# Biological Resource Survey

## Vineyard Development
## 1228 Hagen Road
## Napa County

**Prepared**

**For**

**Drew L. Aspegren, P. E.**
**Napa Valley Vineyard Engineering, Inc**

**By**

**Kjeldsen Biological Consulting**

**June 2021**

# Biological Resource Survey
## Vineyard Development
## 1228 Hagen Road
## APN 049-200-003

**PROJECT NAME:**

Abe A. D. Marapao, Esq.
1228 Hagen Road
APN 049-200-003

Unpermitted +/-1.10 Acre Vineyard
Proposed 0.96 Acre Gross Vineyard

**PROJECT ENGINEER:**

Drew L. Aspegren, P. E.
Napa Valley Vineyard Engineering, Inc.

**REPORT PREPARED BY:**

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**PERIOD OF STUDY:**

March-June 2021

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**Vineyard Development**

1228 Hagen Road

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## Executive Summary

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

The project proposes to permit a +/-1.10 acre vineyard that was previously planted without a permit and to add an additional +/-0.9-acres of vineyard on the parcel. The property is located east of the city of Napa. The property is within the watershed of the Napa River. The study site is within the USGS Napa 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, the property and the adjoining environment. The findings presented below are the results of fieldwork conducted during the spring and summer of 2021 by Kjeldsen Biological Consulting:

- The unpermitted vineyard was planted within open ruderal grasslands or (Grassland Semi-natural Herbaceous Stands with Herbaceous Layer). Review of old aerial photos indicates that no trees or riparian vegetation was removed;
- The proposed vineyard area consist of open ruderal grasslands or (Grassland Semi-natural Herbaceous Stands with Herbaceous Layer), residual walnut trees and landscape plantings;
- No special-status plant species were identified on the project site or would be expected on the project site:
- No sensitive wildlife habitat, or special-status animal species were identified on the project site;
- The proposed project will not significantly reduce habitat for or have the potential to negatively impact any local or regional special-status plants or animals;
- Block A (Existing Vineyard) has a Napa County Defined Drainage to the north and west. Portions of the vineyard are within the required Napa County setbacks;
- Block B has an ephemeral drainage along the property line on the south side of the project site;
- There are no seasonal wetlands within the footprint of the project site;
- The project footprint will not substantially interfere with native wildlife species, wildlife corridors, and or native wildlife nursery sites;
- The footprint of the project will not significantly contribute to habitat loss or habitat fragmentation; 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 project has the potential to increase sediment into seasonal drainages within the watershed of the Napa River.

**Recommendations**

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

All project construction activities must be limited to the project footprint. Best Management Practices including silt and erosion control measures must be implemented to protect off-site movement of sediment and dust during and post construction. The erosion control plan for the vineyard must be implemented.

The proposed vineyard must avoid and provide setbacks from drainages on the property as per Napa County policy.

Fencing or flagging should be installed along the edge of the 35-ft setback (Block B) prior to ground disturbing activities to ensure the drainage is not impacted during construction activities.

Any new deer fencing should be designed with exit gates. 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

## Vineyard Development

1228 Hagen Road

# A PROJECT DESCRIPTION

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

## A.1 Introduction

The project proposes to permit a +/-1.10 acre vineyard (Block A) that was previously planted without a permit and to add an additional +/-0.9-acres (Block B) of vineyard on the parcel. The property is located east of the city of Napa. The property is within the watershed of the Napa River. The study site is within the USGS Napa Quadrangle. Plate I provides a site and location map of the property. Plate III provides an aerial photograph of the property.

## A.2 Background

The parcel consists of a residence, landscape plantings, open ruderal grassland, existing vineyards, remanent walnut orchard, an unnamed ephemeral drainage along the south side of the parcel and Sarco Creek on the north side. Approximately +/-1.10-acres of vineyards was planted on the property by a previous owner. The new owner wants to bring the existing vineyard into compliance and plant an additional +/-0.9-acres.

## A.3 Purpose

The purpose of this report is to identify biological resources that may be affected by the proposed project (permitting existing vineyard and proposed new vineyard) as listed below:

- To determine the presence of potential habitat for special-status species which would be impacted by the proposed project, including habitat types which 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 and assess potential impacts to Federal or State protected wetlands 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

The purpose of this report is to provide potential biological impacts, a faunal and floristic study of the project site with emphasis on any special-status animals, plants, unique plant populations and or critical habitat associated with the proposed project. The project scoping, existing vegetation, and habitat determined the extent of our surveys which ranged from March to June of 2021.

## B.1 Project Scoping

The scoping for the project considered seasonal fieldwork, location and type of habitat and or vegetation types present on the property or associated with potential special-status plant species known for the Quadrangles, 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-5) and the California Native Plant Society (CNPS) Electronic Inventory of Rare and 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.

Tables IV and V present CDFW CNDDB Rare Find species and U.S. Fish and Wildlife Service listed species 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.

**Table I. Time and Date of Field Work for Spring and Summer**

| Date | Personnel | Person-hr. | Time | Conditions |
|---|---|---|---|---|
| March 16, 2021 | Chris K. and Daniel T. Kjeldsen | 2.0 person-hours | 9:00 to 10:00 | Clear, clear cool temperatures, no wind |
| April 13, 2021 | Chris K. and Daniel T. Kjeldsen | 2.0 person-hours | 9:00 to 10:00 | Clear, mild temperatures Light breeze |
| May 11, 2021 | Chris K. and Daniel T. Kjeldsen | 2.0 person-hours | 11:30 to 12:30 | Clear, no wind, warm temperatures |
| June 9, 2020 | Chris K. and Daniel T. Kjeldsen | 2.0 person-hours | 10:30 to 11:30 | Clear, light breeze, with warm temperatures |

**Plants** Field surveys were conducted identifying and recording all species on the site and in the near proximity. Transects through the proposed project sites were made methodically by foot. Transects were established to cover topographic and vegetation variations within the study area.

The Intuitive Controlled approach 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 open nature of the site, historic and ongoing management practices, and the relatively small size of the proposed development footprint facilitated our field studies. All plant life was recorded in field notes and is presented in Appendix A.

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, which 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** were 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 nests 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.

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 site.

**Wildlife Movement** Aerial photos were reviewed to evaluate 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; and
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** 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** 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 or Listed Species** are plants or animals that have been designated by Federal or State agencies as rare, threatened or endangered.

"Take" is defined in the Endangered Species Act 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** 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.

**Streams /Drainages**

There are two types of streams or drainages; 1) perennial flowing waters and 2) seasonal ephemeral creeks or drainages that convey water during and shortly after rainfall. USGS 7.5 Minute Quadrangle maps for the site were analyzed for the presence of "blue line" creeks. On site topography and evidence of bed and bank was used for evaluating ephemeral drainages. Drainages were walked and visually evaluated for continuity of bed and bank as well as signs of aquatic life. The streambed were evaluated for flow, pools, substrate, bank and quality of habitat recorded in field notes. Vegetation in the streambed was recorded if present and quality and quantity of riparian conditions as distinct from surrounding vegetation noted.

**Stream Classification**

**Class I** - Fish always or seasonally present onsite, includes habitat to sustain fish migration and spawning.

**Class II** - Fish always or seasonally present, aquatic habitat for non-fish aquatic species.

**Class III** - No aquatic life present, watercourse showing evidence of being capable of sediment transport to Class I and II waters under normal high-water flow conditions.

**Class IV** - Man-made watercourses, usually downstream, established domestic, agricultural, hydroelectric supply or other beneficial use.

# C. RESULTS / FINDINGS

## C.1 Biological Setting

The study site is located in Napa County east of the city of Napa. The project site drains by direct infiltration or sheet flow into Sarco Creek (on the north side) which is a tributary of Milliken Creek thence the Napa River. Figures 1 to 4 illustrate the site conditions.

The property is within the inner North Coast Range Mountains, a geographic subdivision of the larger California Floristic Province. The property and surrounding region are strongly influenced by storms and fog from 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 in the region.

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

## C.2 Habitat Types Present

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 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. The following Napa County vegetation types are found on the project site Grassland (Annual Grasslands) with residual walnut trees , Live Oak Woodlands, and Riparian Corridor (Sarco Creek).

**Grassland** is a relatively common land cover in the County, covering over 53,700 acres or nearly 11% of the County. Three grassland assemblages exist within the County: annual grassland, native grassland and serpentine (bunchgrass) grassland. Of these assemblages, both native grassland and serpentine grassland are considered sensitive communities. Vernal pools, which provide habitat for a number of special-status species, are found in some grassland areas.

**Annual Grasslands -** Non-native annual grassland has only been present in the County since about the mid-1800s, when non-native grasses and forbs introduced from Europe largely replaced the native grassland vegetation (Heady 1988). This land cover has increased in extent and distribution throughout the County since that time, as non-native grasslands have replaced the native grasslands previously present and woodlands that have been cleared. Today, annual grassland covers slightly over 10% of the County (approximately 51,000 acres) and is found scattered throughout the County. The largest and least fragmented annual grasslands in the County are located in the Jamieson/American Canyon Evaluation Area, in the southeastern part of the County. The Pope Valley Evaluation Area, in the north-central part of the County, also contains significant unfragmented annual grasslands.

In general terminology one would refer to the habitat on the proposed vineyard block as Ruderal Grassland (agricultural land that has been routinely maintained). The dominant land cover types on the project site consist of non-native grasses and herbaceous species. In the sections below the habitat type present within the footprint of the proposed vineyard blocks is described and further categorized with the new system of vegetation classification by Sawyer *et al* A Manual of California Vegetation Second Edition. Sawyer classifies the vegetation on the proposed vineyard blocks as Grassland Semi-natural Stands with Herbaceous Layer.

**Grassland Semi-Natural Herbaceous Stands with Herbaceous Layer (Annual Grasslands)**

Semi-Natural Herbaceous Grasslands are a result of decades of agriculture 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. This includes what can be termed weeds, aliens, exotics or invasive plants in agricultural and nonagricultural settings. The Semi-natural Herbaceous Stands cannot be mapped due to the small size but if one searches the site one can find small patches of the following;

***Avena*** ssp. Semi-natural Herbaceous Stand, Wild Oats Grasslands. The membership rules require *Avena ssp.* to be > 50% relative cover of the herbaceous layer. 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.

***Bromus diandrus*** Semi-Natural Herbaceous Stands Annual Brome Grassland. The membership rules require *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, Asclepius fascicularis, Avena fatua, Brassica nigra, Bromus didandrus, B. hordeaceus, Centaurium muhlenbergii, Cirsium vulgare, Cryptantha*

*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; (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 dominant in the herbaceous layer. Scattered emergent shrubs such as *Baccharis pilularis* may be present. Herbs < 1.5 m: canopy is intermittent to continuous.

Wildlife Associated with Semi-natural Grasslands

Semi-natural Grasslands with Herbaceous Layer (annual ruderal non-native grasslands) within the study area provide habitat for a variety of birds and small mammals. The vegetation present provides browse for deer, cover and foraging habitat for mice and voles, habitat for Pocket Gopher, foraging habitat for Broad-footed Moles, shrews, and cover and foraging habitat for Black-tailed Jackrabbit. Numerous bird species forage for insects and seeds in these grasslands. Bats will forage for insects over this area and raptors will feed on reptiles and mammals in this type of vegetation cover. In general, however, the non-native annual grasslands, such as are present on the study site, are not an optimum habitat for wildlife.

**Forest or Woodland Alliances**

***Quercus agrifolia*** Woodland Alliance Coast Live Oak Woodland; *Quercus agrifolia* is dominant or co-dominant tree in the canopy with *Acer macrophyllum, A. negundo, Arbutus menziesii, Juglans californica, Platanus racemosa, Populus fremontii, Quercus douglasii, Q. lobata, Q engelmannii, Q. kelloggii, Salix lasiolepis* and *Umbellularia californica* (membership rules *Quercus agrifolia* > 50% relative cover of the tree canopy; if *Umbellularia californica* trees are present, then >33% cover in the tree canopy). Trees > 30m tall; canopy is intermittent. Herbaceous layer is sparse to intermittent. Herbaceous layer is sparse or grassy. *Quercus agrifolia* is a drought resistant evergreen. Stands of this alliance vary from upland savannas and woodlands to bottomland riparian forests with closed tree canopies.

Table II provides an estimate of the vegetation alliances on the property and the acreage that will be removed by the proposed project. The vegetation mapping for the property is shown on Plate III.

**Table II Approximate Acreage of Plant Communities or Alliances on the Property and Approximate Acreage to be removed by the Project.**

| Plant Community or Vegetation Alliance | Estimated Acreage on Property 6.1-Acres | Estimated Acreage to be Disturbed 2.06 +/-Acres |
|---|---|---|
| **Annual Grasslands** | 1.4-acres<br>Block A 1.1-acres | 2.06-acres |
| **Hardscape, Landscape Plantings** | 1.0-acres | NA |
| **Live Oak Woodlands** | 2.6-acres | 0.0-acres |

**Table III. Respective Characteristics of Plant Communities.**

| Plant Community or Vegetation Alliance | Respective Characteristics Approximate tree density (Average trees and species per acre) |
|---|---|
| **Annual Grasslands** | Semi-Natural Herbaceous Grasslands are a result of decades of grazing and the introduction of non-native grasses and herbs. Live Oaks surround the grasslands on the proeprty. |
| **Love Oak Woodlands** | Live Oaks are present along Sarco Creek and the property lines. Live Oaks are 18-20" DBH with no understory. |

**Figure 1.** View of proposed planting area Block B.

**Figure 2.** Ephemeral drainage along southern property line.

**Figure 3.** Typical vegetation associated with Block B.

**Figure 4.** Live Oak woodlands associated with Sarco Creek.

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 –Rural Residential, Riparian Corridor of Sarco Creek;
- East side of the project –Rural Residential and vineyards;
- South side of the project – Rural Residential;
- West side of the project – Rural Residential, and Sarco Creek.

## 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, Threatened, or Endangered even if it is not officially listed as such. If a person (or organization) provides information showing that a taxon 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 C 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.

**Special-status Plants**

Table IV below provides a list of plant species that are known to occur within the region of the proposed project (CDFW CNDDB, CNPS search and U.S. Fish and Wildlife Service). The table includes an analysis of habitat for presence of absence. (The status of each species is shown in Appendix B).

**Table IV.** Analysis of CDFW CNDDB, CNPS and USFWS special-status plant species from the region. Columns are arranged alphabetically by scientific name.

| **Scientific Name Common Name** | **Species Habitat Association or Plant Community** | **Habitat present on Project Site** | **Bloom Time** | **Obs. on or Near Site** | **Analysis of habitat on project site for presence or absence.** |
|---|---|---|---|---|---|
| *Agrostis hendersonii* Henderson's Bent Grass | Vernal Pools | No | May-July | No | Lack of mesic habitat. |
| *Allium peninsulare* var. *franciscanum* Franciscan Onion | Cismontane Woodland, Valley and Foothill Grassland/Clay Serpentinite | No | May-June | No | Absence of requisite edaphic conditions. |
| *Amsinkia lunularis* Bent-flowered Fiddleneck | Cismontane Woodland, Valley and Foothill Grassland | Yes | March-June | No | Historic agricultural use precludes presence. No indications for presence during our fieldwork. |
| *Astragalus claranus* Clara Hunt's Milk-vetch | Cismontane Woodland, Valley and Foothill Grassland | Yes | March-May | No | Historic agricultural use precludes presence. No indications for presence during our fieldwork. |
| *Astragalus tener var. tener* Alkali Milk-vetch | Valley and Foothill Grassland, Vernal Pools /Alkaline | 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 | March-June | No | Historic agricultural use precludes presence. No indications for presence during our fieldwork. |
| *Blennosperma bakeri* Sonoma Sunshine | Valley and Foothill Grassland, Vernal Pools | No | March-May | No | Absence of requisite mesic habitat. |

| **Scientific Name Common Name** | **Species Habitat Association or Plant Community** | **Habitat present on Project Site** | **Bloom Time** | **Obs. on or Near Site** | **Analysis of habitat on project site for presence or absence.** |
|---|---|---|---|---|---|
| *Brodiaea leptandra* Narrow-anthered California Brodiaea | Cismontane Woodland | Yes | May-June | No | Requisite habitat, exposure and historic land use preclude presence on project site. |
| *Castilleja affinis ssp. neglecta* Tiburon Indian Paintbrush | Valley and Foothill Grassland, Serpentinite | 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 | March-May | No | Absence of typical habitat and vegetation associates. |
| *Centromadia parryi* ssp. *parryi* Pappose Tarplant | Grassland salt or alkaline Marshes | No | March-June | No | Requisite mesic conditions absent. |
| *Downingia pusilla* Dwarf Downingia | Wetlands | No | March-May | No | Requisite aquatic habitat absent on the site or in the immediate vicinity. |
| *Eryngium jepsonii* Jepson's Coyote Thistle | Moist Clay Soils | No | April-Aug. | No | Absence of mesic conditions required for presence. |
| *Extriplex joaquiniana (=Atriplex)* San Joaquin Spearscale | Valley and Foothill Grassland, Alkali | No | April-Oct. | No | Absence of requisite edaphic habitat on the site or in the immediate vicinity precludes presence. |
| *Lasthenia conjugens* Contra Costa Goldfields | Wet Meadows, Vernal Pools | No | May-June | No | Lack of suitable mesic habitat. |
| *Lilaeopsis masonii* Mason's Lilaeopsis | Mud Flats of Tidal Waters | No | April-July | No | Lack of requisite habitat. |
| *Hemizonia congesta* ssp. *congesta* Congested Headed Tarplant | Coastal Grassland | No | April Oct. | No | Absence of requisite habitat. |
| *Hesperolinon breweri* Brewer's Western Flax | Cismontane Woodland, Valley & Foothill Grassland | Yes | May-July | No | Historic agricultural use precludes presence. No indications for presence during our fieldwork. |

| Scientific Name Common Name | Species Habitat Association or Plant Community | Habitat present on Project Site | Bloom Time | Obs. on or Near Site | Analysis of habitat on project site for presence or absence. |
|---|---|---|---|---|---|
| *Horkelia tenuiloba* Thin-lobed (=Santa Rosa) Horkelia | Broadleaved Upland Forest, Chaparral, Valley and Foothill | No | May-July | No | Absence of typical habitat and vegetation associates. |
| *Isocoma arguta* Carquinez Goldenbush | Valley and Foothill Grassland, Alkali | No | Aug-Dec. | No | Absence of requisite edaphic habitat on the site or in the immediate vicinity precludes presence. |
| *Lasthenia conjugens* Contra Costa Goldfields | Vernal Pools | No | March–June | No | Requisite aquatic habitat absent on the site or in the immediate vicinity. |
| *Leptosiphon jepsonii* Jepson's Leptosiphon | Open or partially shaded grassy slopes. | Yes | April-May | No | Historic agricultural use precludes presence. No indications for presence during our fieldwork. |
| *Lilaeopsis masonii* Mason's Lilaeopsis | Mud Flats of Tidal Waters | No | April-July | No | Lack of requisite habitat. |
| *Rhynchospora californica* California Beaked-rush | Bogs and Fens, Lower Montane Coniferous Forest | No | May-July | No | Absence of requisite mesic edaphic habitat on the site. |
| *Sidalcea keckii* Keck's Checkerbloom | Grassy Slopes | Yes | April May | **No** | Historic agricultural use precludes presence. No indications for presence during our fieldwork. |
| *Trichostema ruygtii* Napa Bluecurls | Grassland | Yes | June-Aug. | No | Historic agricultural use precludes presence. No indications for presence during our fieldwork. |
| *Trifolium amoenum* Two-fork Clover | Coastal Bluff Scrub, Grassland (Sometimes Serpentinite) | No | April-June | No | Historical use of the site precludes presence. This species is vulnerable to disturbance and livestock grazing. |
| *Trifolium hydrophilum* Saline Clover | Marshes and Swamps Grassland | No | April-June | No | Absence of mesic habitat required for presence. |

The CDFW CNDDB does not show any records of special-status species of plants for the study site. The proposed project site does not contain habitat which would support special-status plant species. The historic use, absence of serpentine or serpentinite soils, lack of vernal pools, wetlands, and vegetation associates reasonably precludes the presence of special-status plant species within the proposed planting area. Based on existing habitat, it is unlikely that the proposed project would have a substantial impact or result in any take of any special-status plant species.

**Special-status Animals**

Table V below provides a list of animal species that are known to occur within the region of the proposed project (CDFW CNDDB and U.S. Fish and Wildlife Service). The table includes an analysis / justification for concluding absence (The status of each species is shown in Appendix B).

**Table V.** Analysis of CDFW CNDDB and USFWS target special-status animal species from the region. Columns are arranged alphabetically by scientific name.

| **Scientific Name Common Name** | **Habitat** | **Potential for Property** | **Obs. on Project Site** | **Analysis of habitat on project site for presence or absence.** |
|---|---|---|---|---|
| *Adela oplerella* Opler's Longhorn Moth | Grasslands with Cream Cups as Host Plant | No | No | Property does not support the host species. |
| *Antrozous pallidus* Pallid Bat | Roosts in Buildings and Overhangs, Woodlands | No | No | No potential roosting habitat on project site. |
| *Aquila chrysaetos* Golden Eagle | Nests near water | No | No | Lack of nesting and aquatic habitat. |
| *Athene cunicularia* Burrowing Owl | Low lying grasslands w/ground squirrels | No | No | Species was not observed. Lack of habitat. |
| *Branchinecta lynchi* Vernal Pool fairy Shrimp | Vernal Pools | No | No | Lack of habitat. |
| *Buteo regalis* Ferruginous Hawk | Hunts from perches in arid grasslands, Migrates through area | No | No | Unlikley feeding habitat on site. No raptor nests were observed. |
| *Buteo swainsoni* Swainson's Hawk | Open areas with riparian influence | May Fly Over | No | Unlikely foraging habitat on site. No raptor nests were observed. |
| *Circus hudsonius* Northern Harrier | Preference for Wetlands and Marshes both Salt and Freshwater | May Fly Over | No | Species was not observed. |

| Scientific Name<br>Common Name | Habitat | Potential for Property | Obs. on Project Site | Analysis of habitat on project site for presence or absence. |
|---|---|---|---|---|
| *Elanus leucurus*<br>White-tailed Kite | Nests in tall trees near water | May Fly Over | No | Species was not observed. |
| *Emys marmorata*<br>Western Pond Turtle | Slow moving water or ponds | No | No | Lack of aquatic habitat on project site. |
| *Rana draytonii*<br>California Red-legged Frog | Creeks, Rivers, permanent flowing water | No | No | Requisite habitat absent on project site. |
| *Reithrodontomys raviventis*<br>Salt-marsh Harvest Mouse | Pickleweed Salt Marsh | No | No | Lack of habitat. |
| *Speyeria zerene sonomensis*<br>Sonoma Zerene Butterfly | Grassland | No | No | Requisite habitat required for presence lacking. |
| *Strix occidentalis caurina*<br>Northern Spotted Owl | Old growth, forested deep canyons | No | No | Requisite habitat absent. Not associated with project. |
| *Syncaris pacifica*<br>California Freshwater Shrimp | Creeks and Estuaries below 300 ft. | No | No | Requisite habitat required for presence lacking. |
| *Taxidea taxus*<br>American Badger | Hillsides with suitable food sources | No | No | Lack of suitable habitat. Species was not observed. |

The CDFW CNDDB Rare Find does not show any records of any Special-status species of animals for the study site.

Based on habitat associated with the proposed project site we conclude that it is unlikely that any of the species shown in the table above, or others known for the region, would occur on the sites given the history of disturbance and lack of proper hydrology/topography. It is unlikely that the project would negatively impact special-status animals or have any significant habitat loss for special-status animal species.

## 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.

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 that 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: Northern Vernal Pool, Serpentine Bunchgrass, Valley Needlegrass Grassland and Wildflower Grassland. 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.

The CDFW CNDDB search shows Serpentine Bunchgrass within the region of the project site. There was no Serpentine Bunchgrass associated with the project footprint or on the property.

**Stream Analysis**

Drainage from Block B is by sheet flow into an ephemeral drainage along the southern property line, and Block A drains by sheet flow into Sarco Creek which is a tributariy of 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.

The ephemeral drainage on the southern property line is approximately two feet wide and one foot deep with no riparian vegetation. This drainage would only contain water during storm events, and therefore would be classified as a Class III drainage.

Sarco Creek contains a riparian corridor of mainly Live Oaks with little understory. This drainage contains a gravel bottom with banks greater that four feet. Sarco Creek along the northern and western property line would be considered a Napa County Defined Drainage. This drainage would be classified as a Class II drainage.

# D. POTENTIAL BIOLOGICAL IMPACTS

The project's effect on 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

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.

Our fieldwork did not find any habitat for 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. The present conditions of the project sites and historic 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.

The property and project site conditions are such that there is no reason to expect any impacts to other special-status species 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

**Native Grassland**

The grassland within the footprint of the project does not consist of any of the sensitive grassland communities listed by the County Baseline Data Report or CDFW. Grasslands 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** 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. No seasonal wetlands were identified on the project site.

**Waters of the U.S. and "Waters of the State"** include drainages which are characterized by the presence of definable bed and bank that meet CDFW, ACOE, and RWQCB definitions and or jurisdiction. Any direct discharge of storm water into "Waters of the State" will require ACOE, CDFW, and RWQCB permits. The Class III drainages on the property would considered to be Waters of the U.S and "Waters of the State." There are no drainages or creeks within the project footprint.

**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. Sarco Creek contains riparian vegetation. Review of old aerial photos indicates that the existing vineyard did not remove any riparian vegetation . The project will not impact or remove any riparian vegetation.

Sarco Creek and its associated riparian vegetation is considered Sensitive Habitat on the property. No riparian vegetation was removed with the existing Block A.

**Trees** The project will remove several non-native Black Walnuts. On Live Oak was removed within proposed Block B prior to the new owner acquiring the property.

**Wildlife Habitat and Wildlife Corridors** are natural areas interspersed with developed areas 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. 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. The property is surrounded by urban development. There are no identifiable wildlife corridors within the proposed vineyard. Sarco Creek contains a Riparian Corridor that functions as a wildlife corridor.

**Raptor Nests, Bird Rookeries, Bat Roosts, Wildlife Dens or Burrows**
No bird rookeries or raptor nests were present on the property or within the project footprint.

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 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 or property.

**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. The project will not result in significant habitat fragmentation.

## D.3 Potential Off-site Impacts of the Project

The project has the potential to impact aquatic species downstream by sediment loss. There are no expected significant impacts to off-site or local biological resources by the proposed project provided Recommendations in this report, Standard Erosion Control and Best Management Practices are implemented during the 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 that 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 project will reduce the area available to deer in the area. The loss of habitat is considered to be less than significant.

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 and native oaks. The impact to local wildlife will be undetectable on a regional scale.

Water extraction linked to agricultural development (direct stream diversions) may have a negative impact on listed salmonids. 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.

## D.5 State and Federal Permit

Any impact to the drainages on the property 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.

# 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 off-site 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 SWPPP requirements to ensure that best management practices are adopted in order to minimize the amount of sediment and other pollutants leaving the site during construction activities.

Site development has the potential to impact biological resources without appropriate avoidance and protection measures. Biological resources present include an ephemeral drainage, and Riparian Corridor of Sarco Creek.

*Recommendation 1.1. All project construction activities must be limited to the project footprint. Best Management Practices including silt and erosion control measures must be implemented to protect off-site movement of sediment and dust during and post construction. The erosion control plan for the vineyard must be implemented.*

*Recommendation 1.2. The proposed vineyard must avoid and setbacks from the unnamed seasonal drainages and Sarco Creek be implemented as per Napa County. All project construction activities must be limited to the project footprint.*

*Recommendation 1.3. Fencing or flagging should be installed along the edge of the 35-ft drainage setback (Block B) prior to ground disturbing activities to ensure the drainage are not impacted during construction activities.*

*Recommendation 1.4. Any new deer fencing should be designed with exit gates. 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.*

*Recommendation 1.5. 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.

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 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 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.

Existing Vineyard Block A was planted within the current stream setback requirements by Napa County.

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

We conclude that the proposed project with the implementation of standard construction practices avoidance of the drainages, and implementing setbacks from drainages will not result in any significant adverse biological impacts to the environment.

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## 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, CDFW Habitat Assessments, CDFW 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 CDFW 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 twenty years of experience in conducting Biological Assessments, CDFW 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, Laguna Foundation & The Wildlife Project Rare Pond Species Survey Techniques 2009, and Western Section Bat Workshop 2011. A full resume is available upon request.

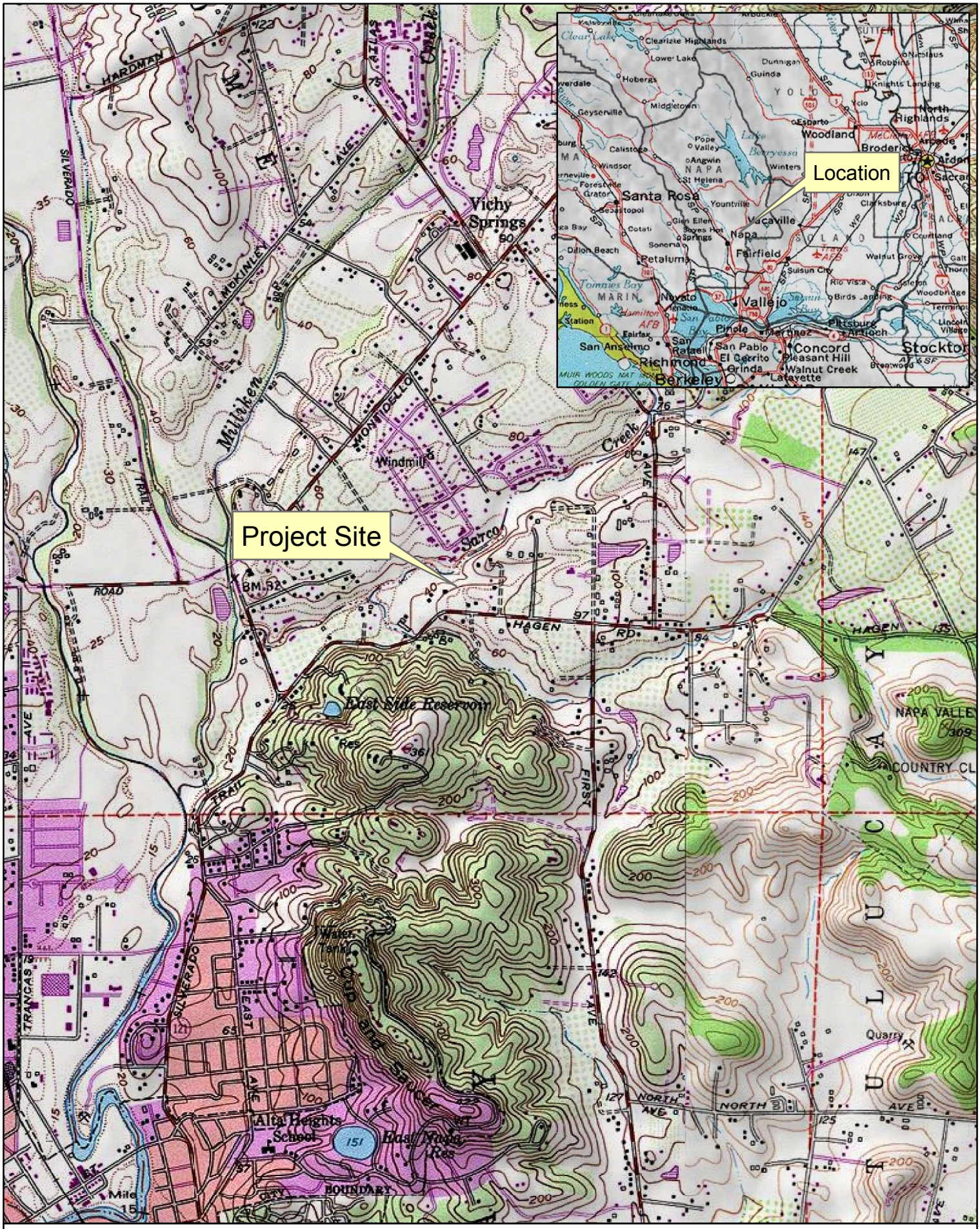


**Plate I. Location and Site Map** (Napa Quadrangle)

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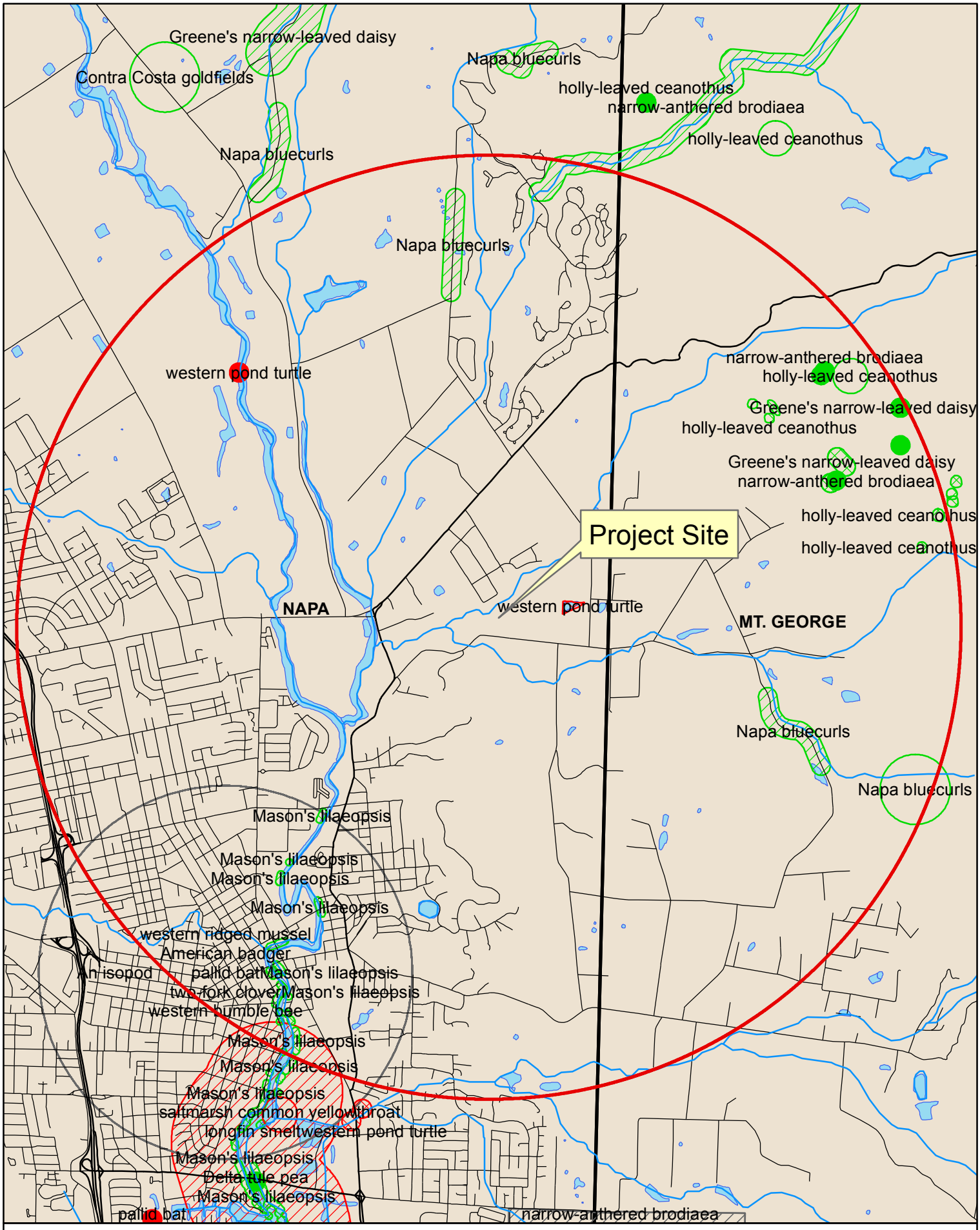


**Plate II. CDFW CNDDB Rare Find Data**

**(Data Date May 2021)**

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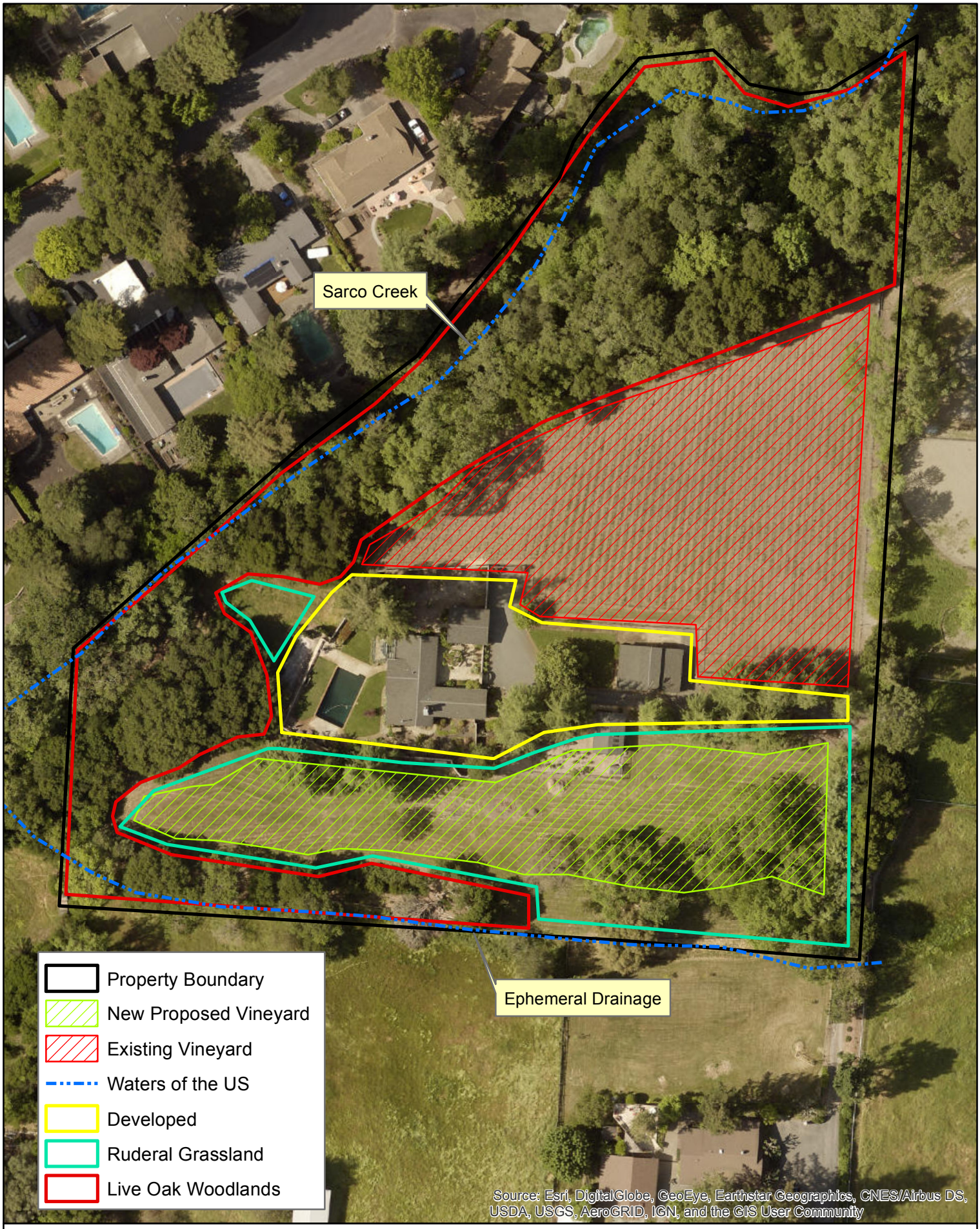


**Plate III. Aerial Photo/ Vegetation Map** **(Photo Date 2019)** 1 inch = 92 feet

N

# APPENDIX A

## Plants and Animals Observed On or Around Project Site

**PLANTS**

The nomenclature for the list of plants found on the project site and the immediate vicinity follows: Irwin M. Brodo, Sylvia Duran Sharnoff and Stephen Sharnoff, 2001, for the lichens; S Norris and Shevrock - 2004, for the mosses; and B.G. Baldwin, D.H. Goldman, D.J. Keil, R. Patterson, T.J.Rosati, and D.H.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**<br>**Family**<br>**Genus**<br>**Common Name** | **Habitat Type** | **Abundance** |
|---|---|---|

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

| | | |
|---|---|---|
| **FUNGI** | | |
| **Basidiomycota- Club Fungi** | | |
| COPRINACEAE | | |
| *Coprinellus micaceus* (Bull) Vilgalys Hopple&Johnson<br>Mica Cap *(=Coprinus micaceus)* | OnWood | Common |
| *Leratiomyces ceres* (=*Stropharia riparia)*<br>NCN | Ruderal, Wood Chips | Occasional |
| POLYPORACEAE | | |
| *Schizophyllum commune* Fr.<br>Split-gill | Woodlands on Dead Wood | Common |
| **MOSSES** | | |
| BRACHYTHECIACEAE | | |
| *Scleropodium touretii* (Brid.) L Koch.<br>NCN | Woodlands | Common |
| ORTHOTRICHACEAE | | |
| *Orthotrichum lyellii* Hook & Tayl.<br>NCN | Woodlands, Upper Canopy | Common |
| **LICHENS** | | |
| FOLIOSE | | |
| *Flavoparmelia caperata* (L.) Hale<br>Common<br>Common Green Shield | On Oaks | |

| MAJOR PLANT GROUP<br>Family<br>Genus<br>Common Name | Habitat Type | Abundance |
|---|---|---|

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

| | | |
|---|---|---|
| *Flavopunctilia flaventor* (Stirt.) Hale<br>Common Speckled Green Shield | On Oaks, Occasional on Rocks | |
| *Parmelia sulcata* Taylor<br>Hamered Shield Lichen | On Bark | Common |
| *Physcia aipoila* (Ehrh. ex Humb.) Fürnr.<br>NCN | On Oaks | Common |
| *Xanthoria polycarpa* (Hoffm.) Rieber<br>Pin-cushion Sunburst Lichen | On Oaks Young Twigs | Common |
| FRUTICOSE | | |
| *Evernia prunastri* (L.) Ach.<br>NCN | On Oaks | Common |
| *Ramalina farinacea* (L.) Ach.<br>NCN | On Oaks | Common |
| *Ramalina menziesii* Taylor non Tuck.<br>Lace Lichen, Old Man's Beard | On Oaks | Common |
| *Teloschistes chrysophthalmus* (L.) Th. Fr.<br>NCN | On Oaks | Common |
| *Usnea intermedia=U. arizonica*<br>Western Bushy Beard | On Oaks | Common |

**VASCULAR PLANTS DIVISION CONIFEROPHYTA--GYMNOSPERMS**

| | | |
|---|---|---|
| PINACEAE | | |
| **Cedrus deodara* Loud.<br>Deodora Cedar | Domestic Introduction | Occasional |
| **Pinus radiata* D.Don<br>Monterey Pine | Domestic Introduction | Occasional |
| TAXODIACEAE | | |
| *Sequoia sempervirens* (D.Don) Endl.<br>Redwood | Planted | Common |

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

| | | |
|---|---|---|
| EUDICOTS | | |
| FAGACEAE Oak Family | | |
| *Quercus agrifolia* Nee<br>Live Oak | Woodlands | Common |
| **Quercus suber* L.<br>Cork Oak | Ruderal, Cultivated | Occasional |

| **MAJOR PLANT GROUP**<br>**Family**<br>**Genus**<br>**Common Name** | **Habitat Type** | **Abundance** |
|---|---|---|

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

| | | |
|---|---|---|
| JUGLANDACEAE Walnut Family | | |
| **Juglans nigra* L.<br>Black Walnut | Ruderal Escape | Common |
| **Juglans regia* L.<br>English Walnut | Ruderal | Common |
| OLEACEAE Olive Family | | |
| **Ligustrum* ssp.<br>Privet | Domestic Ruderal | Occasional |
| **VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS CLASS--DICOTYLEDONAE-SHRUBS AND WOODY VINES** | | |
| EUDICOTS | | |
| ADOXACEAE Muskroot Family | | |
| ANACARDIACEAE Sumac Family | | |
| *Toxicodendron diversilobum* (Torry&Gray) E.Green<br>Poison Oak | Woodlands | Common |
| CUCURBITACEAE Gourd Family | | |
| *Marah oregana* (S.Watrson) Howell<br>Wild Cucumber, Man-root | Grassland, Edge of Woodlands | Occasional |
| ROSACEAE Rose Family | | |
| **Rubus armeniacus* Focke<br>Himalayan Blackberry | Ruderal | Common |
| **VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS CLASS--DICOTYLEDONAE-HERBS** | | |
| EUDICOTS | | |
| APIACEAE (Umbelliferae) Carrot Family | | |
| **Dacus carota* L.<br>Wild Carrot, Queen Anne's Lace | Ruderal Grasslands | Common |
| **Torilis arvensis* (Huds.) Link<br>Hedge-parsley | Grasslands Woodlands | Common |
| ASTERACEAE (Compositae) Sunflower Family | | |
| **Calendula arvensis* L.<br>Field Marigold | Ruderal | Occasional |
| **Carduus pycnocephalus* L.subsp.*pycnocephalus*<br>Italian Thistle | Woodlands | Common |
| **Circium vulgare* (Savi) Ten.<br>Bull Thistle | Grasslands, Ruderal | Common |
| **Senecio vulgaris* L.<br>NCN | Ruderal | Occasional |

**MAJOR PLANT GROUP**

| **Family**<br>**Genus**<br>**Common Name** | **Habitat Type** | **Abundance** |
|---|---|---|
| **NCN = No Common Name, * = Non-native, @= Voucher Specimen** | | |
| BRASSICACEAE Mustard Family | | |
| **Raphanus sativus* L.<br>Wild Radish | Ruderal | Common |
| CARYOPHYLLACEAE Pink Family | | |
| **Cerastium fontanum* Baumg. subsp.*vulgare*<br>Mouse-ear-chickweed | Ruderal | Common |
| FABACEAE (Leguminosae) Legume Family | | |
| **Lathyrus cicera* L. | Ruderal, Open Grassland | Occasional |
| **Medicago polymorpha* L.<br>Bur Clover | Ruderal, Grasslands | Common |
| **Trifolium hirtum* All.<br>Rose Clover | Ruderal | Common |
| **Vicia faba* L.<br>Broad Bean, Faba Bean | Ruderal | Common |
| **Vicia sativa* L. subsp. *nigra*<br>Narrow Leaved-vetch | Grasslands, Ruderal | Common |
| GERANIACEAE Geranium Family | | |
| **Erodium botrys* (Cav.) Bertol.<br>Broadleaf Filaree, Long-beaked Filaree | Grasslands | Common |
| **Geranium dissectum* L.<br>Common Geranium | Grasslands | Common |
| LAMIACEAE (Labiatae) Mint Family | | |
| **Lamium purpureum* L.<br>Red Dead Nettle | Ruderal. Palustrine | Common |
| **Marrubium vulgare* L.<br>Horehound | Ruderal | Occasional |
| MALVACEAE Mallow Family | | |
| **Malva parviflora* L.<br>Cheeseweed, Mallow | Ruderal | Common |
| MONTIACEAE Miner's lettuce Family | | |
| *Calandrinia ciliata* Ruiz& Pav. DC.<br>Red Maids | Grasslands | Common |
| *Claytonia perfoliata*Willd. ssp. *perfoliata*<br>Miners Lettuce | Woodlands, Riparian | Common |
| ONAGRACEAE Evening-primrose Family | | |
| *Epilobium ciliatum* Raf. Subsp. *ciliatum*<br>Northern Willow Herb | Ruderal | Common |
| PLANTAGINACEAE Plantain Family | | |
| **Kickxia spuria* (L.) Dumort.<br>Fluellin | Ruderal | Occasional |

| **MAJOR PLANT GROUP**<br>**Family**<br>**Genus**<br>**Common Name** | **Habitat Type** | **Abundance** |
|---|---|---|

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

| | | |
|---|---|---|
| **Plantago lanceolata* L.<br>English Plantain | Ruderal | Common |
| POLYGONACEAE Buckwheat Family | | |
| **Rumex crispus* L.<br>Curly Dock | Ruderal | Common |
| RUBIACEAE Madder Family | | |
| *Galium aparine* L.<br>Goose Grass | Woodlands, Riparian, Ruderal | Common |

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

| | | |
|---|---|---|
| POACEAE Grass Family | | |
| **Avena barbata* Link.<br>Slender Wild Oat | Grasslands | Common |
| **Bromus diandrus* Roth<br>Ripgut Grass | Ruderal, Grasslands | Common |
| **Festuca perennis* (L.) Columubus & Sm.<br>Perennial Rye Grass (=*Lolium multiflorum, L. perenne)* | Grasslands | Common |
| **Hordeum murinum* Huds. subsp. *leporinum*<br>Farmers Foxtail | Grasslands | Common |
| **Hordeum vulgare* L.<br>Barley | Grasslands | Common |
| **Phalaris arundinacea* L.<br>Reed Canary Grass | Grasslands | Occasional |

## 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** |
| **SQUAMATA** | | |
| Western Fence Lizard | *Sceloporus occidentalis* | X |

| **AVES** | | |
|---|---|---|
| **ORDER** | | |
| **Common Name** | **Genus** | **Observed** |
| **AVES** | | |
| Common Crow | *Corvus brachyrhynchos* | X |
| **RODENTIA** | | |
| Pocket Gopher | *Thomomys bottae* | Sight |

# APPENDIX B

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

## CDFW CNDDB Rare Find Special-status Species Listed for the Quadrangle and Surrounding Quadrangles

## U.S. Fish and Wildlife Service Listed Species for the Quadrangle

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

## Plant List

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

**Search Criteria**

Found in Quads 3812244, 3812243, 3812242, 3812234, 3812233, 3812232, 3812224, 3812223 and 3812222; 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 |
| Allium peninsulare var. franciscanum | Franciscan onion | Alliaceae | perennial bulbiferous herb | (Apr)May-Jun | 1B.2 | S2 | G5T2 |
| Amsinckia lunaris | bent-flowered fiddleneck | Boraginaceae | annual herb | Mar-Jun | 1B.2 | S3 | G3 |
| Astragalus claranus | Clara Hunt's milk-vetch | Fabaceae | annual herb | Mar-May | 1B.1 | S1 | G1 |
| Astragalus tener var. tener | alkali milk-vetch | Fabaceae | annual herb | Mar-Jun | 1B.2 | S1 | G2T1 |
| Balsamorhiza macrolepis | big-scale balsamroot | Asteraceae | perennial herb | Mar-Jun | 1B.2 | S2 | G2 |
| Blennosperma bakeri | Sonoma sunshine | Asteraceae | annual herb | Mar-May | 1B.1 | S1 | G1 |
| 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 |
| Calycadenia micrantha | small-flowered calycadenia | Asteraceae | annual herb | Jun-Sep | 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 | S3S4 | G4T4 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 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 |
| 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 |
| 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 |
| Hemizonia congesta ssp. congesta | congested-headed hayfield tarplant | Asteraceae | annual herb | Apr-Nov | 1B.2 | S2 | G5T2 |
| Hesperolinon breweri | Brewer's western flax | Linaceae | annual herb | May-Jul | 1B.2 | S2 | G2 |
| Horkelia tenuiloba | thin-lobed horkelia | Rosaceae | perennial herb | May-Jul (Aug) | 1B.2 | S2 | G2 |
| Lasthenia conjugens | Contra Costa goldfields | Asteraceae | annual herb | Mar-Jun | 1B.1 | S1 | G1 |
| Leptosiphon acicularis | bristly leptosiphon | Polemoniaceae | annual herb | Apr-Jul | 4.2 | S4? | G4? |
| Leptosiphon jepsonii | Jepson's leptosiphon | Polemoniaceae | annual herb | Mar-May | 1B.2 | S2S3 | G2G3 |
| Lessingia hololeuca | woolly-headed lessingia | Asteraceae | annual herb | Jun-Oct | 3 | S2S3 | G3? |
| Limnanthes vinculans | Sebastopol meadowfoam | Limnanthaceae | annual herb | Apr-May | 1B.1 | S1 | G1 |
| Micropus amphibolus | Mt. Diablo cottonweed | Asteraceae | annual herb | Mar-May | 3.2 | S3S4 | G3G4 |
| Ranunculus lobbii | Lobb's aquatic buttercup | Ranunculaceae | annual herb (aquatic) | Feb-May | 4.2 | S3 | G4 |
| Sidalcea keckii | Keck's checkerbloom | Malvaceae | annual herb | Apr-May (Jun) | 1B.1 | S2 | G2 |
| 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. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 27 May 2021].

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California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

**Questions and Comments**
rareplants@cnps.org

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

**Query Summary:**
Quad IS (Rutherford (3812244) OR Yountville (3812243) OR Sonoma (3812234) OR Napa (3812233) OR Mt. George (3812232) OR Sears Point (3812224) OR Cuttings Wharf (3812223) OR Cordelia (3812222) OR Capell Valley (3812242))
AND Habitat IS (Valley & foothill grassland)

**CNDDB Element Query Results**

| Scientific Name | Common Name | Federal Status | State Status | State Rank | CA Rare Plant Rank | Habitats |
|---|---|---|---|---|---|---|
| Adela oplerella | Opler's longhorn moth | None | None | S2 | null | Ultramafic, Valley & foothill grassland |
| Agrostis hendersonii | Henderson's bent grass | None | None | S2 | 3.2 | Valley & foothill grassland, Vernal pool, Wetland |
| Allium peninsulare var. franciscanum | Franciscan onion | None | None | S2 | 1B.2 | Cismontane woodland, Ultramafic, Valley & foothill grassland |
| Amsinckia lunaris | bent-flowered fiddleneck | None | None | S3 | 1B.2 | Cismontane woodland, Coastal bluff scrub, Valley & foothill grassland |
| Antrozous pallidus | pallid bat | None | None | S3 | null | 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 | S3 | null | 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 |
| Astragalus claranus | Clara Hunt's milk-vetch | Endangered | Threatened | S1 | 1B.1 | Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland |
| Astragalus tener var. tener | alkali milk-vetch | None | None | S1 | 1B.2 | Alkali playa, Valley & foothill grassland, Vernal pool, Wetland |

| | | | | | | |
|---|---|---|---|---|---|---|
| Athene cunicularia | burrowing owl | None | None | S3 | null | Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland |
| Balsamorhiza macrolepis | big-scale balsamroot | None | None | S2 | 1B.2 | Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland |
| Blennosperma bakeri | Sonoma sunshine | Endangered | Endangered | S1 | 1B.1 | Valley & foothill grassland, Vernal pool, Wetland |
| Branchinecta lynchi | vernal pool fairy shrimp | Threatened | None | S3 | null | Valley & foothill grassland, Vernal pool, Wetland |
| Brodiaea leptandra | narrow-anthered brodiaea | None | None | S3? | 1B.2 | Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley & foothill grassland |
| Buteo regalis | ferruginous hawk | None | None | S3S4 | null | Great Basin grassland, Great Basin scrub, Pinon & juniper woodlands, Valley & foothill grassland |
| Buteo swainsoni | Swainson's hawk | None | Threatened | S3 | null | Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland |
| Castilleja affinis var. neglecta | Tiburon paintbrush | Endangered | Threatened | S1S2 | 1B.2 | Ultramafic, Valley & foothill grassland |
| Centromadia parryi ssp. parryi | pappose tarplant | None | None | S2 | 1B.2 | Chaparral, Coastal prairie, Marsh & swamp, Meadow & seep, Valley & foothill grassland |
| Circus hudsonius | northern harrier | None | None | S3 | null | Coastal scrub, Great Basin grassland, Marsh & swamp, Riparian scrub, Valley & foothill grassland, Wetland |
| Downingia pusilla | dwarf downingia | None | None | S2 | 2B.2 | Valley & foothill grassland, Vernal pool, Wetland |
| Elanus leucurus | white-tailed kite | None | None | S3S4 | null | Cismontane woodland, Marsh & swamp, Riparian woodland, Valley & foothill grassland, Wetland |
| Eryngium jepsonii | Jepson's coyote-thistle | None | None | S2 | 1B.2 | Valley & foothill grassland, Vernal pool |
| Extriplex joaquinana | San Joaquin spearscale | None | None | S2 | 1B.2 | Alkali playa, Chenopod scrub, Meadow & seep, Valley & foothill grassland |

| | | | | | | |
|---|---|---|---|---|---|---|
| Hemizonia congesta ssp. congesta | congested-headed hayfield tarplant | None | None | S2 | 1B.2 | Valley & foothill grassland |
| Hesperolinon breweri | Brewer's western flax | None | None | S2 | 1B.2 | Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland |
| Horkelia tenuiloba | thin-lobed horkelia | None | None | S2 | 1B.2 | Broadleaved upland forest, Chaparral, Valley & foothill grassland |
| Isocoma arguta | Carquinez goldenbush | None | None | S1 | 1B.1 | Valley & foothill grassland |
| Lasthenia conjugens | Contra Costa goldfields | Endangered | None | S1 | 1B.1 | Alkali playa, Cismontane woodland, Valley & foothill grassland, Vernal pool, Wetland |
| Leptosiphon jepsonii | Jepson's leptosiphon | None | None | S2S3 | 1B.2 | Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland |
| Limnanthes vinculans | Sebastopol meadowfoam | Endangered | Endangered | S1 | 1B.1 | Meadow & seep, Valley & foothill grassland, Vernal pool, Wetland |
| Serpentine Bunchgrass | Serpentine Bunchgrass | None | None | S2.2 | null | Valley & foothill grassland |
| Sidalcea keckii | Keck's checkerbloom | Endangered | None | S2 | 1B.1 | Cismontane woodland, Ultramafic, Valley & foothill grassland |
| Speyeria zerene sonomensis | Sonoma zerene fritillary | None | None | S1 | null | Valley & foothill grassland |
| Taxidea taxus | American badger | None | None | S3 | null | Lower montane coniferous forest, Riparian woodland, Salt marshValley & foothill grassland |
| Trichostema ruygtii | Napa bluecurls | None | None | S1S2 | 1B.2 | Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley & foothill grassland, Vernal pool, Wetland |
| Trifolium amoenum | two-fork clover | Endangered | None | S1 | 1B.1 | Coastal bluff scrub, Ultramafic, Valley & foothill grassland |
| Trifolium hydrophilum | saline clover | None | None | S2 | 1B.2 | Marsh & swamp, Valley & foothill grassland, Vernal pool, Wetland |

**IPaC** Information for Planning and Consultation **U.S. Fish & Wildlife Service**

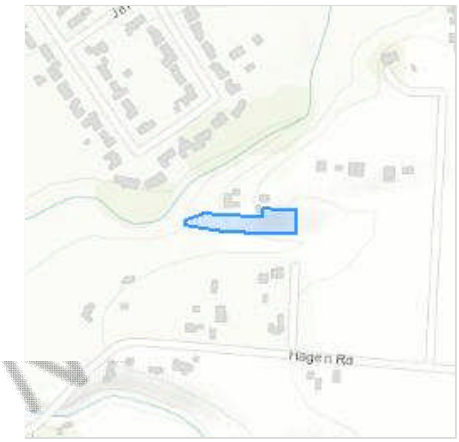
# IPaC resource list

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] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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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. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

# Mammals

| NAME | STATUS |
|---|---|
| Salt Marsh Harvest Mouse Reithrodontomys raviventris<br>Wherever found<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/613 | Endangered |

# Birds

| NAME | STATUS |
|---|---|
| California Least Tern Sterna antillarum browni<br>Wherever found<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/8104 | Endangered |
| Northern Spotted Owl Strix occidentalis caurina<br>Wherever found<br>There is **final** critical habitat for this species. The location of the critical habitat is not available.<br>https://ecos.fws.gov/ecp/species/1123 | Threatened |

# Amphibians

| NAME | STATUS |
|---|---|
| California Red-legged Frog Rana draytonii<br>Wherever found<br>There is **final** critical habitat for this species. The location of the critical habitat is not available.<br>https://ecos.fws.gov/ecp/species/2891 | Threatened |

# Fishes

| NAME | STATUS |
|---|---|
| Delta Smelt Hypomesus transpacificus<br>Wherever found<br>There is **final** critical habitat for this species. The location of the critical habitat is not available.<br>https://ecos.fws.gov/ecp/species/321 | Threatened |

# Crustaceans

| NAME | STATUS |
|---|---|
| California Freshwater Shrimp Syncaris pacifica<br>Wherever found<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/7903 | Endangered |

| NAME | STATUS |
|---|---|
| Conservancy Fairy Shrimp Branchinecta conservatio<br>Wherever found<br>There is **final** critical habitat for this species. The location of the critical habitat is not available.<br>https://ecos.fws.gov/ecp/species/8246 | Endangered |

# Flowering Plants

| NAME | STATUS |
|---|---|
| Contra Costa Goldfields Lasthenia conjugens<br>Wherever found<br>There is **final** critical habitat for this species. The location of the critical habitat is not available.<br>https://ecos.fws.gov/ecp/species/7058 | Endangered |
| Showy Indian Clover Trifolium amoenum<br>Wherever found<br>No critical habitat has been designated for this species.<br>https://ecos.fws.gov/ecp/species/6459 | Endangered |

# Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

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

- Measures for avoiding and minimizing impacts to birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds
  http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.) |
|---|---|
| Allen's Hummingbird Selasphorus sasin<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9637 | Breeds Feb 1 to Jul 15 |
| Bald Eagle Haliaeetus leucocephalus<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1626 | Breeds Jan 1 to Aug 31 |

Common Yellowthroat Geothlypis trichas sinuosa
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084
Breeds May 20 to Jul 31

Golden Eagle Aquila chrysaetos
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680
Breeds Jan 1 to Aug 31

Nuttall's Woodpecker Picoides nuttallii
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410
Breeds Apr 1 to Jul 20

Oak Titmouse Baeolophus inornatus
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656
Breeds Mar 15 to Jul 15

Rufous Hummingbird selasphorus rufus
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002
Breeds elsewhere

Song Sparrow Melospiza melodia
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
Breeds Feb 20 to Sep 5

Spotted Towhee Pipilo maculatus clementae
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/4243
Breeds Apr 15 to Jul 20

Wrentit Chamaea fasciata
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
Breeds Mar 15 to Aug 10

# Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence (■)**

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

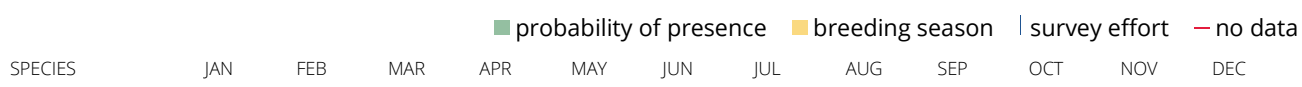
**Breeding Season (■)**
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort (|)**
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data (–)**
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

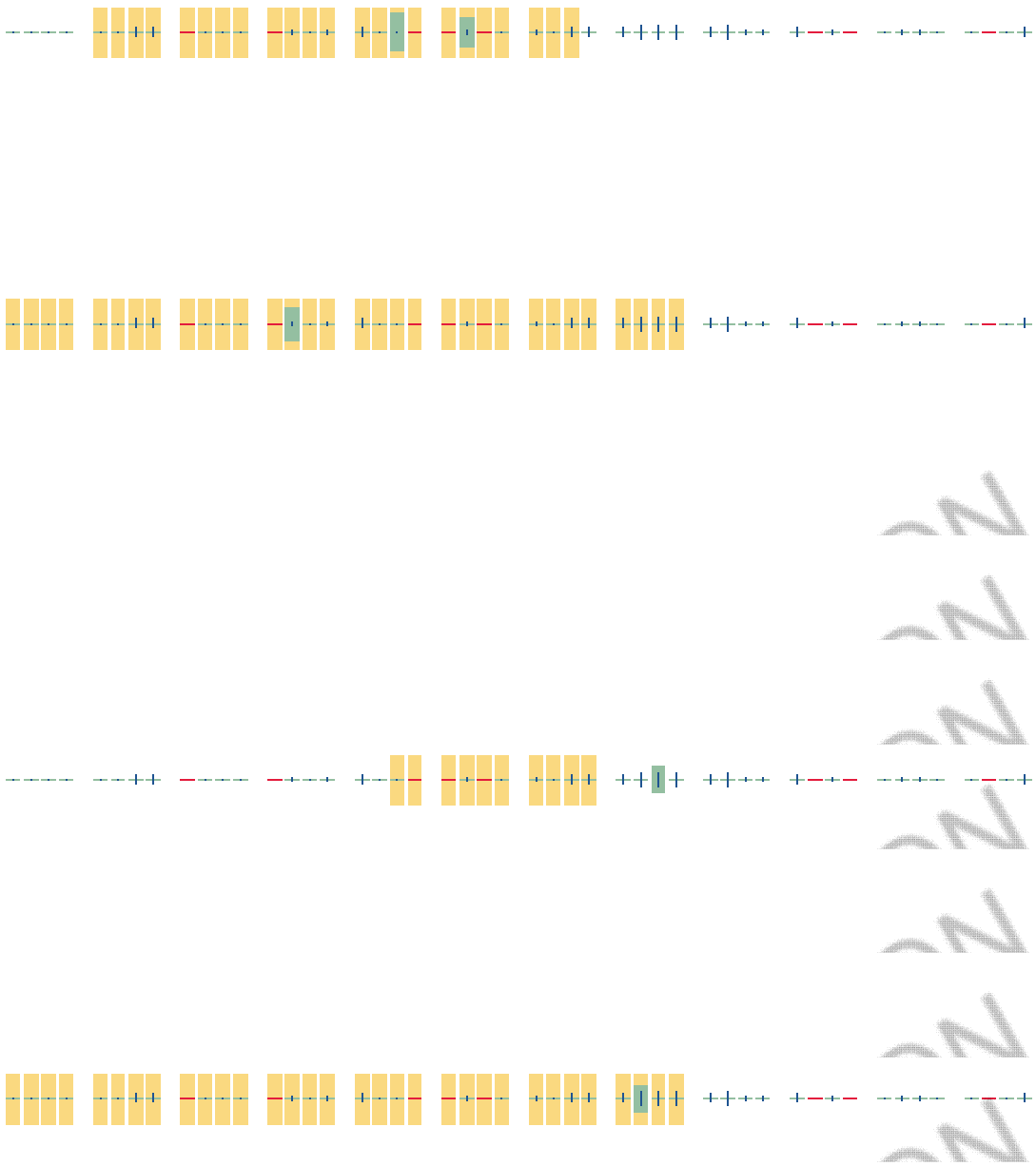


Allen's Hummingbird BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

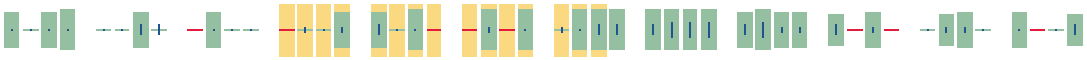
Bald Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Common Yellowthroat BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

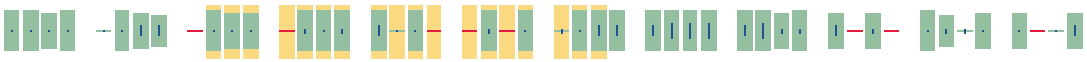
Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Nuttall's Woodpecker BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

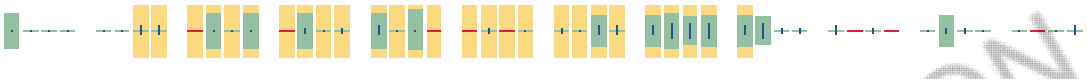


Oak Titmouse BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rufous Hummingbird BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Song Sparrow BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Spotted Towhee BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Wrentit BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and

3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

**Details about birds that are potentially affected by offshore projects**

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 NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

**What if I have eagles on my list?**

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

**Proper Interpretation and Use of Your Migratory Bird Report**

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

# Facilities

## National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS 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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBCx

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

**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.