surveyed to determine whether occupied raptor nests were present within the proximity of the project site (i.e., within a minimum 500 feet of the areas to be disturbed). Surveys consisted of scanning the trees on the property (500 ft +) with binoculars searching for nest or bird activity. Our search was conducted from the property and by walking under existing

trees looking for droppings or nest scatter from nests that may be present that were not observable by binoculars.

Wildlife Movement

Aerial photos were reviewed to evaluate at the habitat surrounding the site and the potential for wildlife movement, or wildlife corridors from adjoining properties onto or through the property. Our field methodology for identifying corridors for movement searched for game trails or habitat that would favor movement of wildlife or potential gene flow. We also looked for barriers that would prevent movement or direct movement to particular areas. No game cameras, track plates, or other field equipment were used.

These five functions were used to evaluate potential wildlife corridors on the property. Corridors are considered suitable for wildlife movements if they provide avenues along which:

1. Wide-ranging animals can travel, migrate and meet mates.
2. Plants can propagate.
3. Genetic interchange can occur.
4. Populations can move in response to environmental changes and natural disasters.
5. Individuals can re-colonize habitats from which populations have been locally extirpated.

Wetlands

The project site was reviewed to determine from existing environmental conditions with a combination of vegetation, soils, and hydrologic information if seasonal wetlands were present. Wetlands were evaluated using the ACOE's three-parameter approach: Vegetation, Hydrology, and Soils.

Tributaries to Waters of the U.S. & Waters of the State

Tributaries to Waters of the U.S. and waters of the State are determined by the evaluation of continuity and "ordinary high water mark." The ordinary high water mark is determined based on the top of scour marks and high flow impacts on vegetation. Waters of the U.S. (WOTUS) are defined as wetlands, ponds, lakes, creeks, streams, rivers, ephemeral drainages, ditches and seasonally ponded areas (EPA and ACOE Rule August 28, 2015). Seasonal stream channels with a definable bed and bank fall within the jurisdiction of EPA, ACOE and CDFW. Tributaries to Waters of the U.S. as well as "Waters of the State" are determined by the presence of a definable bed and bank, evidence of or ability to transport sediment and/or a blue line on USGS Quadrangle Map.

The Migratory Bird Treaty Act

The Migratory Bird Act of 1918 makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The MBTA also prohibits disturbance or harassment of nesting migratory birds at any time during their breeding season.

Special-status Species

Special-status species are plants or animals that have been designated by Federal or State agencies as rare, endangered, or threatened. Listed Species are organisms that are recognized as rare, threatened or endangered by State or Federal agencies.

“Take” is defined in the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Federal regulation 50 CFR 17.3 further defines the term "harm" in the “take” definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation. Activities otherwise prohibited under ESA Section 9 and subject to the civil and criminal enforcement provisions under ESA Section 11 may be authorized under ESA Section 7 for actions by federal agencies and under ESA Section 10 for non-federal entities.

Sensitive Communities

CDFW CNDDB identifies environmentally sensitive plant communities that are rare or threatened in nature. Sensitive habitat is defined as any area that meets one of the following criteria: (1) habitats containing or supporting "rare and endangered" species as defined by the State Fish and Wildlife Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tide lands and marshes, (4) coastal and offshore areas containing breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.

Critical Habitat

Critical Habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery.

The area surveyed is shown on Plate III.

C. RESULTS / FINDINGS

C.1 Site Description and Biological Resources Evaluation Area

The property located south of Napa. The proposed vineyard is on south facing rolling grasslands. The habitat on the project site consists of Grassland Semi-natural Herbaceous stands with Herbaceous Layer.

The property is within the inner North Coast Range Mountains, a geographic subdivision of the larger California Floristic Province that is strongly influenced by the Pacific Ocean. The region is in climate Zone 14 "Ocean influenced Northern and Central California" characterized as an inland area with ocean or cold air influence. The climate of the region is characterized by hot, dry summers and cool, wet winters, with precipitation that varies regionally from less than 30 to more than 60 inches per year. This climate regime is referred to as a "Mediterranean Climate." The average annual temperature ranges from 45 to 90 degrees Fahrenheit. The variations of abiotic conditions including geology results in a high level of biological diversity per unit area.

Our survey focused on the proposed project footprint and the nearby surrounding habitat. The aerial photo illustrates the survey area (Plate III) and the photographs that follow further document existing conditions of the project site.

The photographs below illustrate the existing conditions on the proposed vineyard site.

C.2 Habitat Types Present

The habitat types and or vegetation alliances found on the project sites would be termed agricultural lands: Pastoral Grasslands, Seasonal Wetland Swale and Riparian Corridor. In general terms the project sites would be termed ruderal or annual pastoral grassland.

The vegetation of California has been considered to be a mosaic with major changes present from one area to another often with distinct vegetation changes within short distances. It is generally convenient to refer to the vegetation associates on a site as a plant community or alliance. Typically plant communities or vegetation alliances are identified or characterized by the dominant vegetation form or plant species present. There have been numerous community classification schemes proposed by different authors using different systems for the classification of vegetation. A basic premise for the designation of plant communities, associations or alliances is that in nature there are distinct plant populations occupying a site that are stable at any one time (climax community is a biotic association, that in the absence of disturbance maintains a stable assemblage over long periods of time).

The CNPS Inventory of Rare and Endangered Plants of California associates the rare and endangered species with "Habitat Types." The Habitat Type for the study area according to the classification of CNPS and CDFW would be considered to be Valley and Foothill Grassland.

The vegetation on the project site is specifically classified according to Sawyer 2009 in A Manual of California Vegetation as Semi-natural Herbaceous Stands. This vegetation alliances that are part of the Semi-natural Stands are described below. Associated with these alliances but not within the proposed project footprint are Seasonal Wetlands, Seasonal Drainages, Reservoir and Riparian Corridor. The vegetation alliances associated with the non-project habitats on the property are also described below.

Grassland Semi-natural Herbaceous Stands with Herbaceous Layer

Semi-Natural Herbaceous Grasslands are a result of decades of grazing and the introduction of non-native grasses and herbs. Sawyer uses the term "Semi-natural Stands to refer to non-native introduced plants that have become established and coexist with native species. Semi-natural stands are those dominated by non-native species that have become naturalized primarily as a result of historic agricultural practices and fire suppression or management practices for weed abatement and fire suppression. This includes what can be termed weeds, aliens, exotics or invasive plants in agricultural and nonagricultural settings. The Semi-natural Herbaceous Stands present within the proposed project are described below.

Experts conclude that native grasslands in California are among the most endangered ecosystem in the United States. This is due to historical land use, the introduction of naturalized non-native species of grasses and herbs and introduced disease. It is estimated that less than 1% of our state's original grasslands remain. The grasslands on the project site are dominated by non-native species as described below.

Non-Native Grassland

This community is typically found on fine-textured soils, which may range from moist, possibly even waterlogged during the rainy season, to very dry during the dry season. It is primarily composed of non-native annual grasses although native annual forbs ("wildflowers") may also be present during years of favorable precipitation. Non-native grassland communities are found in the valleys and foothills throughout much of California. Characteristic species include wild oats (*Avena* spp.), bromes (*Bromus* spp.), Ryegrass (*Festuca perennis*), California poppy (*Eschscholzia californica*), lupine (*Lupinus* spp.), and baby blue-eyes (*Nemophila menziesii*).

Annual Grassland (California Annual Grassland Alliance)

This habitat is composed of many introduced non-native species with relict native annual species within the stands. The common taxa include non-native: wild oat (*Avena* ssp.), ripgut brome (*Bromus didandrus*), soft chess (*Bromus hordordaceus)*, wild barley (*Hordium murinum*), Mediterranean barley (*Hordium murinum* ssp. *gusoneanum*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), dogtail grass (*Cynosurus echinatus*), cultivated timothy (*Phleum pretense*), annual hairgrass (*Deschampsia danthoioides*), hood canarygrsss (*Phalaris paradoxa*), fescue (*Festuca arundinacea*), Medusa ahead-grass (*Taenianherium caput-medusae*) rattail fescue (*Vulpia myuros*). Often this alliance is invaded by star thistle (*Centaurea solstitialis*). Common forbs include filaree (*Erodium cicutarium*), smooth cat's ear (*Hypocheris glabra*), rough cat's ear (*Hypocheris radicata*), bur clover (*Medicago polymorpha*), California poppy (*Eschoscholzia californica*), clover (*Trifolium* ssp.), vetch (*Viccia* ssp.) and plantain (*Plantago lanceolata*). For a complete list of species observed in this plant habitat see Appendix A.

Indicators of native grassland are purple needle grass (*Nassella pulchra*), bluegrass (*Poa secunda*), wildrye (*Leymus triticoides*), and blue wild rye (*Elymus glauca*) and creeping wild rye (*Leymus triticoides*). High densities/abundance/cover of any of these indicate significant persistent native grassland. The non-native grassland Alliances present as per Sawyer 2009 are described below.

***Avena (barbata, fatua*)** Semi-Natural Herbaceous Stands Wild oats grasslands. *Avena barbata* or *A. fatua* is dominant or co-dominant in the herbaceous layer. Herbs <1.2 m; cover is open to continuous. Stands are present in waste places, rangelands, and openings in woodlands. The membership rules require *Avena ssp.* to be> 75% relative cover; other non-native <5% absolute cover, if present, in the herbaceous layer. *Avena* species are cool-season, annual grasses from Eurasia. These annual grasslands are common in the region.

Bromus diandrus Semi-Natural Herbaceous Stands Annual brome grassland; (Membership Rules *Bromus diandrus >60%* relative cover with other non-natives in the herbaceous layer). *Bromus diandrus* is dominant or co-dominant with non-native in the herbaceous layer. Emergent trees and shrubs may be present at low cover Herbs<75 cm tall are intermittent to continuous. Ripgut brome is an annual grass from Eurasia. This alliance accounts for the largest acreage of grassland vegetation in cismontane California. Stands in our area contain *Aria caryophylla, Cynosurus echinatus, Dichelostemma multiflorum, Erodium botrys, Limnanthes douglasii, Taeniantherum caput-medusae,* and *Baccharis pilularis* shrubs.

***Festuca perennis = Lolium perenne* Semi-Natural Herbaceous Stands Perennial Rye Grass Field**; *Festuca perenne* is dominant or co-dominant with other non-natives in the herbaceous layer with *Agrostis stolonifera, Alopecurus aequalis, Ascliepias fascicularis, Avena fatua, Brassica nigra, Bromus didandrus, B. hordeaceus, Centaurium muhlenbergii, Cirsium vulgare, Crypthantha flaccida, Euphorbia spthulata, Festuca arundinacea, Holcus lanatus, Hordeum brachyantherum, Hordeum marinum, Lentodon taraxacoides, Leymus triticoides, Lotus corniculatus, Microseris douglasii, Stipa pulchra, Phalaris aquatica, Plantago erecta, Poa pratensis, Rorippa nasturtium-aquaticum, Rumex crispus* and *Trifolium ssp.* Emergent Trees and shrubs may be present at low cover. Herbs < 1 m tall; canopy is intermittent to continuous. (Membership Rules *Festuca perenne* >50% relative cover, native plants< 15% relative cover). *Festuca perenne* is a non-native grass from Europe introduced into temperate regions throughout the world. It is an annual or a perennial, cool-season bunch grass. Stands are found on lowlands with periodic flooding and uplands including serpentine substrates.

Phalaris aquatica Semi-Natural Herbaceous Stands Harding grass swards, *Phalaris aquatica* is dominant in the herbaceous layer. Scatterd emergent shrubs such as *Baccharis pilularis* may be present. Herbs <1.5m; canopy is intermittent to continuous. (Membership Rules *Phalaris aquatica* >50% relative cover in the herbaceous layer or *Phalaris aquatica* > 15% absolute cover and 75% relative cover when compared to native species in the herbaceous layer. *Phalaris aquatica* is an erect, tufted perennial grass from Mediterranean Europe. Stands of *P. aquatica* forms dense patches that prevent the germination of other species. Native species richness drops because of a thick surface of litter and thatch build-up.

<u>Seasonal Wetland Swale</u>

Wetlands with more seasonal water supply support sedges (*Carex* spp.) and rushes (*Juncus phaeocephalus, J. effusus*, *J. balticus*, and others). Associated species include other bulrush species, creeping spikerush (*Eleocharis macrostachya*), mannagrass (*Glyceria* spp.), floating water-primrose

(*Ludwigia palustris*), water-plantain (*Alisma plantago-aquatica*), umbrella flatsedge (*Cyperus eragrostis*), mint (*Mentha* spp.), buttercup, and smartweeds (*Polygonum* spp.) in perennial wetlands, and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Italian ryegrass, curly dock (*Rumex crispus*), and hyssop loosestrife (*Lythrum hyssopifolia*) in more seasonal wetlands.

Juncus (oxymeris, xiphioides) **Provisional Herbaceous Alliance** Iris-leaf rush seeps. *Juncus xiphioides* is dominant in the herbaceous layer with *Carex serratodens, Cirsium fontainale, Eleocharis macrostachya, Equisetum arvense, Hordeum brachyantherum, J. artcticus, J. effusus, J. patens, Festuca perennis* (*=Lolium multiflorum, L. perenne), Acmispon americanus*. var. *americanus* (*=Lotus purshianus), Lythrum hyssopifolia, Mimulus guttatus, Polypogon monspeliensis, Rumex acetosella, R. crispus, Sisyrinchium bellum, Veronica americana,* and *Festuca (=Vulpia)* ssp. Emergent shrubs such as *Rubus* ssp. may be present at low cover. Herbs < 1m; cover is intermittent to continuous This alliance is fount on seeps, mainly on metamorphic, serpentine and volcanic substrates. *Juncus xiphioides* is a perennial rhizomatous rush.

Reservoir

The reservoir associated with the project sites is lined with Tule and Cattails around the perimeter. This Alliance is described below.

Typha (angustifolia, domingensis, latifolia) Herbaceous Alliance Cattail Marshes. *Typha angustifolia, T. domingensis,* or *T. latifolia* is dominant or co-dominant in the herbaceous layer with *Agrostis stolonifera, Argentina egedii, Cyperus* ssp. *Distichlis spicata, Echinochloa crus-galli, Eleocharis macrostachya, Equisetum telmateia, Juncus* ssp., *Lemna minuscule, Lepidium latifolium, Oenanthe sarmentosa, Persicaria lapathifolia, P. punctata, Phragmites australis, Schoenoplectus americanus, S. californicus* and *Xanthium strumarium*. Emergent trees such as *Salix* ssp. may be present at low cover. Herbs <1.5 M; canopy is intermittent to continuous (Membership Rules *Typha angustifolia, T. domingensis* and/or *T. latifolia > 50%* relative cover in the herbaceous layer) *Typha angustifolia, T. domingensis* and/or *T. latifolia* is dominant or co-dominant in the herbaceous layer. This alliance is typical for semi-permanently flooded freshwater or brackish marshes. *T. latifolia* is an emergent perennial hydrophyte with shallow, branched rhizomes that terminate in additional leafy shoots. Plants die after fruiting in the second year. Hybridization is common between the three species of *Typha.*

Schoenoplectus acutus **Herbaceous Alliance Hardstem bulrush marsh; (**Membership Rule*s Schoenoplectus acutus* ≤ 10% absolute cover in the herbaceous layer*, S. californicus*, if present, < 30% relative cover, *Typha* ssp., if present, can be > 30%-60% relative cover. *Schoenoplectus acutus* is dominant or co-dominant in the herbaceous layer with *Azolla fliiculoides, Calystegia sepium, Echinornia crassipes, Hibiscus lasiocarpos, Hydrocotyle ranunculoides, Leersia oryzoides, Ludwigia peploides, Lycopus americanus, Spargannium eurycarpus, Triglochin ssp. Typha angustifolia, T. latifolia,* and *Urtica dioica.* Emergent *Alnus rhombifolia, Populus fremontii, and Salix Goodingii* trees or *Cephalanthus accidentalis, Hoita macrostachya, Rubus armeniacus, S. exigua* and *S. lasiolepis* shrubs may be present at low cover. Herbs <4 m; cover is intermittent to continuous. *Schoenoplectus acutus* is a robust tile that attains 3 M in height. The culms are winter deciduous, arising from long, stout, underground rhizomes. This alliance is associated with ponds and lake shores, freshwater marshes and brackish marshes.

Riparian Vegetation (Riparian Corridors) or Riparian Zone

Riparian vegetation is associated with streams and is a function or result of soils, location and hydrology. Riparian vegetation is primarily a result of the availability of water for growth and local herbivory. The width of riparian vegetation varies. The extant riparian zone along Sheeny Creek is relatively narrow as a result of agricultural practices and steep incised banks resulting from cattle grazing. Riparian vegetation is characterized by tree layer, shrub/vine layer and groundcover. The scale and scope of this habitat is limited in the county depending on location and there are great differences associated with location, soils, biotic factors and rain shadow. In the area the riparian tree cover is characterized by the presence of broadleaved, deciduous trees such as *Salix, Alnus, Quercus* and *Populus*, which are found along the banks and floodplains of waterways. Common shrubs include *Toxicodendron diversilobum*, *Baccharis pilularis*, *Rubus armeniacus* and *Vitis californica.* The understory consists of torrent sedge, mule fat, ninebark, spicebush, California polypody and dogwood. Sawyer (2009) does not recognize Riparian Woodland as a separate Alliance but includes it as a component of woodland alliances. Riparian vegetation is usually transitional between wetland and upland.

Riparian Vegetation is by all standards considered sensitive. Riparian Vegetation functions to control water temperature, regulate nutrient supply (biofilters), bank stabilization, rate of runoff, wildlife habitat (shelter and food), release of allochthonous material, release of woody debris which functions as habitat and slow nutrient release, and protection for aquatic organisms. Riparian vegetation is also a moderator of water temperature has a cascade effect in that it relates to oxygen availability. Riparian vegetation is also a moderator of water temperature has a cascade effect in that it relates to oxygen availability. The beneficial uses of areas in and along streams, including: providing food, water, and breeding, egg deposition and nesting areas for fish, amphibians, reptiles, birds, insects, and mammals; providing protective cover, shade and woody debris to stream channels as habitat for coho salmon, steelhead, freshwater shrimp, and other protected and common aquatic-dependent species; providing movement opportunities, protective cover, and breeding, roosting, and resting habitat for terrestrial wildlife; filtering sediment and pollutants in runoff into streams; providing erosion protection for stream banks; and facilitating groundwater recharge.

Plate III provided and aerial photograph illustrating the survey area. Plate IV illustrates the vegetation on the study area and Plate V shows the location of Biological Resources associated with the proposed project.

Table I. Estimated acreage of Plant Communities or Alliances on the Property

Plant Community or Vegetation Alliance	Acreage of Property (300-acres)	Proposed Vineyard	Estimated Percentage to be removed	Estimated Percentage to Remain
Proposed Vineyard	**NA**	**82.4-acres net**	**NA**	**NA**
Grassland Semi-Natural Herbaceous Stands with Herbaceous Layer (includes Seasonal Drainages)	**162-ac**	**99.2 -acres**	**60%**	**40%**
Riparian Woodland Alliance	**6-ac**	**NA**	**0%**	**100%**
Seasonal Freshwater Wetland	**2.0 ac**	**NA**	**0%**	**100%**
Existing Vineyards	**125-ac**	**NA**	**0%**	**100%**
Developed Landscape, Residence, Roads and Winery	**5-ac**	**NA**	**0%**	**NA**

Table II. Respective Characteristics of Plant Communities on the Property.

Plant Community or Vegetation Alliance	Respective Characteristics Approximate tree density (Average trees and species per acre)
Grassland Semi-Natural Herbaceous Stands	The project area has been used agriculturally for decades. The site has grassland dominated by annual species most of which are non-natives. The use as pasture has eliminated shrubs and has resulted in the establishment of invasive "weed" species some of which are noxious weeds.
Riparian Woodland Alliance	This is found on the southern parcel associated with the banks of Sheeny Creek. The vegetation consists of a diverse tree canopy and shrub layer. This area is outside of the footprint of the project and will be provided with a setback.
Reservoir	The reservoir on the property has a shoreline of Tules and Cattails. There are trees above the reservoir associated with a freshwater marsh. This area is outside of the footprint of the project and will be provided with a setback.
Freshwater Marsh	There is a freshwater marsh associated with the reservoir, a seasonal wetland on the south side and another associated with an unnamed tributary. These areas are outside of the footprint of the project and will be provided with standard buffer zone setbacks.

Figure 1. View upslope of the proposed vineyard semi-natural grassland that has been grazed.

Figure 2. View of the study area illustrating the habitat on the project site.

Figure 3. Reservoir on the property.

Figure 4. Seasonal wetland that has been avoided along the south side of the project site.

The aerial photograph Plate III illustrates the site and the surrounding environment. The environmental setting of the project site consists of:

- North side of the project – Vineyard;
- East side of the project –Seasonal Drainage, Grasslands;
- South side of the project – Vineyards; and
- West side of the project – Vineyards.

The project site drains by sheet flow into unnamed tributaries of Sheeny Creek and Fagan Creek thence the Napa River.

Napa County Definition for a Defined Drainage is a watercourse designated by a solid line or dash and three dots symbol on the largest scale of the United States Geological Survey maps most recently published, or any replacement to that symbol, and or any watercourse that has a well-defined channel with a depth greater that four feet and banks steeper than 3:1 and contains hydrophilic vegetation, riparian vegetation or woody-vegetation including tree species greater that ten feet in height.

There are no Napa County Defined Drainages within the proposed vineyard blocks. All drainages on the property have been provided with standard setbacks.

C.3 Special-Status Species

Special-status organisms are plants or animals that have been designated by Federal or State agencies as rare, threatened, or endangered. Section 15380 of the California Environmental Quality Act [CEQA (September, 1983)] has a discussion regarding non-listed (State) taxa. This section states that a plant (or animal) must be treated as Rare or Endangered even if it is not officially listed as such. If a person (or organization) provides information showing that taxa meets the State's definitions and criteria, then the taxa should be treated as such.

A map from the CDFW CNDDB Rare Find shows known special-status species in the proximity of the project as shown on Plate II. These taxa as well as those listed in Appendix B Special-status Species known for the Quadrangle and Surrounding Quadrangles were considered and reviewed as part of our scoping for the project site and property. Reference sites were reviewed as part of our scoping for some of the species.

Tables III and IV below provides a list of species that are known to occur (CDFW CNDDB Rare Find search in the quadrangle and surrounding quadrangles and U.S Fish and Wildlife Service). The tables include habitat associated with each special-status species, the potential for presence on project site and justification for absence.

Table III. Analysis of CDFW CNDDB and USFWS target special-status plant species. Columns are arranged alphabetically by scientific name.

Scientific Name Common Name	**Species Habitat Association or Plant Community**	**Habitat present**	**Potential to occur on site**	**Bloom Time**	**Obs. on or Near Site**	**Analysis of habitat on study area for presence or absence**
Agrostis hendersonii Henderson's Bent Grass	Vernal Pools	No	No	May-July	No	Lack of mesic habitat.
Atriplix persistens Vernal Pool Smallscale	Alkali Vernal Pools	No	No	June-Sept.	No	Lack of Alkali Vernal Pools.
Astragalus claranus Clara Hunt's Milk-vetch	Chaparral, Cismontane Woodland, Valley & Foothill Grassland	Yes	No	March-May	No	Absence of requisite micro-habitat and historic grazing.
Astragalus tener var. tener Alkali Milk-vetch	Valley and Foothill Grassland, Vernal Pools /Alkaline	No	No	March -June	No	Absence of requisite mesic habitat or substrate on project site precludes presence.
Balsamorhiza macrolepis var. *macrolepis* Big-scale Balsamroot	Chaparral, Cismontane Woodland, Valley and Foothill Grassland	Yes	No	March-June	No	Historic use of site precludes presence.
Blepharizonia plumose Big Tarplant	Dry Slopes In Grasslands	Yes	No	July-Dec.	No	Historic grazing of site precludes presence.
Brodiaea leptandra Narrow-anthered California Brodiaea	Cismontane Woodland	No	No	May-June	No	Absence of typical habitat and historic agricultural use of study area.
Downingia pusilla Dwarf Downingia	Wetlands	No	No	Marc-May	No	Requisite mesic habitat absent on the project site.
Calochortus pulchellus Mt. Diablo Fairy-lantern	Chaparral, Cismontane Woodland, Riparian Woodland, Valley and Foothill Grassland	Yes	No	April-June	No	Historic land use precludes presence.
Carex lyngbyei Lyngbey's Sedge	Brackish Waters	No	No	May-July	No	Lack of brackish waters.

Scientific Name Common Name	Species Habitat Association or Plant Community	Habitat present	Potential to occur on site	Bloom Time	Obs. on or Near Site	Analysis of habitat on study area for presence or absence
Castilleja affinis ssp. neglecta Tiburon Indian Paintbrush	Valley and Foothill Grassland, Serpentinite	No	No	April-June	No	Absence of requisite edaphic habitat on the site or in the immediate vicinity precludes presence.
Ceanothus purpureus Holly-leaved Ceanothus	Chaparral	No	No	Feb. April	No	Absence of typical habitat and vegetation associates.
Centromadia parryi ssp. *congdonii* Congdon's Tarplant	Terraces, Swales, Floodplains Grasslands Disturbed Sites	Yes	No	June-Oct.	No	Historic agricultural use preludes presence.
Centromadia parryi ssp. *parryi* Pappose Tarplant	Grassland salt or alkaline Marshes	No	No	March-June	No	Requisite mesic conditions absent.
Chloropyron (Cordylanthus) molle ssp. *molle* Soft Salty Bird's-beak	Marshes Swamps (Coastal Salt)	No	No	May-Aug.	No	Absence of requisite habitat.
Cicuta maculata var. *bolanderi* Bolander's Water-hemlock	Coastal Wetlands	No	No	July-Sept.	No	Lack of suitable habitat.
Cirsium hydrophilum var. *hydrophilum* Suisun Thistle	Tidal Marsh Suisun Delta	No	No	Jun-Sept.	No	Lack of suitable habitat.
Downingia pusilla Dwarf Downingia	Wetlands	No	No	March-May	No	Requisite mesic habitat absent on the project site.
Eriogonum truncatum Mt. Diablo Buckwheat	Sand	No	No	April-Aug.	No	Absence of edaphic conditions required for presence.
Eryngium jepsonii Jepson's Coyote Thistle	Moist Clay Soils	No	No	April-Aug.	No	Absence of mesic conditions required for presence.
Extriplex joaquiniana (=Atriplex) San Joaquin Spearscale	Valley and Foothill Grassland, Alkali	No	No	April-Oct.	No	Absence of requisite edaphic habitat on the site or in the immediate vicinity precludes presence.

Scientific Name Common Name	Species Habitat Association or Plant Community	Habitat present	Potential to occur on site	Bloom Time	Obs. on or Near Site	Analysis of habitat on study area for presence or absence
Fritillaria liliacea Fragrant Fritillary	Heavy Soil, Open Grasslands, Fields near Coast	No	No	Feb.-April	No	Absence of edaphic conditions required for presence.
Helianthella castanea Diablo Helianthella	Open Grassy sites	Yes	No	April-June	No	Extensive cattle grazing for decades precludes presence.
Hesperolinon breweri Brewer's Western Flax	Cismontane Woodland, Valley and Foothill Grassland, Serpentinite	No	No	May-July	No	Absence of requisite edaphic habitat on the site or in the immediate vicinity precludes presence.
Isocoma arguta Carquinez Goldenbush	Valley and Foothill Grassland, Alkali	No	No	Aug-Dec.	No	Absence of requisite edaphic habitat on the site or in the immediate vicinity precludes presence.
Juglands hindsii California Black Walnut	Riparian Woodland	No	No	April-May	No	Project footprint does not include any riparian habitat
Lasthenia conjugens Contra Costa Goldfields	Wet Meadows, Vernal Pools	No	No	May-June	No	Lack of suitable mesic habitat.
Lathyrus jepsonii var. *jepsonii* Delta Tule Pea	Marshes and Swamps (Fresh Water Brackish	No	No	May-Sep.	No	Requisite mesic habitat absent on the project site.
Legenere limosa Legenere	Vernal Pools	No	No	April-June	No	Was not observed. Vernal wet areas may show presence upon removal of intensive horse grazing.
Lilaeopsis masonii Mason's Lilaeopsis	Mud Flats of Tidal Waters	No	No	April-July	No	Lack of requisite habitat.
Limosella australis Delta Mudwort	Muddy or Sandy Intertidal Mud Flats, Brackish Water	No	No	May-Aug.	No	Lack of mesic habitat.
Navarretia leucocephala ssp. *bakeri* Baker's Navarretia	Meadows and Seeps Cismontane Woodland, Valley and Foothill Grassland, Vernal Pools	No	No	May-July	No	Absence of typical habitat and vegetation associates.

Scientific Name Common Name	Species Habitat Association or Plant Community	Habitat present	Potential to occur on site	Bloom Time	Obs. on or Near Site	Analysis of habitat on study area for presence or absence
Polygonum marinensis Marin Knotweed	Marshes and Swamps/ brackish	No	No	April-Oct.	No	Absence of mesic habitat.
Puccinella simplex California Alkali Grass	Saline Flats, Mineral Springs	No	No	March-May	No	Lack of habitat.
Rhynchospora californica California Beaked-rush	Bogs and Fens, Lower Montane Coniferous Forest	No	No	May-July	No	Absence of requisite mesic edaphic habitat on the site.
Stuckenia filiformis var. *alpina* Slender-leaved Pondweed	Marshes and Swamps, Fresh Water	No	No	May-July	No	Requisite mesic habitat absent on the project site.
Symphyotrichum lentum Suisun Marsh Aster	Marshes and Swamps (Brackish and Freshwater)	No	No	May, Nov.	No	Requisite habitat absent on the project site.
Trichostema ruygtii Napa Bluecurls, Vinegar Weed	Open areas with thin clay soils seasonally saturated	No	No	June-Oct.	No	Requisite habitat absent on the site.
Trifolium amoenum Two-fork Clover	Coastal Bluff Scrub, Valley and Foothill Grassland (Sometimes Serpentinite)	No	No	April-June	No	Historic use of the site precludes presence. This species is vulnerable to disturbance and livestock grazing.
Trifolium hydrophilum Saline Clover	Marshes and Swamps Grassland	No	No	April-June	No	Absence of mesic habitat required for presence.
Viburnum ellipticum Oval-leaved Viburnum	Chaparral, Cismontane Woodland, Lower Coniferous Forest	No	No	May-June	No	Requisite habitat absent on the site or in the immediate vicinity.

Table IV. Analysis of special-status target animals for the area. The taxa included in the table are selected based on the habitat present and the CDFW CNDDB records for the area of the project (see also Appendix B and Plate II).

Scientific Name **Common Name**	**Habitat**	**Potential for Study area**	**Obs. on or Near Study area**	**Analysis of Habitat on study area for presence or absence**
Agelaius tricolor Tricolored Blackbird	Tule Marshes	No	Yes	Observed within reservoir. Unknown breeding site.
Antrozous pallidus Pallid Bat	Roosts in Buildings & Overhangs	May fly over	No	Lack of suitable roosting habitat.
Aquila chrysaetos Golden Eagle	Nests near water	No	No	Lack of habitat.
Ardea alba Great Egret	Feeds in open areas. Nests in colonies.	No May fly over	No	Lack of suitable habitat for nesting.
Asio flammeus Short-eared Owl	Nests on the ground. Feeds in Grasslands	Yes	No	Species not observed.
Athene cunicularia Burrowing Owl	Low lying grasslands.	Yes	No	Species not observed.
Branchinecta lynchi Vernal Pool Shrimp	Vernal Pools	No	No	Lack of habitat.
Buteo regalis Ferruginous Hawk	Hunts from perches in arid grasslands, Migrates through area	No	No	Potential foraging habitat. Species not observed.
Buteo swainsoni Swainson's Hawk	Open areas with riparian influence	No	No	Potential foraging habitat. Species not observed.
Calasellus californicus An Isopod	Freshwater Wells and Springs	No	No	Lack of habitat.
Callophrys mossii bayensis San Bruno Elfin Butterfly	Host plant stonecrop (*Sedum spathulifolium*)	No	No	Lack of host plant

Scientific Name Common Name	**Habitat**	**Potential for Study area**	**Obs. on or Near Study area**	**Analysis of Habitat on study area for presence or absence**
Charadrius alexandrinus nivosus Western Snowy Plover	A shore bird of ocean beaches.	No	No	Lack of suitable habitat.
Circus cyaneus Northern Harrier	Preference for Wetlands and Marshes both Salt and Freshwater	Yes	No	Potential foraging habitat. Species not observed.
Corynorhinus townsendii Townsend's Big-eared Bat	Caves, also in Buildings	No	No	Lack of suitable roosting habitat.
Egretta thula Snowy Egret	Nests in tall trees near water	Yes	No	Potential foraging habitat. Species not observed.
Elanus leucurus White-tailed Kite	Nests in tall trees near water	Yes	No	Potential foraging habitat. Species not observed.
Emys marmorata Western Pond Turtle	Slow moving water or ponds	Yes	No	Potential within reservoir. Species not observed.
Geothlypis trichas sinuosa Saltmarsh Common Yellowthroat	Salt Marsh Tule Habitat	No	No	Lack of habitat.
Helminthoglypta nickiniana bridgesi Bridges' Coast Range Shoulderband	Open hillsides; lives in rock piles surrounded by grass and herbaceous vegetation	No	No	Lack or requisite habitat.
Laterllus jamaicensis coturniculus Califronia Black Rail	Tidal Tule Marshes	No	No	Lack of suitable habitat.
Masticophis lateralis euryxanthus Alameda Whipsnake or Striped Racer	Open areas Canyons Rocky Hillsides, Chaparral, Open Woodlands, Pond Edges.	No	No	Lack of Habitat.

Scientific Name Common Name	Habitat	Potential for Study area	Obs. on or Near Study area	Analysis of Habitat on study area for presence or absence
Melospiza melodia maxillaries Suisun Song Sparrow	Salt Marshes	No	No	Requisite habitat absent. Not associated with project.
Melospiza melodia samueliss San Pablo Sparrow	Salt Marshes	No	No	Requisite habitat absent. Not associated with project.
Nyctiocorax nycticorax Black-crowned Night Heron	Nests in reeds or trees near water	Yes	No	Potential habitat around reservoir. Species not observed.
Oncorhynchus mykiss irideus Steelhead-central California Coast	Aquatic	No	No	Not recorded for presence within five miles of the property.
Rallus longirostris obsoletus California Clapper Rail	Salt Marshes	No	No	Lack of habitat.
Rallus obsoletus obsoletus California Ridgway's Rail	Salt Marshes	No	No	Lack of habitat.
Rana draytonii California Red-legged Frog	Creeks, Rivers, Permanent flowing water.	No	No	Potential habitat in reservoir and surrounding wetlands. Species not observed.
Reithrodontomys raviventis Salt-marsh Harvest Mouse	Pickleweed Salt Marsh	No	No	Lack of habitat.
Sorex ornats sinuousus Suisun Shrew	Salt Marsh	No	No	Requisite habitat absent. Not associated with project.
Spirinchus thaleichthys Longfin Smelt	Coastal Rivers Estuaries	No	No	Lack of suitable habitat.
Speyeria callippe callippe Callippe Silverspot Butterflty	Native Grasslands of SF Bay	No	No	Requisite habitat required for presence lacking.
Sterna antillarum browni California Least Tern	Coastal	No	No	Lack of suitable habitat

Scientific Name Common Name	Habitat	Potential for Study area	Obs. on or Near Study area	Analysis of Habitat on study area for presence or absence
Strix occidentalis caurina Northern Spotted Owl	Old Growth Forests	No	No	Lack of nesting habitat.
Syncaris pacifica California Freshwater Shrimp	Creeks and Estuaries below 300 ft.	No	No	Requisite habitat required for presence lacking.
Thamnophis gigas Giant Garter Snake	Marshes, Sloughs, Drainage Canals, Irrigation Ditches	Yes	No	Not known for the area.
Taxidea taxus American Badger	Grasslands with food source.	No	No	Lack of suitable soils on property.
Xanthocephalus xanthocephalus Yellow-headed Blackbird	Cattail Marshes	Yes	No	Potential habitat around reservoir. Species not observed.

Our fieldwork did not find any special-status plant or animal species known for the Quadrangle, surrounding Quadrangles within the proposed project footprint. The present conditions of the study area and historic land use are such that there is little reason to expect the occurrence of any special-status animal species within the study area. The Tricolored Blackbird was present within the reservoir near the proposed new vineyard blocks.

California Red-legged Frog CRLF surveys were not conducted as part of this assessment. The project site is located outside Critical Habitat (See Plate IV) and review of occurrences within a one-mile radius, as required by the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005), reveals no known occurrences within one mile of the property.

A map from the CDFW CNDDB Rare Find shows known special-status species in the proximity of the study area as shown on Plate II. The CDFW CNDDB does not record any special-status plants for the property.

The special-status plant species known for the region are reasonably precluded from presence based on the absence of findings during our spring/summer surveys, the history of the property use, the absence of any records for the site, the absence of hydrologic conditions, lack of serpentinite, and the vegetation associates. It is apparent that the site has been in agriculture use for a number of years.

The study area conditions are such that there is no reason to expect any impacts to special-status species on-site or off-site provided standard best management practices are utilized and the erosion control plan is implemented.

Habitat impacted by the proposed project is such that it will not substantially reduce or restrict the range of listed animals.

C.4 Discussion of Sensitive Habitat Types

The Napa County Baseline Data Report defines Biotic communities as the characteristic assemblages of plants and animals that are found in a given range of soil, climate, and topographic conditions across a region. Sensitive biotic communities in the County were identified using a two-step process for the Napa County Baseline Data Report.

The Napa County Baseline Data Report as well as the California Department of Fish and Wildlife Natural Diversity Data Base (CDFW CNDDB) lists recognized Sensitive Biotic Communities. The Napa County Baseline Data Report lists twenty-three communities which are considered sensitive by CDFW due to their rarity, high biological diversity, and/or susceptibility to disturbance or destruction.

Napa County biotic communities of limited distribution that are sensitive include: Native grassland; Tanbark oak alliance; Brewer willow alliance; Ponderosa pine alliance; Riverine, lacustrine, and tidal mudflats; and Wet meadow grasses super alliance.

The California Department of Fish and Wildlife Natural Diversity lists: Coastal Brackish Marsh, Northern Coastal Salt Marsh, Northern Vernal Pool, Northern Claypan Vernal Pool, Serpentine Bunchgrass, Valley Needlegrass Grassland and Wildflower Grassland within 5 miles of the project site or associated with the Quadrangles around the Project site. These sensitive habitat types are not present on or near the project footprint.

There are no vernal pools, marshes or wetlands associated with the project footprint.

D. POTENTIAL BIOLOGICAL IMPACTS

The project's effect to onsite or regional biological resources is considered to be significant if the project results in:

- Alteration of unique characteristics of the area, such as sensitive plant communities and habitats (i.e. serpentine habitat, wetlands, riparian habitat);
- Adverse impacts to special-status plant and animal species;
- Adverse impacts to important or vulnerable resources as determined by scientific opinion or resource agency concerns (i.e. sensitive biotic communities, special-status habitats; e.g. wetlands);
- Loss of critical breeding, feeding or roosting habitat; and
- Interference with migratory routes or habitat connectivity.

In the sections below a discussion of potential impacts of the project on the biological resources is presented.

D.1 Analysis of Potential Impacts to Special-status Species

Our fieldwork did not find any special-status plant or animal species known for the Quadrangle, surrounding Quadrangles or for the region that would be impacted by the proposed project provided mitigation measures recommended below are followed.

The present conditions of the project site and historic land use are such that there is little reason to expect the occurrence of any special-status plant or animal species within the footprint of the project.

California Red-legged Frog *(Rana draytonii)* is listed as threatened by USFWS. The riparian corridor of Fagan Creek, the reservoir, and seasonal wetlands surrounding the project contains potential habitat for this species. The California Red-legged Frog (CRLF) inhabits permanent or nearly permanent water sources (quiet streams, marshes, and reservoirs). They are highly aquatic and prefer shorelines with extensive vegetation.

The CRLF is recorded to be within 2.8-miles from the project site. The project is subject to the "take prohibitions" for CRLF under the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA). <u>If frogs were present it is likely they would stay with in the vegetated areas adjacent to the reservoir or seasonal wetlands and would unlikely use upland habitat on the project site</u>.

California Red-legged Frog (CRLF) is a federally threatened species. USFWS can assume presence of CRLF at a site based on suitable habitats and proximity of a site from known CRLF breeding sites and require mitigation for loss of upland habitat. For CRLF suitable habitat, USFWS requires a 3:1 mitigation ratio for permanent losses of upland and stream habitat and a 1:1 mitigation ratio for temporary losses of upland and stream habitat. Temporary impacts are impacts to habitats that can be restored to pre-project or better condition within 12-18 months. Other mitigation options could be to purchase land and set aside as CRLF mitigation, or provide adequate funds to an environmental group, such as the California Wildlife Foundation, who are

performing stream restoration in the area. The details of these options would need to be identified and approved by the USFWS.

Marginal aquatic habitat for this species is present on the property, and USFWS critical habitat is mapped in the north east corner of the property.

Tricolored Blackbird (*Agelaius tricolor*) listing status is under review by USFWS This species was observed in the reservoir on the property. This is highly colonial species, most numerous in Central Valley and vicinity. It is largely endemic to California. They require open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony. Breeding typically occurs between April and July, when individuals congregate to form breeding colonies. The female builds an open cup nest woven out of vegetation. Typically, four eggs are laid during a first nesting; second nest attempts, with clutches of three or more eggs, are fairly common. Nest sites were not documented

Peregrine falcon (Falco peregrinus) This species has been delisted by USFWS. Quadrangle is listed, as a sensitive Element Occurrence Peregrines prefer dry, open terrain, either level or hilly. Forages far afield, even to marshlands and ocean shores. Nests near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape on a depression or ledge in an open site

Nesting habitat suitable for peregrine nesting is absent on the property, in the immediate area and within the Project Area

Northwestern Pond Turtle (*Emys marmorata)* Is listed as a species of special concern CDFW. This species recorded on parcels north of the property. This species is likely to occur within the reservoir on site. We did not observe this species during our surveys. The potential for the project to impact this species is low;

Water extraction linked to agricultural development (direct stream diversions) may have a negative impact on listed species. Adequate analysis of the water demands of the proposed vineyard and potential stream flow impacts should be analyzed if direct water diversions are used to irrigate vineyards or for frost protection.

The special-status plant species known for the region are reasonably precluded from presence based on the absence of findings during our spring/summer surveys, the history of the property use, the absence of any records for the site, the absence of hydrologic conditions, lack of serpentinite, and the vegetation associates.

The project site conditions are such that there is no reason to expect any impacts to special-status species on-site or off-site provided standard best management practices are utilized and the erosion control plan is implemented.

Habitat impacted by the proposed project is such that it will not substantially reduce or restrict the range of listed animals.

D.2 Analysis of Potential Impacts on Sensitive Habitat

Kjeldsen Biological Consulting did not identify any Sensitive Biotic Communities and or Biotic Communities of Limited Distribution as defined in the County Baseline Data Report or listed by CDFW on the property.

Sensitive Communities
The CDFW CNDDB lists Serpentine Bunchgrass, Valley Needlegrass Grassland and Wildflower Field as Sensitive Communities in the region. There are no CDFW Sensitive Communities or Napa County Sensitive Biotic Communities present on project site.

Native Grassland
The grasslands within the footprint of the project do not consist of any of the sensitive grassland communities listed by the County Baseline Data Report or CDFW. Native grasses on the project site do not meet the definition of Native Grass Grassland and would not be considered a species with limited distribution or a sensitive natural plant community. The project will not impact any populations of native grasslands.

Seasonal Wetland
Seasonal wetland generally denotes areas where the soil is seasonally saturated and/or inundated by fresh water for a significant portion of the wet season, and then seasonally dry during the dry season. To be classified as "Wetland," the duration of saturation and/or inundation must be long enough to cause the soils and vegetation to become altered and adapted to the wetland conditions. Varying degrees of pooling or ponding, and saturation will produce different edaphic and vegetative responses. These soil and vegetative clues, as well as hydrological features, are used to define the wetland type. Seasonal wetlands typically take the form of shallow depressions and swales that may be intermixed with a variety of upland habitat types. Seasonal wetlands fall under the jurisdiction of the U.S. Army Corps of Engineers. Several seasonal wetlands and seeps were identified and avoided within the project site. Seasonal wetland have been avoided and provided with setbacks. There are no seasonal wetlands or vernal pools associated with the project footprint.

Waters of the State
Waters of the State include drainages that are characterized by the presence of definable bed and bank that meet ACOE, and RWQCB definitions and or jurisdiction. Any direct discharge of storm water into "Waters of the State" will require ACOE, DFW, and RWQCB permits.

Napa County Definition for a Defined Drainage is a watercourse designated by a solid line or dash and three dots symbol on the largest scale of the United States Geological Survey maps most recently published, or any replacement to that symbol, and or any watercourse that has a well-defined channel with a depth greater that four feet and banks steeper than 3:1 and contains hydrophilic vegetation, riparian vegetation or woody-vegetation including tree species greater that ten feet in height. There is drainage on the property that would be considered a Napa County Definition for a Defined Drainage appropriate setbacks have been established from this feature. There are no Napa County Defined Drainages on the project site.

Riparian Vegetation
Riparian vegetation is by all standards considered sensitive. Riparian Vegetation functions to control water temperature, regulate nutrient supply (biofilters), bank stabilization, rate of runoff, wildlife habitat (shelter and food), release of allochthonous material, release of woody debris which function as habitat and provide slow nutrient release as well as protection for aquatic organisms. Riparian vegetation is also a moderator of water temperature has a cascade effect in that it relates to oxygen availability. Riparian vegetation exists in the drainage south of the site. The project will not impact any riparian vegetation.

Trees
The project will not remove any trees. Eucalyptus trees on the property have been previously removed.

Wildlife Habitat and Wildlife Corridors
Wildlife corridors are natural areas interspersed with developed areas that are important for animal movement, increasing genetic variation in plant and animal populations, reduction of population fluctuations, and retention of predators of agricultural pests and for movement of wildlife and plant populations. Wildlife corridors have been demonstrated to not only increase the range of vertebrates including avifauna between patches of habitat but also facilitate two key plant-animal interactions: pollination and seed dispersal. Corridors also preserve watershed connectivity. Corridor users can be grouped into two types: passage species and corridor dwellers. The data from various studies indicate that corridors should be at least 100 feet wide to provide adequate movement for passage species and corridor dwellers in the landscape. Game trails are present but there was no evidence for distinct corridors passing through the property. Fagan Creek and its riparian corridor would be considered a wildlife corridor. There are no identifiable wildlife corridors or unique wildlife habitat that will be impacted by the project.

Raptor Nests, Bird Rookeries, Bat Roosts, Wildlife Dens or Burrows
No raptor nests were identified during our survey. We found no indications of nesting raptors on the property or in the near vicinity of the project site. We did not observe any nests, whitewash or nest droppings, or perching associated with the project site. No bird rookeries were present on the property or within the project footprint. Trees on the property are mature and have potential suitable nesting habitat for raptors. No raptor nests, whitewash from nests on the project site was observed. Two raptor nests were observed adjacent to the project site Plate IV.

Bat Seasonal Roosts and Maternal Roosts
Trees on the project site do not contain potential roosting habitat for bats. Foliage and bark with small cavities in any tree could provide suitable temporary habitat for solitary tree-roosting bat species. Based on the lack of habitat, (i.e. thick bark, deep fissures and cracks, or hollow cavities), trees on the site would not be considered suitable habitat. No suitable habitat for bats was identified on the project site.

Very few burrows were observed, but small mammals and songbirds likely utilize habitats on the project site for foraging and cover. No significant wildlife dens or burrows were observed.

Unique Species that are Endemic, Rare or Atypical for the Area
The flora and fauna present are typical for the vegetation and habitat of the region. There were no unique species, endemic populations of plants or animals or species that are rare or atypical for the area present on the project site. No unique or unusual populations of plants or animals were present on the property or the project site.

Habitat Fragmentation
Habitat fragmentation can result in a net-loss in overall habitat, an increase in edge habitat, and isolation effects, including genetic isolation. Due to these and other factors, small and isolated patches of habitat generally support lower species diversity than do large undeveloped areas. As a consequence of habitat fragmentation, abundance and diversity of species originally present often decline, and losses are most noticeable in small fragments. Loss of habitat, including habitat fragmentation, is the single most important factor affecting the long-term survival of rare, threatened and endangered species.

Vineyards provide limited foraging, cover and breeding habitat, they may support a reduced number of species, and may be incompatible with surrounding wildlife habitat. Conversion of the habitat to vineyard may adversely affect bird communities by enhancing favorable conditions for predators.

Habitat fragmentation is a local and global concern. The project will incrementally reduce a small amount of habitat in the area. The proposed change in land use will result in less than significant changes in avifauna and rodent utilization in the area. The proposed project will not lead to significant impacts to habitat fragmentation in the region, significant species exclusion, or significant change in species composition in the region.

D.3 Potential Off-site Impacts of the Project

There are no expected off-site impacts local biological resources by the proposed project provided recommendations, Standard Erosion Control, Best Management Practices are implemented during development of the site.

D.4 Potential Cumulative Impacts

Cumulative biological effects are the result of incremental losses of biological resources within a region. Removal of vegetation can reduce the abundance and diversity of species in an area. Vineyards provide limited foraging, cover, and breeding habitat for native wildlife species. Vineyards can be used by wildlife but the diversity is low within vineyards and foraging may be difficult. Loss of habitat can also be an important factor affecting the long-term survival of rare, threatened and endangered species.

Factors that were considered in the evaluation of cumulative biological impacts include:

1. Any known rare, threatened, or endangered species or sensitive species that may be directly or indirectly affected by project activities.

Significant cumulative effects on listed species may be expected from the results of activities over time, which combine to have a substantial effect on the species or on the habitat of the species.

2. Any significant, known wildlife or fisheries resource concerns within the immediate project area and the biological assessment area (e.g. loss of oaks creating forage problems for a local deer herd, species requiring special elements, sensitive species, and significant natural areas).

Significant cumulative effects may be expected where there is a substantial reduction in required habitat or the project will result in substantial interference with the movement of resident or migratory species. The significance of cumulative impacts on non-listed species viability was determined relative to the benefits to other non-listed species.

3. The aquatic and near-water habitat conditions on the site and immediate surrounding area. Habitat conditions of major concern are: Pools and riffles, large woody material in the stream, and near-water vegetation.

No cumulative impacts to wildlife populations are expected by the proposed project. The loss of habitat is considered to be less than significant.

The project is limited to historic agricultural lands. Portions of the property not suitable for vineyard and setback buffer zones will protect biological resources (i.e. steep hillsides, seasonal wetlands, creeks, seasonal drainages, reservoir and riparian corridor). Conversion of grasslands to vineyards by this project will reduce the available foraging, nesting and habitat for wildlife in the area.

There are no potential impacts to migratory corridors or wildlife nursery site associated with the proposed project. The potential biological impacts of the project include the incremental loss of semi-natural grasslands. The impact to local wildlife will be undetectable on a regional scale.

A potential impact is the movement of silt, dust and the creation of noise during site construction. This can be mitigated for by implementation of the erosion control plan and best management construction practices.

D.5 State and Federal Permits

Based on our site visit and available information State and Federal permits may be required for planting within CRLF Critical Habitat. The project is subject to the “take prohibitions” of the California Red-legged Frog under the Federal Endangered Species Act (FESA) and the California Endangered Species Act (CESA).

If presence/absence surveys are not performed the USFWS could assume presence and require consultation through either Section 7 or Section 10 of the Endangered Species Act. The project applicant is required to consult with USFWS prior to any development activities and obtain appropriate permits if “take” of the species is likely to occur.

There are no wetlands, vernal pools or drainages within the project footprint. Any impact to unnamed seasonal drainages or “Waters of the U.S.” will require agency consultation and permits

from the California Department of Fish and Wildlife, U.S. Army Corps of Engineers, and Regional Water Quality Control Board for impacts to “Waters of the State”.

Water extraction linked to agricultural development must comply with State and Federal laws and permits.

E. RECOMMENDATIONS TO AVOID IMPACTS

E.1 Significance

The significance of potential impacts is a function of the scope and scale of the proposed project within the existing Federal, State and Local regulations and management practices. The determination of significance of impacts to biological resources consists of an understanding of the project as proposed and an evaluation of the context in which the impact may occur. The extent and degree of any impact on-site or offsite must be evaluated consistent with known or expected site conditions. Therefore, the significance of potential impacts is assessed relevant to a site-specific scale and the larger regional context.

E.2 Recommendations

The project must comply with Napa County Conservation Regulations to ensure that Best Management Practices (BMPs) including the Erosion Control Plan (EMP) are adopted in order to minimize the amount of sediment and other pollutants leaving the site during construction activities.

A direct or indirect impact to local drainages has the potential to result in negative impacts to special-status species known or expected to occur downstream in the watershed.

> *Recommendation - Best Management Practices including silt and erosion control measures must be implemented to prevent off-site movement of sediment and dust during and post construction. All project construction activities must be limited to the project footprint.*

The reservoir on the property supports a colony of the Tricolored Blackbird.

> *Recommendation – We recommend a 100-foot buffer around the reservoir with the Tricolored Black Bird must be implemented. If ground disturbance near the buffer zone is proposed between April and July a preconstruction survey should be conducted to determine if the Tricolored Black Bird is nesting in the reservoir.*

Two raptor nests were observed near the project sites. Raptors may also occur within the riparian zone of Fagan Creek.

> *Recommendation – A preconstruction raptor survey will be necessary for the blocks adjacent to the recorded nests and the riparian corridor of Fagan Creek (Blocks 21 and 22). The preconstruction survey shall consider all potential nesting habitat for birds within 500 feet of earthmoving activities and related project construction activities. A qualified wildlife biologist shall be hired to conduct the survey, which shall determine through field inspection whether occupied raptor nests are present within the proximity of the project site (i.e. within a minimum 500 feet of the areas disturbed).*

Wetlands mapped on the property have the potential to be impacted by ground disturbing activities.

Recommendation – Construction fencing or flagging around the setback zone must be installed to prevent inadvertent intrusion.

Any impacts to seasonal drainages will require agency consultation and permits (if agency consultation determines jurisdiction) from the California Department of Fish and Wildlife, U.S. Army Corps of Engineers, and Regional Water Quality Control Board for impacts to "Waters of the State".

It is recommended that the project applicant review the PRESCRIBE Online Database. The PRESCRIBE online database application was developed to help pesticide applicators find out if they have any endangered species in the vicinity of their application site, and the use limitations applicable to the pesticide product(s) they intend to use. This site provides information consistent with the U.S. Environmental Protection Agency Interim Measures Bulletins for Protection of Endangered Species for user-selected sites and pesticides. This program is implemented by the Department of Pesticide Regulation on behalf of U.S. EPA under Section 7(a)(1) of the Endangered Species Act.

Deer fencing should be designed with exit gates and limited to vineyard blocks to allow wildlife movement around the project. Any new fencing should use a design that has 6-inch square gaps at the base instead of the typical 3" by 6" rectangular openings to allow small mammals to move through the fence.

Whenever possible Integrated Pest Management practices should be employed with minimally toxic pest control methods. Trapping or raptors should be used for rodent control. Sustainable Farming Practices should be used to insure that use of herbicides toxic to amphibians should be minimized.

F. SUMMARY

This study is provided as background information necessary for evaluating potential impacts of the project on local Biological Resources.

The proposed vineyard sites are on hillsides with Semi-natural Grassland that have been grazed for many years. The absence of serpentinite and wetlands reasonably preclude the presence of any special-status plant or animal species on the project site.

We find that the proposed project following recommendations included in this report will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the County of Napa, California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

We find that the project as proposed will not have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

We find that the project as proposed will not have a substantial adverse effect on federally protected wetlands and "Waters of the State" as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. No wetlands or vernal pools are within the proposed project footprint.

We find that the proposed project will not interfere substantially with the movement of any native resident wildlife species or migratory fish. It is unlikely that the project as proposed will impact migratory wildlife corridors, or impede the use of native wildlife nursery sites.

We conclude that the proposed project with the implementation of Best Management practices, recommendations above and compliance with the Erosion Control Plan will not result in any significant adverse biological impacts to the environment.

G. LITERATURE CITED / REFERENCES

G.1 Literature and References

Arora, David, l986. Mushrooms Demystified. Ten Speed Press.

Bailey, L. H., 1951. Manual of Cultivated Plants. The MacMillan Company New York.

Baldwin, B.G., D.H. Goldman, D.J.Keil, R.Patterson, T.J.Rosati, and D.H.Wilkens, editors, 2012. The Jepson Manual Vascular Plants of California. U.C. Berkeley Press.

Barbe, G. D. 1991. Noxious Weeds of California Department of Food and Agriculture, Sacramento, CA.

Barbour, M.G., Todd Keeler-wolf, and Allan A. Schoenherr, eds. 2007. Terrestrial Vegetation of California. Third Edition. University of California Press.

Beidleman, L.H and E.N. Kozloff, 2003. Plants of the San Francisco Bay Region. University of California Press, Berkeley.

Behler, John L. National Audubon Society Field Guide to North American Reptiles & Amphibians. May, 1996 Chanticleer Press, Inc., New York.

Berg, Michael W., Alan E. Bessette and Arleen Bessette, 2014. Ascomycete Fungi of North America. University of Texas Press, Austin Texas.

Brodo, Irwin M., Sylvia Duran Sharnoff and Stephen Sharnoff, 2001. Lichens of North America. Yale University Press. 795 pp.

California Department of Fish and Wildlife Natural Diversity Data Base Rare Find 5.

California Natural Resources Agency Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities State of California Department of Fish and Game November 24, 2009.

California Native Plant Society Electronic Inventory of Rare and Endangered Vascular Plants of California, Current Online.

California Native Plant Society, Botanical Survey Guidelines (Revised June 2, 2001).

California Wildlife Habitat Relationships System Version 8.0 Department of Fish and Wildlife.

Crain, Caitlin Mullan and Mark D. Bertness, 2006. Ecosystem Engineering Across Environmental Gradients: Implications for Conservation and Management. BioScience March Vol. 56 No.3, pp. 211 to 218.

Desjardin, Dennis E., Michale. Wood and Frederic A. Stevens., 2015. California Mushrooms The Comprehensive Identification Guide. Timber Press Inc. Portland, Oregon.

DiTomaso, Joseph M. and Evelyn A. Healy, 2007. Weeds of California and Other Western States Vol. 1 and 2. University of California Agriculture and Natural Resources Publication 3488.

Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army, Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S.D.A. Soil Conservation Service, Washington, D. C. Cooperative technical publication. 76 pp. plus appendices.

Grinell, Joseph, Joseph Dixon, and Jean M. Linsdale, 1937. Fur-bearing Mammals of California, University of California Press.

Hemphill, Don, Gilbert Muth, Joe Callizo, et al. 1985. Napa County Flora. Gilbert Muth Pacific Union College, Angwin, California.

Hickman, James C. ed. 1993. The Jepson Manual Higher Plants of California. U. C. Berkeley Press.

Ingles, Lloyd C., l985. Mammals of the Pacific States. Stanford Press.

Jameson, E. W. and H. J. Peeters, 2004. Mammals of California. Revised Edition. U.C. Press.

Kruckeberg, Arthur R. 1984. California Serpentines: Flora, Vegetation, Geology, Soils and Management Problems. University of California Publications in Botany, Volume 78. University of California Press, LTD.

Lawton, E., 1971. Moss Flora of the Pacific Northwest, Hattori Botanical Laboratory Nichinan, Miyazaki, Japan, pp. 1to 362 plates 1 to 195.

Malcolm, Bill and Nancy, Jim Shevock and Dan Norris, 2009 California Mosses, Micro Optics Press, Nelson New Zeland, pp. 1 to 430.

Malcolm, Bill and Nancy, 2000 Mosses and Other Bryophytes An Illustrated Glossary, Micro Optics Press, Nelson New Zeland, pp 1 to 220.

Mason, Herbert L. 1957. A Flora of the Marshes of California. UC California Press.

Napa County Conservation, Development and Planning Department, November 30, 2005. Napa County Baseline Data Report.

Naiman R J, Decamps H, Pollock M. 1993. The role of riparian corridors in maintaining regional biodiversity. Ecological Application 3: 209-212.

Norris, Daniel H. and James R. Shevock, 2004. Contributions Toward a Bryoflora of California: I. A specimen-Based Catalogue of Mosses. Madrono Volume 51, Number 1, pp. 1 to 131.

Norris, Daniel H. and James R. Shevock, 2004. Contributions Toward a Bryoflora of California: II. A Key to the Mosses. Madrono Volume 51, Number 2, pp. 1 to 133.

Peterson, Roger T. 1990. A Field Guide to Western Birds. Houghton Mifflin Co., Boston, MA.

Peters, Hans and Pam Peters, 2005. Raptors of California Natural History Guides. University of California Press, Berkeley and Los Angles.

Sawyer, J. O., T. Keeler-wolf and Julie M. Evans 2009. A Manual of California Vegetation Second Edition California Naive Plant Society, Sacramento, California.

Schoenherr, Allan A. 1992. A Natural History of California. California Natural History Guides: 56. University of California Press, Berkeley.

Schofield, W. B. 1969. Some Common Mosses of British Columbia. British Columbia Provincial Museum, Victoria, Canada.

Schofield, W. B. 2002. Field Guide to Liverwort Genera of Pacific North America. University of Washington Press.

Stebbins, Robert C., 1966. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin.

Stewart, John D and John O. Sawyer, 2001 Trees and Shrubs of California. University of California Press.

G.2 Qualifications of Field Investigators

Chris K. Kjeldsen, Ph.D., Botany, Oregon State University, Corvallis, Oregon. He has over forty years of professional experience in the study of California flora. He was a member of the Sonoma County Planning Commission and Board of Zoning (1972 to 1976). He has over thirty years of experience in managing and conducting environmental projects involving impact assessment and preparation of compliance documents, Biological Assessments, DFW Habitat Assessments, DFW Mitigation projects, ACOE Mitigation projects and State Parks and Recreation Biological Resource Studies. Experience includes conducting special-status species surveys, jurisdictional wetland delineations, general biological surveys, 404 and 1600 permitting, and consulting on various projects. He taught Plant Taxonomy at Oregon State University and numerous botanical science and aquatic botany courses at Sonoma State University including sections on wetlands and wetland delineation techniques. He has supervised numerous graduate theses, NSF, DOE and local agency grants and served as a university administrator. He has a valid DFW collecting permit.

Daniel T. Kjeldsen, B. S., Natural Resource Management, California Polytechnic State University, San Luis Obispo, California. He spent l994 to l996 in the Peace Corps managing natural resources in Honduras, Central America. His work for the Peace Corps in Central America focused on watershed inventory, mapping and the development and implementation of a protection plan. He has over sixteen years of experience in conducting Biological Assessments, DFW Habitat Assessments, ACOE wetland delineations, wetland rehabilitation, and development of and implementation of mitigation projects and mitigation monitoring. He has received 3.2 continuing education units MCLE 27 hours in Determining Federal Wetlands Jurisdiction from the University of California Berkeley Extension. Attended Wildlife Society Workshop Falconiformes of Northern California; Natural History and Management California Tiger Salamander 2003, Natural History and Management of Bats Symposium 2005, Western Pond Turtle Workshop 2007, and Western Section Bat Workshop 2011. Laguna Foundation & The Wildlife Project Rare Pond Species Survey Techniques 2009. A full resume is available upon request.

Note: This is a technical document and not a legal document. Findings made in this document regarding the potential impacts to State and Federal listed species are made only in reference to proposed project referenced in this report. By submitting this report the Clients hereby waive any and all complaints or causes of action, known or unknown, which exist now or may exist at any time in the future, against Consultant and hold Consultant harmless for any such claims or causes of action including for all work performed under this agreement and for any work provided to Clients collectively or to any one of them without limitation.

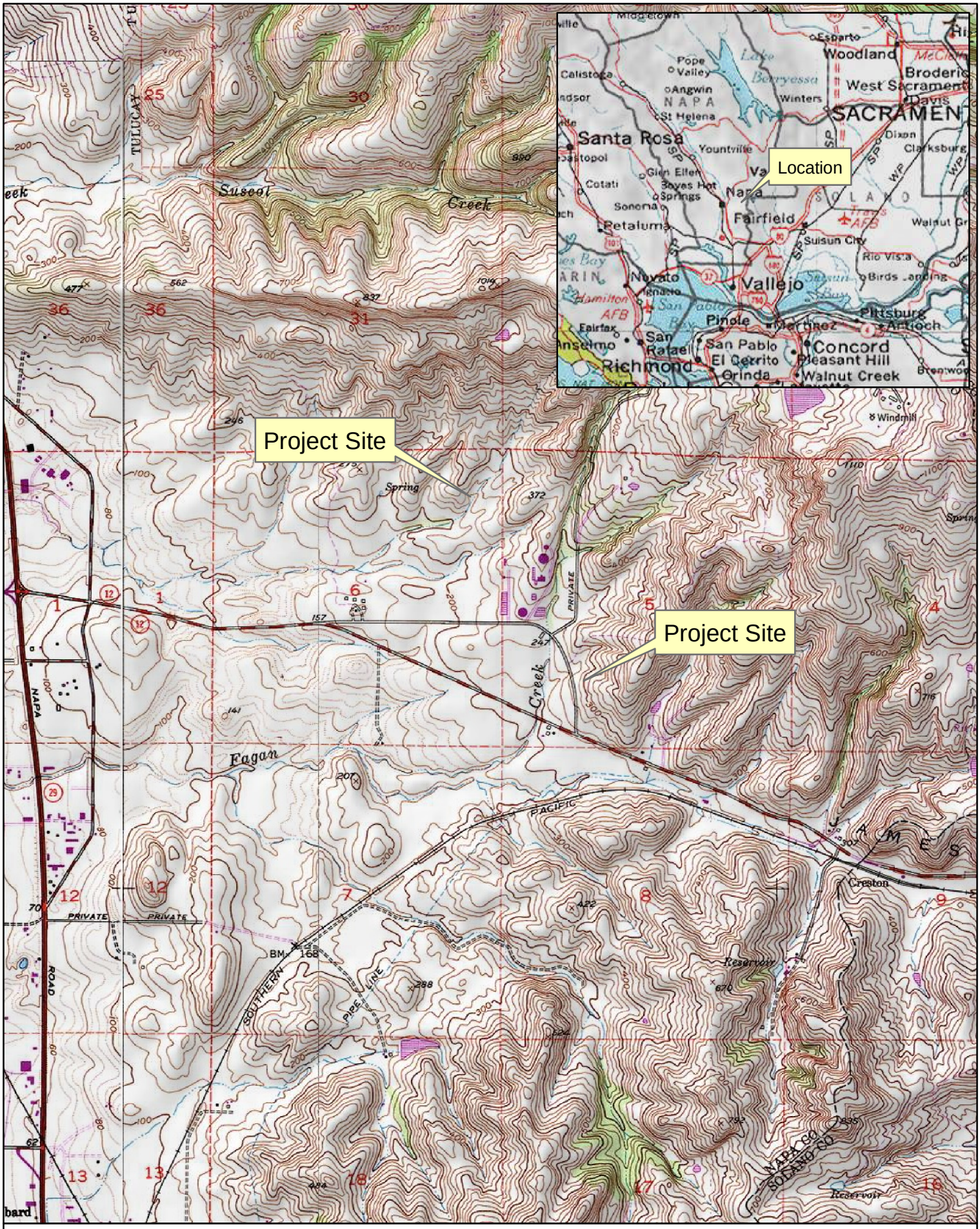

Plate I. Location and Site Map (Cordelia USGS Quadrangle)

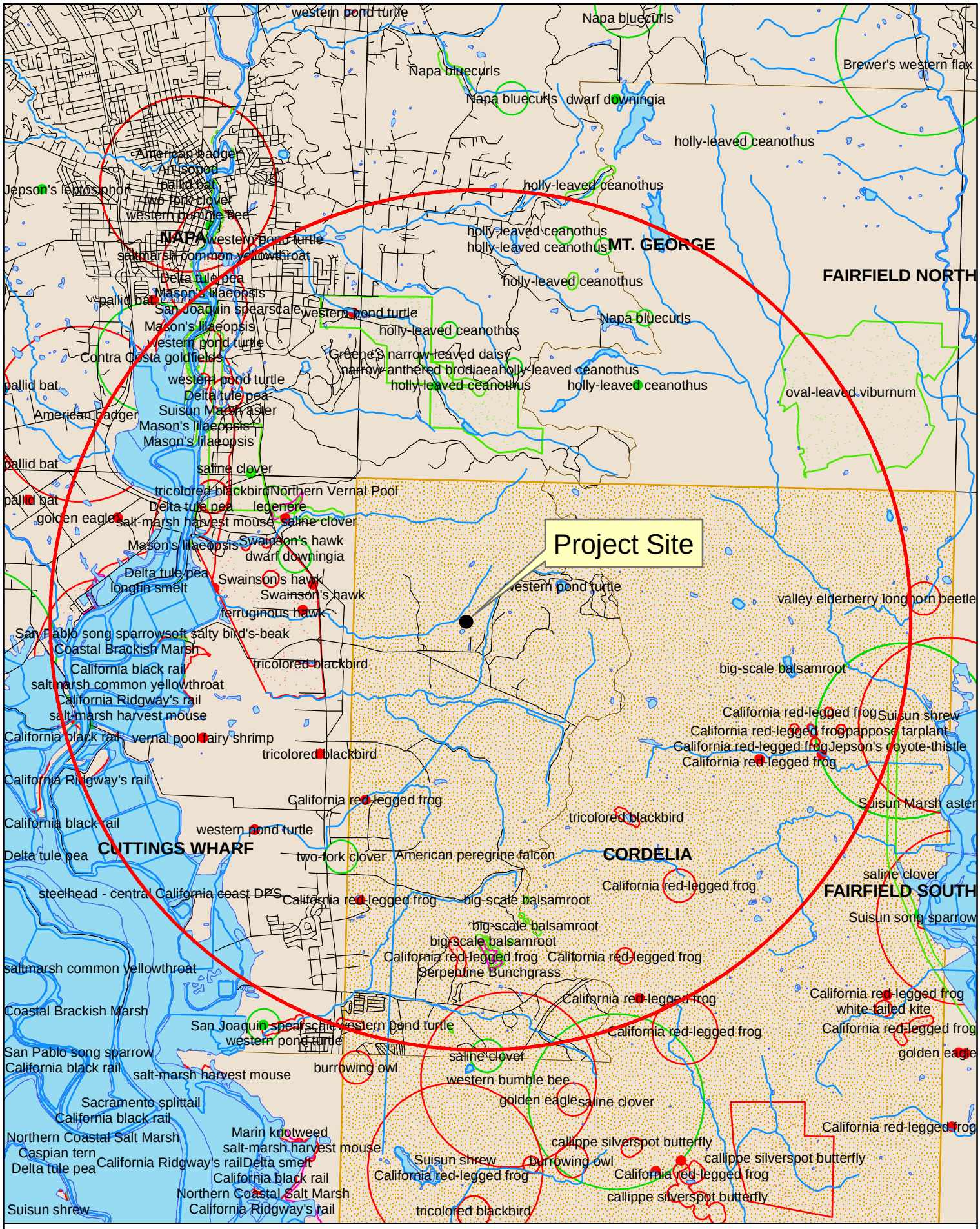

Plate II. CDFW CNDDB Rare Find Data (Five Mile) **(Data Date July 2017)**

Plate III. Aerial Photo

Plate IV. Vegetation Map

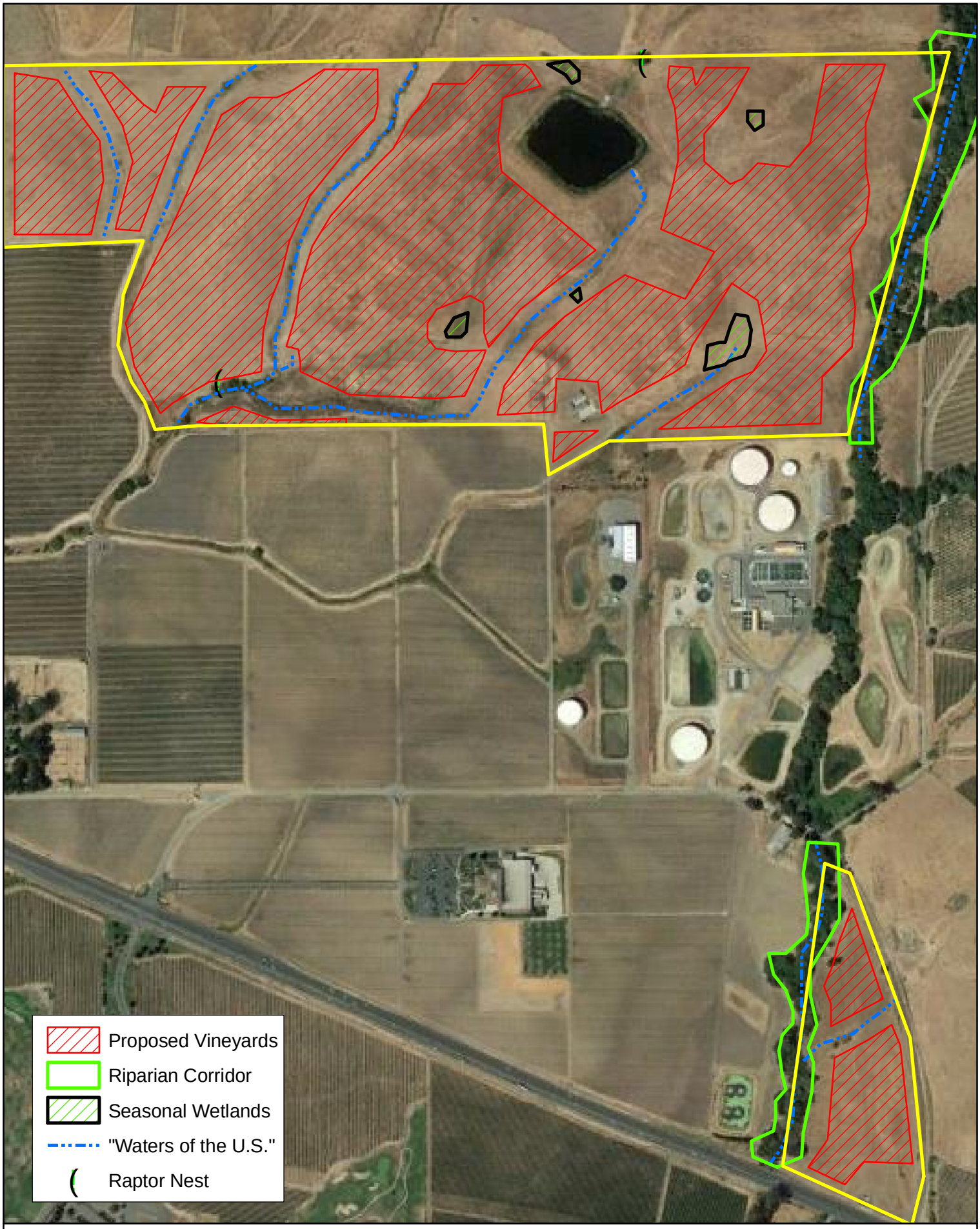

Plate V. Location of Biological Resources

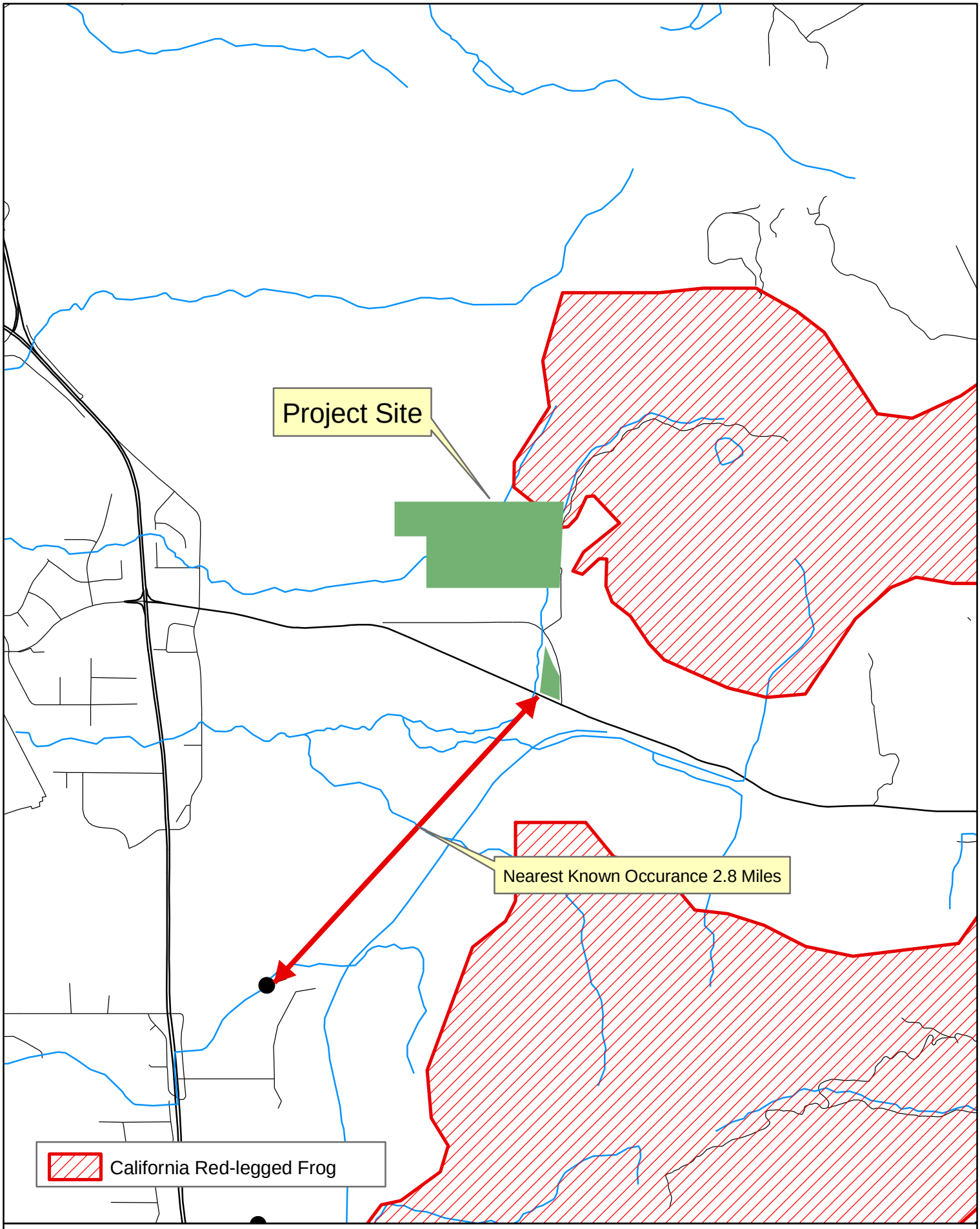

Plate VI. U.S. FWS Critical Habitat Map

APPENDIX A
Plants and Animals Observed Associated With The Project Site

PLANTS
The nomenclature for the list of plants found on the project site and the immediate vicinity follows: Brodo, Irwin M., Sylvia Duran Sharnoff and Stephen Sharnoff, 2001, for the lichens; S Norris and Shevrock - 2004, for the mosses; and Baldwin, Goldman, Keil, Patterson, Rosati, and Wilkens, editors, 2012 - for the vascular plants. The plant list is organized by major plant group.

Habitat type indicates the general associated occurrence of the taxon on the project site or in nature.
Abundance refers to the relative number of individuals on the project site or in the region.

MAJOR PLANT GROUP
Family
Genus **Habitat Type** **Abundance**
Common Name

NCN = No Common Name, * = Non-native, @= Voucher Specimen

MOSSES
MINACEAE
Homalothecium nuttallii (Wilson) Jaeger Epiphytic on Trees Near Coast-Inland Common
NCN
Orthotrichum lyellii Hook & Tayl. Woodlands, Upper Canopy Common
NCN
Scleropodium touretii (Brid.) L Koch.Woodlands Common
NCN

LICHENS

FOLIOSE
Flavoparmelia caperata (L.) Hale On Oaks Common
Common Green Shield
Flavopunctilia flaventor (Stirt.) Hale On Oaks, Occasional on Rocks Common
Speckled Green Shield
Xanthoria polycarpa (Hoffm.) Rieber On Oaks Young Twigs Common
Pin-cushion Sunburst Lichen
FRUTICOSE
Evernia prunastri (L.) Ach. On Oaks Common
NCN
Ramalina farinacea (L.) Ach. On Oaks Common
NCN

MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

Usnea intermedia=U. arizonica NCN	On Oaks	Common

VASCULAR PLANTS FERNS

POLYPODIACEAE

Polypodium californicum Kaulf. Common Polypody	Woodlands or Riparian	Common

PTERIDACEAE

Pentagramma triangularis (Kaulf.)G.Yatsk. subsp. *triangularis* Goldback Fern	Woodlands	Common

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--DICOTYLEDONAE- TREES

MAGNOLIIDS

LAURACEAE

Umbellularia californica (Hook.&Arn.) Nutt. California Laurel, Sweet Bay, Pepperwood, California Bay	Conifer&Oak Woodlands	Occasional

EUDICOTS

ANACARDIACEAE Pepper Tree Family

**Schinus molle* L. Pepper Tree	Domestic Introduction	Occasional

FABACEAE Legume Family

**Acacia dealbata* Link Silver Wattle-Acacia	Naturalized Ruderal	Common

FAGACEAE Oak Family

Quercus agrifolia Nee Live Oak	Woodlands	Common

JUGLANDACEAE Walnut Family

**Juglans nigra* L. Black Walnut	Ruderal Escape	Common

MYRTACEAE Myrtle family

**Eucalyptus globulus* Labill Blue Gum	Ruderal Escape	Occasional

ROSACEAE Rose Family

**Prunus domestica* L. Prune	Escape, Ruderal	Occasional

SALICACEAE Willow Family

Populus fremontii S.Watson ssp. *fremontii* Fremont Cottonwood	Riparian	Occasional
Salix gooddingii C.Ball Goodding's Black Willow	Riparian	Common

MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

SAPINDACEAE Soapberry Family		
Acer macrophyllum Prush	Riparian, Stream Banks, Canyons	Common
Big-leaf Maple		
ULMACEAE Elm Family		
Ulmus americana	Domestic Escape	Occasional
Elm		

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--DICOTYLEDONAE-SHRUBS AND WOODY VINES

EUDICOTS

ADOXACEAE Muskroot Family		
Sambucus nigra subsp *caerulea* (Raf.) Bolli	Shrub/Scrub	Occasional
Blue Elderberry (=*S. mexicana, S. caerulea)*		
ANACARDIACEAE Sumac Family		
Toxicodendron diversilobum (Torry&Gray) E.Green	Woodlands	Common
Poison Oak		
APOCYANACEAE Dogbane Family		
**Vinca major* L.	Woodlands, Riparian, Ruderal	Common
Periwinkle		
ASTERACEAE (Compositae) Sunflower Family		
Baccharis pilularis deCandolle	Woodlands, Grasslands	Common
Coyote Brush		
CAPRIFOLIACEAE Honeysuckle Family		
Symphoricarpos albus (L.) SF Blake *var. laevigatus*	Riparian, Shrub/Scrub	Common
Snowberry	Woodlands	
ROSACEAE Rose Family		
**Rubus armeniacus* Focke	Ruderal	Common
Himalayan Blackberry		

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--DICOTYLEDONAE-HERBS

EUDICOTS

APIACEAE (Umbelliferae) Carrot Family		
**Conicum maculatum* L.	Riparian	Common
Poison Hemlock		
**Dacus carota*L.	Ruderal Grasslands	Common
Wild Carrot, Queen Anne's Lace		
**Foeniculum vulgare* Mill.	Ruderal	Common
Fennel		
**Torilis arvensis* (Huds.) Link	Grasslands Woodlands	Common
Hedge-parsley		

MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

ASTERACEAE (Compositae) Sunflower Family		
Artemesia douglasiana Besser	Riparian	Common
Mugwort		
**Carduus pycnocephalus* L.subsp.*pycnocephalus*	Woodlands	Common
Italian Thistle		
**Centarea calcitrapa* L.	Grasslands	Common
Purple Star Thistle		
**Centaurea melitensis* L.	Grasslands, Ruderal	Common
Tocalote, Napa Star Thistle		
**Centaurea solstitalis* L.	Grasslands, Ruderal	Common
Yellow Star Thistle		
**Cichorium intybus* L.	Ruderal	Occasional
Chicory		
Circium occidentale (Nutt.) Jeps. var. *occidentale*	Grasslands, Oak Woodland	Common
Cobwebby Thistle		
**Circium vulgare* (Savi) Ten.	Grasslands, Ruderal	Common
Bull Thistle		
**Cynara cardunculus* L,	Ruderal	Occasional
Cardoon, Artichoke Thistle		
**Helminthotheca echioides* (L.) Holub	Ruderal	Common
Ox-tongue (=*Picris echioides)*		
Hemizonia congesta DC. ssp. *clevelandii*	Grasslands	Common
Hayfield Tarweed		
**Hypochaeris glabra* L.	Ruderal	Common
Cat's Ear		
**Lactuca serriola* L.	Ruderal	Occasional
Prickly Lettuce		
**Senecio vulgaris* L.	Ruderal	Occasional
NCN		
**Silybum marianum* (L.) Gaertn.	Ruderal	Common
Milk Thistle		
**Sonchus asper* (L.) Hill var. *asper*	Ruderal	Common
Prickly Sow Thistle		
**Sonchus oleraceus* L.	Ruderal	Common
Common Sow Thistle		
**Taraxacum officinale* F.H.Wigg	Ruderal	Common
Dandelion		
Xanthium strumarium L.	Ruderal	Occasional
Cocklebur		

MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

BORAGINACEAE Borage or Waterleaf Family		
Amsinckia menziesii (Lehm) Nelson&Macbr.	Grasslands	Occasional
Rancher's Fireweed		
BRASSICACEAE Mustard Family		
**Brassica nigra* (L.) Koch	Ruderal	Common
Black Mustard		
**Brassica rapa* L.	Grasslands, Ruderal	Common
Field Mustard		
**Capsella bursa-pastoris* L.	Ruderal	Common
Shepherd's Purse		
**Cardamine hirsuta* L.	Ruderal	Common
Bitter-cress		
**Raphanus sativus* L.	Ruderal	Common
Wild Radish		
**Sisymbrium officinalis* L.	Ruderal, Grasslands	Common
Hedge Mustard		
CARYOPHYLLACEAE Pink Family		
**Cerastium fontanum* Baumg. subsp.*vulgare*	Ruderal	Common
Mouse-ear-chickweed		
**Silene gallica* L.	Ruderal/Grasslands/oakWoodlands	Common
Small Flower Catchfly Windmill Pink		
CONVOLVULACEAE Morning-glory Family		
Convolvulus arvensis L.	Grasslands	Common
Morning-glory, Bindweed		
EUPHORBIACEAE Spurge Family		
Croton setigerus Hook.	Ruderal	Common
Turkey Mullein, Dove Weed (=*Eremocarpus setigerus)*		
FABACEAE (Leguminosae) Legume Family		
Acmispon brachycarpus (Benth.) Sokoloff	Grasslands, Ruderal	Common
NCN (=*Lotus humistratus)*		
Acmispon micranthus (Torr.&A. Gray)	Grasslands, Ruderal	Common
Small Flowered Lotus (= *Lotus micranthus)*		
**Lotus corniculatus* L.	Grasslands, Ruderal	Common
Bird's-foot Trefoil		
**Medicago polymorpha* L.	Ruderal, Grasslands	Common
Bur Clover		
**Meliotus albus* L.	Grasslands	Common
White Sweetclover		
**Trifolium angustifolium* L.	Ruderal, Grassland	Common
Narrow-leaved Clover		

MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

**Trifolium hirtum* All.	Ruderal	Common
Rose Clover		
**Trifolium incarnatum* L.	Grasslands, Ruderal	Common
Crimson Clover		
**Vicia sativa* L. subsp. *nigra*	Grasslands, Ruderal	Common
Narrow Leaved-vetch		
**Vicia villosa* Roth. subsp. *villosa*	Ruderal	Common
Hairy Vetch, Winter Vetch		
GERANIACEAE Geranium Family		
**Erodium botrys* (Cav.) Bertol.	Grasslands	Common
Broadleaf Filaree, Long-beaked Filaree		
**Geranium dissectum* L.	Grasslands	Common
Common Geranium		
**Geranium molle* L.	Grasslands	Common
Dove's Foot Geranium		
**Geranium potentilloides* DC.	Ruderal, Shady Areas	Common
NCN		
LYTHRACEAE Loostrife Family		
**Lythrum salicaria* L.	Grasslands, Ruderal	Common
Purple Loosestrife		
MALVACEAE Mallow Family		
**Malva parviflora* L.	Ruderal	Common
Cheeseweed, Mallow		
ONAGRACEAE Evening-primrose Family		
Taraxia ovata (Torr.& A. Grau) Small	Grasslands	Common
Sun Cup (=*Camissonia, Oenothera)*		
OROBANCHACEAE Broomrape Family		
**Bellardia trixago* (L.) All.	Grasslands	Common
Medeterranean Lindseed		
**Parentucellia viscosa* (L.) Caruel	Grasslands	Common
Yellow Parentucellia		
PAPAVERACEAE Poppy Family		
Eschscholzia californica Cahm.	Grasslands	Common
California Poppy		
PLANTAGINACEAE Plantain Family		
**Plantago lanceolata* L.	Ruderal	Common
English Plantain		
POLYGONACEAE Buckwheat Family		
**Rumex acetosella* L.	Ruderal	Common
Sheep Sorrel		

MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

**Rumex crispus* L.	Ruderal	Common
Curly Dock		
**Rumex pulcher* L.	Ruderal	Common
Fiddle Dock		
RANUNCULACEAE Buttercup Family		
**Ranunculus muricatus* L.	Grasslands, Ruderal	Occasional
Pickle-fruited Buttercup		
RUBIACEAE Madder Family		
Galium aparine L.	Woodlands, Riparian, Ruderal	Common
Goose Grass		
URTICACEAE		
Urtica dioica L. subsp. *holosericea*	Riparian	Common
Stinging Nettle		
VALERIANACEAE Valerian Family		
Plectritis congesta (Lindl.) subsp *congesta*	Grassland	Occasional
NCN		

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--MONOCOTYLEDONAE-GRASSES

POACEAE Grass Family		
**Avena barbata* Link.	Grasslands	Common
Slender Wild Oat		
**Avena sativa* L.	Grasslands, Ruderal	Common
Cultivated Oat		
**Briza minor* L.	Grasslands, Ruderal	Common
Small Quaking Grass		
**Bromus diandrus* Roth	Ruderal, Grasslands	Common
Ripgut Grass		
**Bromus hordeaceus* L.	Grasslands	Common
Soft Chess, Blando Brome (*B.mollis*)		
**Cynosurus echinatus* L.	Ruderal	Common
Hedgehog, Dogtail		
**Dactylis glomerata* L.	Grasslands	Occasional
Orchard Grass		
**Echinochloa crus-galli* (L.) Beauv.	Ruderal	Common
Barnyard Grass		
**Elymus caput-medusae* L.	Grasslands	Common
Medusahead (=*Taeniantherum caput-medusae)*		
Elymus triticoides Buckley	Grasslands, Moist	Occasional
Beardless Ryegrass (=*Leymus triticoides)*		

MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

**Festuca bromoides* L.	Ruderal, Moist Flats become Dry	Common
Six-weeks Fescue *(=Vulpia bromoides)*		
Festuca microstachys Nutt.	Grasslands, Ruderal	Common
NCN (=*Vulpia microstachys)*		
**Festuca myuros* L.	Grasslands	Common
Rattail Fescue,Zorro Annual Fescue (=*Vulpia myuros)*		
**Festuca perennis* (L.) Columubus & Sm.	Grasslands	Common
Perennial Rye Grass (=*Lolium multiflorum, L. perenne)*		
Hordeum brachyantherum Nevski subsp. *brachyantherum*	Grasslands	Occasional
Meadow Barley		
Hordeum depressum (Scribn.&Sm.) Rydb	Grasslands	Occasional
Low Barley		
**Hordeum marinum* Huds. subsp. *gusoneanum*	Grasslands	Common
Mediterranean Barley		
**Hordeum murinum* Huds. subsp. *leporinum*	Grasslands	Common
Farmers Foxtail		
**Phalaris aquatica* L.	Grasslands	Common
Harding Grass		
**Polypogon monspeliensis* (L.) Desf.	Wetlands	Common
Rabbitfoot Grass, Annual Beard Grass		
Stipa pulchra Hitchc.	Oak Woodland, Grasslands, Chaparral	Common
Purple Needle Grass (=*Nassella pulchra)*		

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--MONOCOTYLEDONAE-SEDGES AND RUSHES

CYPERACEAE Sedge Family

Cyperus eragrostis Lam.	Ruderal Moist Areas	Common
Nut-grass		
Schoenoplectus americanus (Pers.) Schiz&Keller	Palustrine	Occasional
Olney's Three-square BulrushAmerican Bullrush (=*Scirpus)*		

JUNCACEAE Juncus Family

Juncus acuminatus Michx.	Palustrine	Common
Wire Rush		
Juncus bufonius L.var. *bufonius*	Ruderal Moist Areas, Grasslands	Common
Toad Rush		
Juncus xiphioides Mey	Grasslands, Seeps	Common
Flat Leafed Rush		

MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--MONOCOTYLEDONAE-HERBS

IRIDACEAE Iris Family		
Sisyrinchium bellum Watson	Grasslands	Common
Blue-eyed Grass		
TYPHACEAE Cat-tail Family		
Typha angustifolium L.	Riparian	Common
Narrow-leaved Cattail		

Fauna Species Observed in the Vicinity of the Project Site

The nomenclature for the animals found on the project site and in the immediate vicinity follows: Mc Ginnis–1984, for the fresh water fishes; Stebbins-l985, for the reptiles and amphibians; Udvardy and Farrand–1998, for the birds; and Jameson and Peeters -l988 for the mammals.

AMPHIBIA AND REPTILIA

ORDER	Common Name	Genus	Observed
ANURA			
	Bullfrog	*Rana catesbeiana*	X
	Western Toad	*Bufo boreas*	X
SQUAMATA			
	Western Aquatic Garter Snake	*Thanmnophis couchii*	X
	Western Fence Lizard	*Sceloporus occidentalis*	X

AVES

ORDER	Common Name	Genus	Observed
AVES			
	Brandt's Cormorant	*Phalacrocerax penicillaus*	X
	California Quail	*Callipepla californica*	X
	Canada Goose	*Branta canadensis*	X
	Golden-crowned Sparrow	*Zonotrichia atricapilla*	X
	Great Blue Heron	*Ardea herodias*	
	Mallard	*Anas platyrhynchos*	X
	Mourning Dove	*Zenaida macroura*	X
	Red-tailed Hawk	*Cathartes aura*	
	Tricolored Blackbird	*Agelaius tricolor*	X
	Tree Swallow	*Tachycineta Bicolor*	
	Turkey Vulture	*Cathartes aura*	X

MAMMALS

ORDER	Common Name	Genus	Observed
RODENTIA			
	Pocket Gopher	*Thomomys bottae*	Sight
	Deer Mouse	*Peromyscus maniculatus*	Trails

APPENDIX B

CNPS Special Status-species Listed for the Project Quadrangle and Surrounding Quadrangles

California Department of Fish and Wildlife Rare Find 5

U.S. Fish and Wildlife Service Trust Resources List-Listed Species for the Quadrangle

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

32 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3812233, 3812232, 3812231, 3812223, 3812222, 3812221, 3812213, 3812212 and 3812211; Community = Valley and foothill grassland

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	3.2	S2	G2Q
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S2	G2T2
Atriplex coronata var. coronata	crownscale	Chenopodiaceae	annual herb	Mar-Oct	4.2	S3	G4T3
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Blepharizonia plumosa	big tarplant	Asteraceae	annual herb	Jul-Oct	1B.1	S2	G2
Brodiaea leptandra	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	May-Jul	1B.2	S3?	G3?
Calochortus pulchellus	Mt. Diablo fairy-lantern	Liliaceae	perennial bulbiferous herb	Apr-Jun	1B.2	S2	G2
Castilleja affinis var. neglecta	Tiburon paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Apr-Jun	1B.2	S1S2	G4G5T1T2
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	4.2	S4	G4T5
Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	annual herb	May-Oct (Nov)	1B.1	S2	G3T2
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Eriogonum luteolum var. caninum	Tiburon buckwheat	Polygonaceae	annual herb	May-Sep	1B.2	S2	G5T2

Eriogonum truncatum	Mt. Diablo buckwheat	Polygonaceae	annual herb	Apr-Sep (Nov-Dec)	1B.1	S2	G2
Eryngium jepsonii	Jepson's coyote thistle	Apiaceae	perennial herb	Apr-Aug	1B.2	S2?	G2?
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G2
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
Gilia capitata ssp. tomentosa	woolly-headed gilia	Polemoniaceae	annual herb	May-Jul	1B.1	S1	G5T1
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Hesperolinon breweri	Brewer's western flax	Linaceae	annual herb	May-Jul	1B.2	S2?	G2?
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	1B.1	S1	G1
Isocoma arguta	Carquinez goldenbush	Asteraceae	perennial shrub	Aug-Dec	1B.1	S1	G1
Lasthenia conjugens	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G1
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	annual herb	Mar-May	1B.2	S3	G3
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S3?	G3?
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	3.2	S3S4	G3G4
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	4.2	S3	G4
Trichostema ruygtii	Napa bluecurls	Lamiaceae	annual herb	Jun-Oct	1B.2	S1S2	G1G2
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	1B.1	S1	G1
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 18 July 2017].

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

Query Summary:
Quad IS (Napa (3812233) OR Mt. George (3812232) OR Fairfield North (3812231) OR Fairfield South (3812221) OR Cordelia (3812222) OR Cuttings Wharf (3812223) OR Mare Island (3812213) OR Benicia (3812212) OR Vine Hill (3812211))
AND Habitat IS (Valley & foothill grassland OR Wetland)

CNDDB Element Query Results

Scientific Name	Common Name	Federal Status	State Status	Global Rank	State Rank	Habitats
Agelaius tricolor	tricolored blackbird	None	Candidate Endangered	G2G3	S1S2	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Agrostis hendersonii	Henderson's bent grass	None	None	G2Q	S2	Valley & foothill grassland, Vernal pool, Wetland
Antrozous pallidus	pallid bat	None	None	G5	S3	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
Aquila chrysaetos	golden eagle	None	None	G5	S3	Broadleaved upland forest, Cismontane woodland, Coastal prairie, Great Basin grassland, Great Basin scrub, Lower montane coniferous forest, Pinon & juniper woodlands, Upper montane coniferous forest, Valley & foothill grassland
Ardea herodias	great blue heron	None	None	G5	S4	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
Asio flammeus	short-eared owl	None	None	G5	S3	Great Basin grassland, Marsh &

						swamp, Meadow & seep, Valley & foothill grassland, Wetland
Astragalus tener var. tener	alkali milk-vetch	None	None	G2T2	S2	Alkali playa, Valley & foothill grassland, Vernal pool, Wetland
Athene cunicularia	burrowing owl	None	None	G4	S3	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Atriplex persistens	vernal pool smallscale	None	None	G2	S2	Vernal pool, Wetland
Balsamorhiza macrolepis	big-scale balsamroot	None	None	G2	S2	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland
Blepharizonia plumosa	big tarplant	None	None	G2	S2	Valley & foothill grassland
Branchinecta lynchi	vernal pool fairy shrimp	Threatened	None	G3	S3	Valley & foothill grassland, Vernal pool, Wetland
Brodiaea leptandra	narrow-anthered brodiaea	None	None	G3?	S3?	Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley & foothill grassland
Buteo regalis	ferruginous hawk	None	None	G4	S3S4	Great Basin grassland, Great Basin scrub, Pinon & juniper woodlands, Valley & foothill grassland
Buteo swainsoni	Swainson's hawk	None	Threatened	G5	S3	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
Calochortus pulchellus	Mt. Diablo fairy-lantern	None	None	G2	S2	Chaparral, Cismontane woodland, Riparian woodland, Valley & foothill grassland

Carex lyngbyei	Lyngbye's sedge	None	None	G5	S3	Marsh & swamp, Wetland
Castilleja affinis var. neglecta	Tiburon paintbrush	Endangered	Threatened	G4G5T1T2	S1S2	Ultramafic, Valley & foothill grassland
Centromadia parryi ssp. congdonii	Congdon's tarplant	None	None	G3T2	S2	Valley & foothill grassland
Centromadia parryi ssp. parryi	pappose tarplant	None	None	G3T2	S2	Chaparral, Coastal prairie, Marsh & swamp, Meadow & seep, Valley & foothill grassland
Charadrius alexandrinus nivosus	western snowy plover	Threatened	None	G3T3	S2S3	Great Basin standing waters, Sand shore, Wetland
Chloropyron molle ssp. molle	soft salty bird's-beak	Endangered	Rare	G2T1	S1	Marsh & swamp, Salt marsh, Wetland
Cicuta maculata var. bolanderi	Bolander's water-hemlock	None	None	G5T4	S2	Marsh & swamp, Salt marsh, Wetland
Circus cyaneus	northern harrier	None	None	G5	S3	Coastal scrub, Great Basin grassland, Marsh & swamp, Riparian scrub, Valley & foothill grassland, Wetland
Cirsium hydrophilum var. hydrophilum	Suisun thistle	Endangered	None	G2T1	S1	Marsh & swamp, Salt marsh, Wetland
Coastal Brackish Marsh	Coastal Brackish Marsh	None	None	G2	S2.1	Marsh & swamp, Wetland
Corynorhinus townsendii	Townsend's big-eared bat	None	None	G3G4	S2	Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, Upper montane coniferous

						forest, Valley & foothill grassland
Downingia pusilla	dwarf downingia	None	None	GU	S2	Valley & foothill grassland, Vernal pool, Wetland
Egretta thula	snowy egret	None	None	G5	S4	Marsh & swamp, Meadow & seep, Riparian forest, Riparian woodland, Wetland
Elanus leucurus	white-tailed kite	None	None	G5	S3S4	Cismontane woodland, Marsh & swamp, Riparian woodland, Valley & foothill grassland, Wetland
Emys marmorata	western pond turtle	None	None	G3G4	S3	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Eriogonum truncatum	Mt. Diablo buckwheat	None	None	G2	S2	Chaparral, Coastal scrub, Valley & foothill grassland
Eryngium jepsonii	Jepson's coyote-thistle	None	None	G2	S2	Valley & foothill grassland, Vernal pool
Extriplex joaquinana	San Joaquin spearscale	None	None	G2	S2	Alkali playa, Chenopod scrub, Meadow & seep, Valley & foothill grassland
Fritillaria liliacea	fragrant fritillary	None	None	G2	S2	Cismontane woodland, Coastal prairie, Coastal scrub, Ultramafic, Valley & foothill grassland
Helianthella castanea	Diablo helianthella	None	None	G2	S2	Broadleaved upland forest, Chaparral, Cismontane

						woodland, Coastal scrub, Valley & foothill grassland
Helminthoglypta nickliniana bridgesi	Bridges' coast range shoulderband	None	None	G3T1	S1S2	Valley & foothill grassland
Hesperolinon breweri	Brewer's western flax	None	None	G2?	S2?	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland
Isocoma arguta	Carquinez goldenbush	None	None	G1	S1	Valley & foothill grassland
Lasthenia conjugens	Contra Costa goldfields	Endangered	None	G1	S1	Alkali playa, Cismontane woodland, Valley & foothill grassland, Vernal pool, Wetland
Laterallus jamaicensis coturniculus	California black rail	None	Threatened	G3G4T1	S1	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland
Lathyrus jepsonii var. jepsonii	Delta tule pea	None	None	G5T2	S2	Freshwater marsh, Marsh & swamp, Wetland
Legenere limosa	legenere	None	None	G2	S2	Vernal pool, Wetland
Lilaeopsis masonii	Mason's lilaeopsis	None	Rare	G2	S2	Freshwater marsh, Marsh & swamp, Riparian scrub, Wetland
Limosella australis	Delta mudwort	None	None	G4G5	S2	Brackish marsh, Freshwater marsh, Marsh & swamp, Riparian scrub, Wetland
Masticophis lateralis euryxanthus	Alameda whipsnake	Threatened	Threatened	G4T2	S2	Chaparral, Cismontane woodland, Coastal scrub, Valley & foothill grassland
Melospiza melodia maxillaris	Suisun song sparrow	None	None	G5T3	S3	Marsh & swamp, Wetland
Navarretia leucocephala ssp. bakeri	Baker's navarretia	None	None	G4T2	S2	Cismontane woodland, Lower montane coniferous forest, Meadow & seep, Valley & foothill

						grassland, Vernal pool, Wetland
Northern Claypan Vernal Pool	Northern Claypan Vernal Pool	None	None	G1	S1.1	Vernal pool, Wetland
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	None	None	G3	S3.2	Marsh & swamp, Wetland
Northern Vernal Pool	Northern Vernal Pool	None	None	G2	S2.1	Vernal pool, Wetland
Nycticorax nycticorax	black-crowned night heron	None	None	G5	S4	Marsh & swamp, Riparian forest, Riparian woodland, Wetland
Polygonum marinense	Marin knotweed	None	None	G2Q	S2	Brackish marsh, Marsh & swamp, Salt marsh, Wetland
Puccinellia simplex	California alkali grass	None	None	G3	S2	Chenopod scrub, Meadow & seep, Valley & foothill grassland, Vernal pool
Rallus obsoletus obsoletus	California Ridgway's rail	Endangered	Endangered	G5T1	S1	Brackish marsh, Marsh & swamp, Salt marsh, Wetland
Rana draytonii	California red-legged frog	Threatened	None	G2G3	S2S3	Aquatic, Artificial flowing waters, Artificial standing waters, Freshwater marsh, Marsh & swamp, Riparian forest, Riparian scrub, Riparian woodland, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Reithrodontomys raviventris	salt-marsh harvest mouse	Endangered	Endangered	G1G2	S1S2	Marsh & swamp, Wetland
Rhynchospora californica	California beaked-rush	None	None	G1	S1	Freshwater marsh, Lower montane coniferous forest, Marsh & swamp,

						Meadow & seep, Wetland
Serpentine Bunchgrass	Serpentine Bunchgrass	None	None	G2	S2.2	Valley & foothill grassland
Sorex ornatus sinuosus	Suisun shrew	None	None	G5T1T2Q	S1S2	Marsh & swamp, Wetland
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	None	None	G5T5	S3	Marsh & swamp, Wetland
Symphyotrichum lentum	Suisun Marsh aster	None	None	G2	S2	Brackish marsh, Freshwater marsh, Marsh & swamp, Wetland
Taxidea taxus	American badger	None	None	G5	S3	Alkali marsh, Alkali playa, Alpine, Alpine dwarf scrub, Bog & fen, Brackish marsh, Broadleaved upland forest, Chaparral, Chenopod scrub, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Desert dunes, Desert wash, Freshwater marsh, Great Basin grassland, Great Basin scrub, Interior dunes, Ione formation, Joshua tree woodland, Limestone, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Mojavean desert scrub, Montane dwarf scrub, North coast coniferous forest, Oldgrowth, Pavement plain, Redwood, Riparian forest, Riparian scrub, Riparian woodland, Salt marsh, Sonoran desert scrub, Sonoran thorn woodland, Ultramafic, Upper montane coniferous

						forest, Upper Sonoran scrub, Valley & foothill grassland
Trichostema ruygtii	Napa bluecurls	None	None	G1G2	S1S2	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley & foothill grassland, Vernal pool, Wetland
Trifolium amoenum	two-fork clover	Endangered	None	G1	S1	Coastal bluff scrub, Ultramafic, Valley & foothill grassland
Trifolium hydrophilum	saline clover	None	None	G2	S2	Marsh & swamp, Valley & foothill grassland, Vernal pool, Wetland
Xanthocephalus xanthocephalus	yellow-headed blackbird	None	None	G5	S3	Marsh & swamp, Wetland

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Napa County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species

[1] are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Western Snowy Plover *Charadrius alexandrinus nivosus* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Giant Garter Snake Thamnophis gigas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is a **final** critical habitat designated for this species. Your location overlaps the designated critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened
Steelhead Oncorhynchus (=Salmo) mykiss There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/1007	Threatened

Insects

NAME	STATUS
Callippe Silverspot Butterfly Speyeria callippe callippe No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3779	Endangered
San Bruno Elfin Butterfly Callophrys mossii bayensis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3394	Endangered

Crustaceans

NAME	STATUS
California Freshwater Shrimp *Syncaris pacifica* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7903	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Showy Indian Clover *Trifolium amoenum* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6459	Endangered
Tiburon Paintbrush *Castilleja affinis ssp. neglecta* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2687	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
California Red-legged Frog *Rana draytonii* https://ecos.fws.gov/ecp/species/2891#crithab	Final designated

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

[1] and the Bald and Golden Eagle Protection Act[2].

Any activity that results in the take (to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service

[3]. There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The migratory birds species listed below are species of particular conservation concern (e.g. Birds of Conservation Concern) that may be potentially affected by activities in this location. It is not a list of every bird species you may find in this location, nor a guarantee that all of the bird species on this list will be found on or near this location. Although it is important to try to avoid and minimize impacts to all birds, special attention should be made to avoid and minimize impacts to birds of priority concern. To view available data on other bird species that may occur in your project area, please visit the AKN Histogram Tools and Other Bird Data Resources. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

NAME	SEASON(S)
Allen's Hummingbird Selasphorus sasin https://ecos.fws.gov/ecp/species/9637	Breeding

Bald Eagle Haliaeetus leucocephalus https://ecos.fws.gov/ecp/species/1626	Year-round
Bell's Sparrow Amphispiza belli https://ecos.fws.gov/ecp/species/9303	Year-round
Black Oystercatcher Haematopus bachmani https://ecos.fws.gov/ecp/species/9591	Year-round
Black Rail Laterallus jamaicensis https://ecos.fws.gov/ecp/species/7717	Breeding
Black Skimmer Rynchops niger https://ecos.fws.gov/ecp/species/5234	Breeding
Burrowing Owl Athene cunicularia https://ecos.fws.gov/ecp/species/9737	Year-round
Common Yellowthroat Geothlypis trichas sinuosa https://ecos.fws.gov/ecp/species/2084	Breeding
Costa's Hummingbird Calypte costae https://ecos.fws.gov/ecp/species/9470	Year-round
Fox Sparrow Passerella iliaca	Wintering
Lawrence's Goldfinch Carduelis lawrencei https://ecos.fws.gov/ecp/species/9464	Breeding
Least Bittern Ixobrychus exilis https://ecos.fws.gov/ecp/species/6175	Breeding
Lesser Yellowlegs Tringa flavipes https://ecos.fws.gov/ecp/species/9679	Wintering

Lewis's Woodpecker Melanerpes lewis https://ecos.fws.gov/ecp/species/9408	Wintering
Long-billed Curlew Numenius americanus https://ecos.fws.gov/ecp/species/5511	Wintering
Marbled Godwit Limosa fedoa https://ecos.fws.gov/ecp/species/9481	Wintering
Mountain Plover Charadrius montanus https://ecos.fws.gov/ecp/species/3638	Wintering
Nuttall's Woodpecker Picoides nuttallii https://ecos.fws.gov/ecp/species/9410	Year-round
Oak Titmouse Baeolophus inornatus https://ecos.fws.gov/ecp/species/9656	Year-round
Olive-sided Flycatcher Contopus cooperi https://ecos.fws.gov/ecp/species/3914	Breeding
Peregrine Falcon Falco peregrinus https://ecos.fws.gov/ecp/species/8831	Year-round
Rufous Hummingbird selasphorus rufus https://ecos.fws.gov/ecp/species/8002	Migrating
Rufous-crowned Sparrow Aimophila ruficeps https://ecos.fws.gov/ecp/species/9718	Year-round
Short-billed Dowitcher Limnodromus griseus https://ecos.fws.gov/ecp/species/9480	Wintering
Short-eared Owl Asio flammeus https://ecos.fws.gov/ecp/species/9295	Wintering

Snowy Plover Charadrius alexandrinus	Breeding
Swainson's Hawk Buteo swainsoni https://ecos.fws.gov/ecp/species/1098	Breeding
Tricolored Blackbird Agelaius tricolor https://ecos.fws.gov/ecp/species/3910	Year-round
Western Grebe aechmophorus occidentalis https://ecos.fws.gov/ecp/species/6743	Year-round
Whimbrel Numenius phaeopus https://ecos.fws.gov/ecp/species/9483	Wintering
Yellow Rail Coturnicops noveboracensis https://ecos.fws.gov/ecp/species/9476	Wintering

What does IPaC use to generate the list of migratory bird species potentially occurring in my specified location?

Landbirds:

Migratory birds that are displayed on the IPaC species list are based on ranges in the latest edition of the National Geographic Guide, Birds of North America (6th Edition, 2011 by Jon L. Dunn, and Jonathan Alderfer). Although these ranges are coarse in nature, a number of U.S. Fish and Wildlife Service migratory bird biologists agree that these maps are some of the best range maps to date. These ranges were clipped to a specific Bird Conservation Region (BCR) or USFWS Region/Regions, if it was indicated in the 2008 list of Birds of Conservation Concern (BCC) that a species was a BCC species only in a particular Region/Regions. Additional modifications have been made to some ranges based on more local or refined range information and/or information provided by U.S. Fish and Wildlife Service biologists with species expertise. All migratory birds that show in areas on land in IPaC are those that appear in the 2008 Birds of Conservation Concern report.

Atlantic Seabirds:

Ranges in IPaC for birds off the Atlantic coast are derived from species distribution models developed by the National Oceanic and Atmospheric Association (NOAA) National Centers for Coastal Ocean Science (NCCOS) using the best available seabird survey data for the offshore Atlantic Coastal region to date. NOAANCCOS assisted USFWS in developing seasonal species ranges from their models for specific use in IPaC. Some of these birds are not BCC species but were of interest for inclusion because they may occur in high abundance off the coast at different times throughout the year, which potentially makes them more susceptible to certain types of development and activities taking place in that area. For more refined details about the abundance

and richness of bird species within your project area off the Atlantic Coast, see the Northeast Ocean Data Portal. The Portal also offers data and information about other types of taxa that may be helpful in your project review.

About the NOAANCCOS models: the models were developed as part of the NOAANCCOS project: Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf. The models resulting from this project are being used in a number of decision-support/mapping products in order to help guide decision-making on activities off the Atlantic Coast with the goal of reducing impacts to migratory birds. One such product is the Northeast Ocean Data Portal, which can be used to explore details about the relative occurrence and abundance of bird species in a particular area off the Atlantic Coast.

All migratory bird range maps within IPaC are continuously being updated as new and better information becomes available.

Can I get additional information about the levels of occurrence in my project area of specific birds or groups of birds listed in IPaC?

Landbirds:

The Avian Knowledge Network (AKN) provides a tool currently called the "Histogram Tool", which draws from the data within the AKN (latest,survey, point count, citizen science datasets) to create a view of relative abundance of species within a particular location over the course of the year. The results of the tool depict the frequency of detection of a species in survey events, averaged between multiple datasets within AKN in a particular week of the year. You may access the histogram tools through the Migratory Bird Programs AKN Histogram Tools webpage.

The tool is currently available for 4 regions (California, Northeast U.S., Southeast U.S. and Midwest), which encompasses the following 32 states: Alabama, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, New Hampshire, New Jersey, New York, North, Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

In the near future, there are plans to expand this tool nationwide within the AKN, and allow the graphs produced to appear with the list of trust resources generated by IPaC, providing you with an additional level of detail about the level of occurrence of the species of particular concern potentially occurring in your project area throughout the course of the year.

Atlantic Seabirds:

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAANCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Facilities

Wildlife refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGES AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

This location overlaps the following wetlands:

FRESHWATER POND
- PUBHh

RIVERINE
- R4SBA
- R4SBC
- R4SBAx

A full description for each wetland code can be found at the National Wetlands

Inventory website: https://ecos.fws.gov/ipac/wetlands/decoder

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.