JACOBSZOON & ASSOCIATES, INC.

natural resource planning & management

BIOLOGICAL RESOURCES ASSESSMENT

Prepared For:

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APN: 011-015-160-000

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Section 1.0: Introduction

This report is intended to summarize the background, methods of survey, and results of a biological site assessment conducted on 8845 Red Hills Road, Kelseyville, CA 95458 (above referenced APN, Appendix D: Figures 1-3) for the purpose of performing a lot line adjustment. This report includes the following:

- Regulations and Project Description (Section 2)
- Study Area Setting (Section 3)
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Section 2.0: Regulations and Project Description

2.1 Regulatory Setting

In addition to the requirements of Lake County's Ordinance, the proposed project shall comply with Federal, State, and local regulations designed to protect sensitive natural resources. One (1) biological assessment was conducted to assess biotic resources within the Study Area. No watercourses or sensitive habitats were identified within the Study Area (Appendix D: Figures 1, 2). The following natural resources are protected under one or more of several Federal and/or State regulations and should be considered when designing and/or implementing the Proposed Project within the Study Area:

Essential Fish Habitat: protected through changes to the Magnuson-Stevens Fishery Conservation and Management Act to maintain sustainable fisheries in the United States, administered by National Marine Fisheries Service (NMFS):

- Includes habitats (rivers, creeks, estuaries) that may support anadromous fish (fish migrating from ocean habitat into freshwater river habitat), as well as commercially and/or ecologically valuable fishes

Sensitive Natural Communities: protected under the California Fish and Game Code (CFGC), administered by California Department of Fish and Wildlife (CDFW):

- Includes terrestrial vegetation or plant communities that are ranked by NatureServe and considered "threatened" or "endangered" by CDFW, lists of such are included in *List of Vegetation Alliances and Associations* (CDFW 2010)

Special-status Plant and Wildlife Species including Critical Habitat: protected under one or more of the Federal Endangered Species Act (ESA), California Endangered Species Act (CESA), California Environmental Quality Act (CEQA), administered by the U.S. Fish and Wildlife Service (USFWS), and/or CDFW:

- Includes plants listed under the ESA and/or CESA, or those plants ranked by the California Native Plant Society (CNPS) as Rank 1, 2, 3 and 4.
- Includes wildlife listed under the ESA and/or CESA, and wildlife listed by CDFW as Species of Special Concern, Fully Protected Species, and/or Special-status including Invertebrates, Birds of Conservation Concern listed by USFWS, Species of Concern listed by National Marine Fisheries Service (NMFS), Western Bat Working Group (WBWG).

Streams, Lakes, and Riparian Habitat: protected under the California Fish and Game Code (CFGC), administered by the California Department of Fish and Wildlife (CDFW):

- Includes creeks and rivers (bodies where water flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life), and vegetation adjacent to and associated with (riparian habitat)

Waters of the State: protected under the Porter-Cologne Act, administered by the State Water Resources Control Board (SWRCB)

Waters of the U.S.: protected under the Clean Water Act (CWA), administered by the Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (Corps):

- Includes wetlands, streams, rivers, and other aquatic habitats meeting the guidance issued by the Corps.

2.2 Project Description

It is Jacobszoon and Associates, Inc. understanding that the proposed project includes the division of the aforementioned assessor's parcel boundary (APN).

Section 3.0: Study Area Setting

The following subsections summarize the physical and biological settings of the parcel and Study Area.

3.1 Topography and Soils

The parcel and Study Area are approximately 6.25 miles southeast of Kelseyville, CA, located within Section 5, Township 12N, Range 08W, Mount Diablo Base and Meridian, in the Kelseyville USGS 7.5 minute quadrangle. The parcel is located primarily within the Cole Creek (HUC-12 180201160302) watershed; however, a small portion of the property is also located in the Thurston Lake (HUC-12 180201160301) watershed. The parcel and Study Area are at a range of 2320 feet (707 meters) to 2400 feet (732 meters) elevation.

According to the United States Department of Agriculture, Natural Resources Conservation Service's *Web Soil Survey*, the Study Area is underlain by one (1) soil mapping unit: Glenview-Arrowhead complex, 5 to 15 percent slopes. The descriptions of the soil series are as follows (reference Appendix D: Figure 5):

Glenview-Arrowhead complex (Map Unit Symbol: 138): This series is comprised of a combination of Glenview and Arrowhead soils series. The unit is approximately 60 percent Glenview very gravelly loam and 20 percent Arrowhead extremely gravelly sandy loam. Included are small areas of soils similar to the Glenview soil but have 35 to 70 percent obsidian cobbles and stones throughout the profile. Included areas make up about 20 percent of the total acreage. This unit is used mainly for orchards, wildlife habitat, and production of timber, typically Ponderosa pine (*Pinus ponderosa*). Elevation is 1,500 to 3,000 feet.

- Glenview series consists of very deep, well drained soils formed in material derived from obsidian and pyroclastic materials. Slope is 2 to 50 percent.
- Arrowhead series consists of moderately deep, well drained soils formed in material weathered from obsidian. Slope is 5 to 50 percent.

Glenview:

Ap1--0 to 1 inches; brown (7.5YR 5/4) very gravelly loam, dark brown (7.5YR 3/4) moist

Ap2--1 to 6 inches; brown (7.5YR 5/4) gravelly loam, dark brown (7.5YR 3/4) moist

BAt--6 to 15 inches; reddish yellow (5YR 6/6) clay loam, yellowish red (5YR 4/6) moist

Bt1--15 to 25 inches; reddish yellow (5YR 6/6) gravelly clay, yellowish red (5YR 4/6) moist

Bt2--25 to 40 inches; reddish yellow (5YR 6/6) gravelly clay, yellowish red (5YR 4/6) moist

Bt3--40 to 65 inches; reddish yellow (5YR 6/6) gravelly clay loam, yellowish red (5YR 5/6) moist

Arrowhead:

A1--0 to 1 inch; brown (10YR 5/3) extremely gravelly sandy loam, very dark grayish brown (10YR 3/2) moist

A2--1 to 4 inches; brown (10YR 5/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist

BAt--4 to 8 inches; brown (7.5YR 5/3) gravelly sandy loam, dark brown (7.5YR 4/3) moist

Bt1--8 to 14 inches; light brown (7.5YR 6/4) gravelly sandy clay loam, yellowish red (5YR 5/6) moist

Bt2--14 to 31 inches; reddish yellow (7.5YR 6/6) very stony clay, strong brown (7.5YR 5/6) moist

R--31 inches; hard, slightly weathered, fractured obsidian with soil filled fractures 5 to 40 mm wide and 80 to 400 mm apart.

3.2 Biota and Land Use

The dominant vegetation on the parcel was typical of Ponderosa pine – Douglas fir forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) and hoary, common, and Stanford manzanita chaparral (*Arctostaphylos* (*canescens, manzanita, stanfordiana*) – MCV2 Alliance). The parcel is used for domestic purposes and has one (1) currently occupied dwelling in a clearing at the ridge top along the northern parcel boundary. No watercourses, lakes, ponds, springs or other water bodies exist within the Study Area that might provide unique/rare aquatic habitats within the parcel.

For a complete list of all plant and wildlife species observed during the biological assessments see Appendix B: List of Species Observed. Section 5 provides a detailed account of the biological communities found on-site, including sensitive and non-sensitive biological communities and additionally the special-status flora and fauna with potential to occur within the Study Area.

Section 4.0: Field Survey Methodology

4.1 Assessment Methods

The biological resource assessment is designed to assess the potential for the presence of sensitive wildlife species and to determine whether habitat for sensitive plant species and plant communities may or may not be present. The purpose of this analysis is to assess the potential for cumulative impacts to biological resources that may occur as a result of the proposed project. The basis of the biological assessment analysis is a comparison of existing habitat conditions within the Study Area to the geographic range and habitat requirements of sensitive plant and wildlife species.

4.2 Database Resource Descriptions

The potential for occurrences of rare, threatened, endangered or plant and animal species of concern within or near the Study Area was evaluated by reviewing topographic maps, aerial photography, the California Native Plant Society's Rare Plant Rank (CRPR) electronic inventory (online edition, v8-03 0.45), the California Department of Fish and Wildlife California Natural Diversity Database (CNDDB) Spotted Owl Data Viewer, RareFind and Quick Viewer (online edition, v5.84.18vo). Lake County also maintains a mapped database of biological resources including special features such as wetland, vernal pool, aquatic, and riparian communities.

The CRPR database produces a list of sensitive plants potentially occurring at a site based on various site characteristics: location of the Study Area with regard to the geographic range of sensitive plant species, location(s) of known populations of sensitive plant species as mapped in the CNDDB, soils of the Study Area, elevation, presence/absence of special habitat features (vernal pools, serpentine/volcanic soils, etc.) and plant communities existing within the Study Area.

While use of the CRPR inventory does not eliminate the need for an in-season botanical survey, it can, when used in conjunction with other information, provide a very good indication of the suitability of a site as habitat for sensitive plant species. The CNDDB database consists of mapped overlays of all known populations of sensitive plants and wildlife. The database is continually updated with new sensitive species population data.

Rare, threatened, and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, is rare, threatened, and/or endangered under the following definitions:

> A species, subspecies, or variety of plant is **"endangered"** when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is **"threatened"** when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is **"rare"** when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its habitat continues to deteriorate.

Rare natural communities are those communities that are of highly limited distribution. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Database's List of California Terrestrial Natural Communities was used as a guide to the names and status of communities.

The rare plants (native, vascular and non-vascular) and animals assessed are of limited abundance in California, with known occurrence or distribution in Lake County, and were derived from the following lists:

- Federal listed or threatened or endangered plants or species of concern (FT, FE, FSC)
- California State listed or rare, threatened or endangered plants or species of concern (SR, ST, SE, SP, SSC)
- Board of Forestry Sensitive (BFS)
- California Department of Fish and Wildlife (CDFW) Status animals: Fully Protected, Species of Special Concern and Watch List (FP, SSC, WL)
- California Native Plant Society Rare Plant Rank (CRPR) list 1A species (plants presumed extirpated in California, and either rare or extinct elsewhere)
- California Native Plant Society Rare Plant Rank (CRPR) list 1B species (plants rare, threatened or endangered in California and elsewhere)
- California Native Plant Society Rare Plant Rank (CRPR) list 2A species (plants presumed extirpated in California but more common elsewhere)
- California Native Plant Society Rare Plant Rank (CRPR) list 2B species (plants rare, threatened, or endangered in California but more common elsewhere)
- California Native Plant Society Rare Plant Rank (CRPR) list 3 (plants which more information is needed- a review list)
- California Native Plant Society Rare Plant Rank (CRPR) list 4 (plants of limited distribution – a watch list)

4.3 Database Assessment Results

For the identification of species and habitats, a scoping was performed that extended to the nine (9) quads surrounding and including the Kelseyville 7.5-minute USGS Quadrangle. The distance is chosen to account for the possible distribution of animal and plant species and habitats. In addition, a 1.3-mile radius scoping area was completed for the identification of northern spotted owl (*Strix occidentalis caurina*, NSO) Activity Centers. No spotted owl territories (Activity Centers) are located within the 1.3-mile buffer.

Biological communities present within the Study Area were classified based on existing plant community descriptions described by Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986) or the Manual of California Vegetation, Online Edition (MCV2 Alliances, CNPS 2019b). In some cases, it may be necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations.

The currently accepted vegetation classification system for the state that is standardly used by CDFW, CNPS, and other state and federal agencies, organizations, and consultants for survey and planning purposes is the *Manual of California Vegetation* (MCV; Sawyer, Keeler-Wolf, and Evens 2009). Unlike Holland, this vegetation classification system is based on the standard National Vegetation Classification System (NVCS) and includes alliances (a floristically defined vegetation unit identified by its dominant and/or characteristic species) and associations (the finer level of classification beneath alliance).

Although the CNDDB still maintains records of some of the old Holland vegetation types, these types are no longer the accepted standard, and the CDFW Vegetation Classification and Mapping Program (VegCAMP) has published more recent vegetation lists for the state (October 2018) based on a standardized vegetation classification system that is currently being developed for California (and which is consistent with the MCV classification system). Global and state rarity rankings have been assigned for various types on the recent VegCAMP lists.

To characterize existing biological conditions and identify potential impacts to sensitive habitats resulting from implementation of the lot line adjustment, Jacobszoon & Associates Inc. biologist Aaron Unroe conducted a biological assessment of the Study Area on December 16, 2019, consisting of approximately two (2) hours. The Study Area was assessed to document: (1) the on-site plant communities, (2) existing conditions and their ability to provide suitable habitat for any special-status plant or wildlife species, and (3) if sensitive biological communities (e.g. wetlands, vernal pools) are present. Plant species observed during the site assessment were recorded and are listed in Appendix B.

Plants listed in Appendix B were identified using *The Jepson Manual: Vascular Plants of California 2nd Edition* (Baldwin et al. 2012) to the taxonomic level necessary to determine rarity. The names provided in this biological assessment report follow *The Jepson Flora Project* (JFP 2019).

4.4 Biological Communities

4.4.1 Non-sensitive Biological Communities

Non-sensitive biological communities are those communities that are not afforded special protection under CEQA, and other Federal, State, and local laws, regulations, and ordinances. These communities may, however, provide suitable habitat for some special-status plant or wildlife species, and are described in Section 5.1 below.

4.4.2 Sensitive Biological Communities

Sensitive biological communities are defined as those communities that may be afforded special consideration under CEQA and other applicable Federal, State, and local laws, regulations and ordinances. Applicable laws and ordinances are discussed above in Section 2.0. Special methods used to identify sensitive biological communities are discussed below.

Sensitive Natural Communities

In addition to surveying for the presence of sensitive aquatic resources (e.g. watercourses, vernal pools, etc.), Jacobszoon & Associates, Inc. biologist evaluated the Study Area for presence of sensitive terrestrial natural communities (e.g. coastal and valley freshwater marsh). Sources for assessing sensitive terrestrial or aquatic natural communities include *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), *List of Vegetation Alliances* (CDFW 2010), and *A Manual of California Vegetation* (CNPS 2019b).

4.5 Special-status Species

Prior to the site visit, databases (listed above) were accessed to determine whether special-status species (CNDDB) were documented within five (5) miles of the Study Area (Appendix D: Figure 4). During the site visit, existing habitat conditions were evaluated and used to assess the potential for presence of special-status species. The potential for each special-status species to occur in the Study Area was then evaluated according to the following criteria:

- No Potential. Habitat on and adjacent to the Study Area is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the Study Area is unsuitable or very poor quality. The species is not likely to be found on-site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the Study Area is unsuitable. The species has a moderate probability of being found on-site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the Study Area is highly suitable. The species has a high probability of being found on-site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDB) on-site recently.

The site assessment is intended to identify the presence or absence of suitable habitat for special-status species known to occur within the Study Area. The site visit does not constitute a full season protocol-level survey and is not intended to determine the actual presence or absence of a species. If a special-status species is observed during the site visit, its presence will be recorded and discussed. All plant and wildlife species observed were recorded and are included in Appendix B.

Critical habitat is a term defined by the ESA as a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. Federal agencies must also ensure that their activities or projects do not adversely modify critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard. However, areas that are currently unoccupied by the species, but which are needed for the species' recovery, are protected by the prohibition against adverse modification of critical habitat.

Section 5.0: Field Survey Results

5.1 Biological Communities

Biological communities within the Study Area includes primarily Ponderosa pine – Douglas fir forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) and some hoary, common, and Stanford manzanita chaparral (*Arctostaphylos* (*canescens, manzanita, stanfordiana*) – MCV2 Alliance). For classification purposes, *Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance is considered part of the lower montane coniferous forest (Holland 1986) classification. Additionally, the *Arctostaphylos* (*canescens, manzanita, stanfordiana*) – MCV2 Alliance is considered part of the chaparral (Holland 1986) classification. The dominant overstory canopy within the Study Area is primarily comprised of ponderosa pine (*Pinus ponderosa*), coast live oak (*Quercus agrifolia*) and California black oak (*Quercus kelloggii*); however, some Douglas-fir (*Pseudotsuga menziesii*) and Pacific madrone (*Arbutus menziesii*) are present. Minimal herbaceous layer is present within the Study Area.

5.1.1 Non-sensitive Biological Communities

Arctostaphylos (*canescens*, *manzanita*, *stanfordiana*) Shrubland – MCV2 Alliance, Northern mixed chaparral (Holland), Manzanita chaparral (CalVeg), Chaparral (Munz).

Arctostaphylos canescens, Arctostaphylos manzanita or *Arctostaphylos stanfordiana* is dominant or co-dominant in the shrub canopy with *Adenostoma fasciculatum, Arctostaphylos auriculate, Arctostaphylos glandulosa, Arctostaphylos viscida, Baccharis pilularis, Ceanothus* spp., *Eriodictyon californicum, Heteromeles arbutifolia, Lotus scorparius, Pickeringia montana* or *Quercus berberidifolia.* Emergent trees may be present at low cover, including *Pinus attenuata, Pseudotsuga menziesii, Quercus chrysolepis, Quercus douglasii* or *Quercus wislizeni.* Vegetation layers: Shrubs 1-5m; canopy is intermittent to continuous. Herbaceous layer is sparse to intermittent. Habitats: Mid to upper slopes and ridges in transitional settings between grassland and oak woodland or closed-cone coniferous forest or associated with extensive old growth chaparral. Soils are sandy to clayey loam, often derived from sandstone or volcanic. Membership rules: *Arctostaphylos canescens, A. manzanita* and/or *A. stanfordiana* dominant or co-dominant in the shrub canopy (Klein et al. 2015, Buck-Diaz et al. 2012). *Arctostaphylos canescens* dominant or co-dominant in the shrub canopy (Evens and Kentner 2006).

Pinus ponderosa – Pseudotsuga menziesii – MCV2 Alliance, *Pinus ponderosa – Pseudotsuga menziesii* forest alliance (NVCS (2009)), Mixed conifer-Pine (CalVeg), Yellow pine forest (Munz).

Pinus ponderosa and *Pseudotsuga menziesii* are co-dominant in the tree canopy with *Abies concolor, Arbutus menziesii, Calocedrus decurrens, Pinus jeffreyi, Pinus lambertiana, Quercus chrysolepis, Quercus garryana* and *Quercus kelloggii.* Vegetation layers: Trees < 75m; canopy is continuous or intermittent. Shrub layer is sparse or intermittent. Herbaceous layer is sparse. Habitats: Raised stream benches, terraces, slopes, and ridges of all aspects. Soils are deep and well drained. The USFWS Wetland Inventory (1996 national list) recognizes *Pinus ponderosa* and *Pseudotsuga menziesii* as FACU plants. Membership rules: *Pseudotsuga menziesii* and *Pinus ponderosa* both > 30% relative cover in the canopy (Bingham 1999).

5.1.2 Sensitive Biological Communities

Water is a limited resource in Lake County due to the Mediterranean climate and prolific usage, particularly in the summer months. As a result, creeks and streams which flow for more than a few months due to seasonal rains support riparian vegetation, and thereby contribute a unique habitat on the landscape. There are no watercourses within the Study Area.

5.2 Special-status Species

5.2.1 Special-status Plant Species

Upon review of the resource databases listed in Section 4.2, eighty-four (84) special-status plant species have been documented within the vicinity of the Study Area. Additionally, eight (8) terrestrial and aquatic communities have been recorded within the vicinity of the Study Area.

Please refer to Appendix A for a table of all special-status plant species and communities which occur within a nine-quad search surrounding the Study Area, as well as additional discussion of the potential for each species or community to occur within the Study Area. Special-status species (CNDDB) documented within five (5) miles of the Study Area are depicted (Appendix D: Figure 4). Of the eighty-four (84) special-status plant species within the vicinity, twenty-six (26) special-status plant species have a moderate to high potential to occur within the Study Area. Of the eight (8) terrestrial and aquatic communities, none were present and there is no potential for occurrence within the Study Area based on present habitat. The remaining fifty-eight (58) special-status plant species documented within the vicinity of the Study Area do not have the potential to occur due to one or more of the following reasons:

- Hydrologic conditions (e.g., vernal pools, riverine) necessary to support the special-status plant species are not present within the Study Area;
- Edaphic conditions (soils, e.g., rocky outcrops, serpentinite) necessary to support the special-status plant species are not present within the Study Area;
- Topographic conditions (e.g., montane) necessary to support the special-status plant species are not present within the Study Area;
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present within the Study Area;
- Associated vegetation communities (e.g., interior chaparral, tidal marsh) necessary to support the special-status plant species are not present within the Study Area;
- The Study Area are geographically isolated (e.g., outside of required elevations, coastal environment) from the documented range of the special-status plant species;
- Ecological conditions (last recorded observations, human-made or natural disturbance) have encroached on species to a point to cause presumed extinction.

The twenty-six (26) special-status plant species with potential to occur within the Study Area are described below.

dimorphic snapdragon (*Antirrhinum subcordatum*). Rare Plant Species Rank 4.3. Chaparral, lower montane coniferous forest, generally on serpentine or shale in foothill woodland or chaparral on south and west-facing slopes (ultramafic). *A. subcordatum* has a moderate serpentine affinity[1] (4.3, broad endemic/strong indicator). Elevation ranges from 607 to 2625 feet (185 to 800 meters). An annual herb, the blooming period is from Apr-Jul.

twig-like snapdragon (*Antirrhinum virga*). Rare Plant Species Rank 4.3. Chaparral, lower montane coniferous forest, rocky openings, often on serpentine. *A. virga* has a minor serpentine affinity (2.8, strong indicator). Elevation ranges from 328 to 6611 feet (100 to 2015 meters). A perennial herb, the blooming period is from Jun-Jul.

[1] Reference Serpentine Affinity Chart (CalFlora https://www.calflora.org/dbfields.html#um_affinity)

Konocti manzanita (*Arctostaphylos stanfrodiana* ssp. *elegans*). Rare Plant Species Rank 1B.3. Chaparral, cismontane woodland, lower montane coniferous forest, often on volcanic soils. Elevation ranges from 738 to 6004 feet (225 to 1830 meters). A shrub, the blooming period is from Mar-May.

Raiche's manzanita (*Arctostaphylos stanfrodiana* ssp. *raichei*). Rare Plant Species Rank 1B.1. Chaparral, lower montane coniferous forest (openings), rocky, serpentine sites, often on slopes and ridges. *A. stanfordiana ssp. raichei* has a minor serpentine affinity (2.6, strong indicator). Elevation ranges from 1591 to 3511 feet (485 to 1070 meters). A perennial evergreen shrub, the blooming period is from Feb-Apr.

serpentine milkweed (*Asclepias solanoana*). Rare Plant Species Rank 4.2. Chaparral, cismontane woodland, lower montane coniferous forest, typically growing on serpentine soils and confined to clearings and gentle slopes with southern exposure. *A. solanoana* has a strong serpentine affinity (6.0, strict endemic). Elevation ranges from 755 to 6103 feet (230 to 1860 meters). A perennial herb, the blooming period is from May-Jul.

serpentine reed grass (*Calamagrostis ophitidis*). Rare Plant Species Rank 4.3. Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grasslands, often on serpentine, rocky sites (ultramafic). Elevation ranges from 296 to 3494 (90-1065 meters). A perennial grass, the blooming period is from Apr-Jul.

four-petaled pussypaws (*Calyptridium quadripetalum*). Rare Plant Species Rank 4.3. Chaparral, lower montane coniferous forest, sandy or gravelly areas, generally on serpentine (ultramafic). *C. quadripetalum* has a moderate serpentine affinity (4.6, broad endemic). Elevation ranges from 1034 to 6693 feet (315 to 2040 meters). An annual herb, the blooming period is from Apr-Jun.

Mt. Saint Helena morning-glory (*Calystegia collina* ssp. *oxyphylla*). Rare Plant Species Rank 1B.2. Chaparral, cismontane woodland, often on rocky, gravelly openings on serpentine substrates (ultramafic). Elevation ranges from 1985 to 2313 feet (605 to 705 meters). A perennial herb, the blooming period is from Apr-Jun.

three-fingered morning-glory (*Calystegia collina* ssp. *tridactylosa*). Rare Plant Species Rank 1B.2. Chaparral, cismontane woodland, often on rocky, gravelly openings on serpentine substrates (ultramafic). Elevation ranges from 1985 to 2313 feet (605 to 705 meters). A perennial herb, the blooming period is from Apr-Jun.

Rincon Ridge ceanothus (*Ceanothus confusus*). Rare Plant Species Rank 1B.1. Closed-cone coniferous forest, chaparral, cismontane woodland, known from volcanic or serpentine soils, dry shrubby slopes. *C. confusus* has a minor serpentine affinity (1.3, weak indicator/indifferent). Elevation ranges from 492 to 4200 feet (150 to 1280 meters). A shrub, the blooming period is from Feb-Jun.

dwarf soaproot (*Chlorogalum pomeridianum* var. *minus*). Rare Plant Species Rank 1B.2. Chaparral, often found on serpentine sites (ultramafic). Elevation ranges from 394 to 4003 feet (120 to 1220 meters). *C. pomeridianum* var. *minus* has a strong serpentine affinity (6.1, strict endemic). A perennial herb (bulb), the blooming period is from May-Aug.

Tracy's clarkia (*Clarkia gracilis* ssp. *tracyi*). Rare Plant Species Rank 4.2. Chaparral, openings, usually on serpentine. *C. gracilis* ssp. *tracyi* has a moderate serpentine affinity (5, broad endemic). Elevation ranges from 214 to 2133 feet (65 to 650 meters). An annual herb, the blooming period is from Apr-Jul.

serpentine collomia (*Collomia diversifolia*). Rare Plant Species Rank 4.3. Chaparral, cismontane woodland, often on rocky or gravelly sites (ultramafic). *C. diversifolia* has a strong serpentine affinity (5.6, strict endemic). Elevation ranges from 985 to 1969 feet (300 to 600 meters). An annual herb, the blooming period is from May-Jun.

mountain lady's-slipper (*Cypripedium montanum*). Rare Plant Species Rank 4.2. Lower montane coniferous forest, broadleaved upland forest, cismontane woodland, north coast coniferous forest, often on dry, undisturbed slopes. Elevation ranges from 607 to 7300 feet (185 to 2225 meters). A perennial herb (rhizomatous), the blooming period is from Mar-Aug.

Brandegee's eriastrum (*Eriastrum brandegeeae*). Rare Plant Species Rank 1B.1. Chaparral, cismontane woodland, on barren volcanic soils, often in open areas. Elevation ranges from 1345 to 2773 feet (410 to 845 meters). An annual herb, the blooming period is from Apr-Aug.

Greene's narrow-leaved daisy (*Erigeron greenei*). Rare Plant Species Rank 1B.2. Chaparral, serpentine and volcanic substrates, generally in shrubby vegetation. Elevation ranges from 296 to 2740 feet (90 to 835 meters). A perennial herb, the blooming period is from May-Sep.

St. Helena fawn lily (*Erythronium helenae*). Rare Plant Species Rank 4.2. Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland often associated with serpentine and volcanic soils. Commonly grows in the open, inter-shrub spaces. *E. helenae* has a moderate serpentine affinity (4.5, broad endemic). Elevation ranges from 1149 to 4003 feet (350 to 1220 meters). A perennial herb (bulb), the blooming period is from Mar-May.

Purdy's fritillary (*Fritillaria purdyi*). Rare Plant Species Rank 4.3. Chaparral, cismontane woodland, lower montane coniferous forest, usually on serpentine. *F. fritillary* has a moderate serpentine affinity (4.5, broad endemic). Elevation ranges from 574 to 7399 feet (175 to 2255 meters). A perennial bulbiferous herb, the blooming period is from Mar-Jun.

Toren's grimmia (*Grimmia torenii*). Rare Plant Species Rank 1B.3. Cismontane woodland, lower montane coniferous forest, chaparral, often found in openings, rocky, boulder and rock walls, carbonate, volcanic. Elevation ranges from 1067 to 3806 feet (325 to 1160 meters). A moss, no distinct blooming period.

Bolander's horkelia (*Horkelia bolanderi*). Rare Plant Species Rank 1B.2. Lower montane coniferous forest, chaparral, meadows and seeps, valley and foothill grassland, often found in grassy margins of vernal pools and meadows. Elevation ranges from 1493 to 2805 feet (455 to 855 meters). A perennial herb, the blooming period is from Jun-Aug.

Jepson's leptosiphon (*Leptosiphon jepsonii*). Rare Plant Species Rank 1B.2. Chaparral, cismontane woodland, valley and foothill grassland often found in open-to-partially shaded grassy slopes on volcanics or the periphery of serpentine substrates (ultramafic). Elevation ranges from 181 to 2805 feet (55 to 855 meters. An annual herb, the blooming period is from Mar-May.

Anthony Peak lupine (*Lupinus antoninus*). Rare Plant Species Rank 1B.2. Upper montane coniferous forest, lower montane coniferous forest, often in open areas with surrounding forest; rocky sites. Elevation ranges from 3986 to 7399 feet (1215 to 2255 meters). A perennial herb, the blooming period is from May-Jul.

Cobb Mountain lupine (*Lupinus sericatus*). Rare Plant Species Rank 1B.2. Chaparral, cismontane woodland, lower montane coniferous forest, broadleaved upland forest. Often in stands of knobcone pine (*Pinus attenuata*)-oak woodland, on open wooded slopes in gravelly soils, sometimes on serpentine. Elevation ranges from 394 to 4561 feet (120 to 1390 meters). A perennial herb, the blooming period is from Mar-Jun.

Sonoma beardtongue (*Tracyina rostrata*). Rare Plant Species Rank 1B.3. Chaparral, crevices in rock outcrops and talus slopes. Elevation ranges from 591 to 4610 feet (180 to 1405 meters). A perennial herb, the blooming period is from Apr-Aug.

Michael's rein orchid (*Piperia michaelii*). Rare Plant Species Rank 4.2. Coastal bluff scrub, coastal scrub, cismontane woodland, chaparral, closed-cone coniferous forest, lower montane coniferous forest, mudstone and humus, generally dry sites. Elevation ranges from 10 to 3002 feet (3 to 915 meters). A perennial herb, the blooming period is from Apr-Aug.

oval-leaved viburnum (*Viburnum ellipticum*). Rare Plant Species Rank 2B.3. Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 706 to 4593 feet (215 to 1400 meters). A shrub, the blooming period is from May-Jun.

5.2.2 Special-status Animal Species

A total of fifty-two (52) special-status wildlife species have been documented within the vicinity of the Study Area. Please refer to Appendix A for a table of all special-status wildlife species which occur within the vicinity of the Study Area and discussion of the potential for each species to occur within the Study Area. Special-status species documented within the vicinity are depicted (Appendix D: Figure 4). Of the fifty-two (52) special-status wildlife species within the vicinity of the Study Area, eight (8) special-status wildlife species have a moderate to high potential to occur within the Study Area. The remaining forty-four (44) special-status wildlife species documented within the vicinity of the Study Area do not have the potential to occur due to one or more of the following reasons:

- Aquatic Habitats (e.g., streams, rivers, vernal pools) necessary to support special-status wildlife species are not present within the Study Area;
- Vegetation Habitats (e.g., forested area, riparian, grassland) that provide nesting and/or foraging resources necessary to support special-status wildlife species are not present within the Study Area;
- Physical Structures and Vegetation (e.g., caves, old-growth trees) that provide nesting, cover, and/or foraging habitat necessary to support special-status wildlife species are not present within the Study Area;
- Host Plants (e.g. *Cirsium sp.*) that provide larval and nectar resources necessary to support special-status wildlife species are not present within the Study Area;
- Historic and Contemporary Disturbance (e.g., cattle grazing, agriculture) deter the presence of the special-status wildlife species from occupying the Study Area;
- The Study Area are outside the documented nesting range of special-status wildlife species.

The eight (8) special-status wildlife species with potential to occur within the Study Area are described below.

red-bellied newt (*Taricha rivularis*). CDFW Species of Special Concern, IUCN Least Concern. *T. rivularis* inhabits coastal forests, typically in redwood (*Sequoia sempervirens*) forest habitat although also found in other forest types (hardwood etc.). Adults are terrestrial and fossorial. Transformed juveniles leave aquatic environments and go into hiding in underground shelters, often until ready to reproduce. Breeding occurs in streams often with relatively strong flows.

golden eagle (*Aquila chrysaetos*). BLM Sensitive, CDF Sensitive, CDFW Fully Protected, Watch List, IUCN Least Concern, USFWS Bird of Conservation Concern. *A. chrysaetos* inhabit rolling foothills, mountain areas, sage-juniper flats and desert. This species frequently nests in cliff-walled canyons and large trees in open areas. A carnivore that feeds primarily on small mammals (rabbits, ground squirrels etc.) sometimes includes snakes, juvenile ungulates and carrion.

prairie falcon (*Falco mexicanus*). CDFW Species of Special Concern, IUCN Least Concern, USFWS Bird of Conservation Concern. *F. mexicanus* breed in open country wherever they find bluffs and cliffs to nest on, including alpine habitat to about 11,000 feet. Breeding habitats include grasslands, shrubsteppe desert, areas of mixed shrubs and grasslands, or alpine tundra that supports abundant ground squirrel or pika (*Ochotona princeps*) populations. Winter habitat includes grasslands, sage scrub, dry-farmed wheat fields, irrigated cropland, and cattle feedlots. Their diet primarily consists of small mammals (ground squirrel, pika), mourning doves, horned larks, western meadowlarks, and European starlings.

obscure bumble bee (*Bombus caliginosus*). CDFW Species of Special Concern. *B. caliginosus* are often found in coastal areas from Santa Barbara county north to Washington state. Food plant genera includes *Baccharis, Crisum, Lupinus, Lotus, Grindelia,* and *Phacelia*.

western red bat (*Lasiurus blossevillii*). CDFW Species of Special Concern, IUCN Least Concern, WBWG High Priority. *L. blossevillii* prefer habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging. Roosting sites are often in trees found from sea level through mixed conifer forests. This species is often associated with riparian habitats set within coniferous forests and meadows.

hoary bat (*Lasiurus cinereus*). CDFW Species of Special Concern, IUCN Least Concern, WBWG Medium Priority. *L. cinereus* prefers open habitats or habitat mosaics with access to trees for cover and open areas or habitat edges for foraging. This species roosts in dense foliage of medium to large trees and feeds primarily on moths. Additionally, *L. cinereus* requires a water sources for drinking.

long-eared myotis (*Myotis evotis*). BLM Sensitive, CDFW Species of Special Concern, IUCN Least Concern, WBWG Medium Priority. *M. evotis* have been found in nearly all brush, woodland and forest habitats, but appears to prefer coniferous woodlands and forests. They roost in caves, under bark, snags, and crevices. They forage along habitat edges, in open habitats and over water.

American badger (*Taxidea taxus*). CDFW Species of Special Concern, IUCN Least Concern. *T. taxus* are most abundant in drier open stages of most shrub, forest and herbaceous habitats, with friable soils (Zeiner et al. 1990b). *T. taxus* dig burrows in the friable soils and frequently reuse old burrows. They prey on burrowing rodents, especially ground squirrels and pocket gophers, also on birds, insects, reptiles and carrion. Their diet shifts seasonally depending on the availability of prey. *T. taxus* are non-migratory and are found throughout most of California, except the northern North Coast area.

Section 6.0: Assessment Summary and Recommendations

Twenty-six (26) special-status plant species and eight (8) special-status wildlife species have the potential to occur within the Study Area based on present habitat. Vegetative habitat within the Study Area is comprised primarily of Ponderosa pine – Douglas fir forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) and Stanford manzanita chaparral (*Arctostaphylos* (*canescens, manzanita, stanfordiana*) – MCV2 Alliance). It is Jacobszoon and Associates, Inc.'s understanding that no tree removal is proposed and the biological assessment was conducted for a parcel boundary line adjustment.

The biological assessment was conducted in December which is outside of the blooming period for all special-status plant species with potential to occur within the Study Area. It is recommended that if vegetation, including shrubs or trees, is proposed for removal within the Study Area, then pre-development botanical surveys shall be conducted during the blooming periods for the special-status plant species with potential to occur within the Study Area.

Habitat within the Study Area includes Ponderosa pine – Douglas fir forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) and hoary, common, and Stanford manzanita chaparral (*Arctostaphylos* (*canescens, manzanita, stanfordiana*) – MCV2 Alliance). These habitat types provide suitable nesting and foraging avian habitat as well as foraging, roosting (bat) and denning mammalian (*T. taxus*) habitat. If vegetation removal, grading or excavation of any kind is proposed within the Study Area it is recommended that if vegetation removal is proposed during the nesting bird season (Mar 1 – Aug 15) that nesting pre-development nesting bird and denning surveys are conducted to CDFW protocol standards prior to disturbance for avian and mammalian species (reference Section *6.2.2 Special-status Wildlife Species* for CDFW American badger survey protocols). There are no further recommendations.

6.1 Biological Communities

Biological communities within the Study Area includes Ponderosa pine – Douglas fir forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) and Stanford manzanita chaparral (*Arctostaphylos* (*canescens, manzanita, stanfordiana*) – MCV2 Alliance).

6.2 Special-status Species

Twenty-six (26) special-status plant species and eight (8) special-status wildlife species have a moderate or high potential to occur within the Study Area.

6.2.1 Special-status Plant Species

Twenty-six (26) special-status plant species have a moderate or high potential to occur within the Study Area and include: dimorphic snapdragon (*Antirrhinum subcordatum*), twig-like snapdragon (*Antirrhinum virga*), Konocti manzanita (*Arctostaphylos stanfrodiana* ssp. *elegans*), Raiche's manzanita (*Arctostaphylos stanfrodiana* ssp. *raichei*), serpentine milkweed (*Asclepias solanoana*), serpentine reed grass (*Calamagrostis ophitidis*), four-petaled pussypaws (*Calyptridium quadripetalum*), Mt. Saint Helena morning-glory (*Calystegia collina* ssp. *oxyphylla*), three-fingered morning-glory (*Calystegia collina* ssp. *tridactylosa*), Rincon Ridge ceanothus (*Ceanothus confusus*), dwarf soaproot (*Chlorogalum pomeridianum* var. *minus*), Tracy's clarkia (*Clarkia gracilis* ssp. *tracyi*), serpentine collomia (*Collomia diversifolia*), mountain lady's-slipper (*Cypripedium montanum*), Brandegee's eriastrum (*Eriastrum brandegeeae*), Greene's narrow-leaved daisy (*Erigeron greenei*), St. Helena fawn lily (*Erythronium helenae*), Purdy's fritillary (*Fritillaria purdyi*), Toren's grimmia (*Grimmia torenii*), Bolander's horkelia (*Horkelia bolanderi*), Jepson's leptosiphon (*Leptosiphon jepsonii*), Anthony Peak lupine (*Lupinus antoninus*), Cobb Mountain lupine (*Lupinus sericatus*), Sonoma beardtongue (*Tracyina rostrata*), Michael's rein orchid (*Piperia michaelii*), and oval-leaved viburnum (*Viburnum ellipticum*). While these special-status species have the moderate potential to occur within the Study Area based on available habitat, none were observed during the biological site assessment. If vegetation removal is proposed, it is recommended that pre-development botanical surveys are conducted during the blooming periods for these special-status plant species.

6.2.2 Special-status Wildlife Species

Eight (8) special-status wildlife species have a moderate or high potential to occur within the Study Area based on present habitat, and include: red-bellied newt (*Taricha rivularis*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), obscure bumble bee (*Bombus caliginosus*), western red bat (*Lasiurus blossevillii*), hoary bat (*Lasiurus cinereus*), long-eared myotis (*Myotis evotis*) and American badger (*Taxidea taxus*). While these special-status species have the potential to occur within the Study Area, none were observed during the biological site assessment.

Avifauna

Development within the Study Area has the potential to significantly impact wildlife species, including nesting avian species if present. The existing vegetation within the Study Area provides potential nesting and foraging habitat for birds; however, there are no known occurrences of special-status avian species that overlap with the Study Area (Appendix D: Figure 3 CNDDB Map). Any proposed groundbreaking activities (vegetation/tree removal) within the Study Area during avian breeding periods could significantly impact nesting bird species. Additionally, activities within the Study Area may result in the indirect visual and acoustic disturbance to avian species and have the potential to result in nest abandonment and incidental take[2]. Any development activities which occur between March 1st and August 31st of any year, require pre-development nesting bird surveys prior to the commencement of any groundbreaking activities. If no development activities are proposed, then there are no further recommendations for avian species.

Mammals

Development within the Study Area has the potential to significantly impact mammalian wildlife species, if present. If trees are not proposed to be removed, then immediate impact to any of the above listed mammal species would be reduced. As mentioned for avifauna, an impact could also be indirect via the form of visual or acoustic disturbance. Prior to any groundbreaking activities within the Study Area or if trees are to be removed, it is recommended that surveys for special-status mammalian species be conducted prior to construction following CDFW survey protocols.

CDFW American badger (*Taxidea Taxus*) Survey Protocol: No less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities, CDFW will conduct a survey to determine if American badger den sites are present at the site. If dens are found, they will be monitored for badger activity. If CDFW determines that dens may be active, the entrances of the dens will be blocked with soil, sticks, and debris for three to five days to discourage the use of these dens prior to project disturbance activities. The den entrances will be blocked to an incrementally greater degree over the 3 to 5-day period. After a CDFW-qualified biologist determines the den sites are no longer active, the dens will be hand-excavated with a shovel to prevent re-use during construction. No disturbance of active dens will take place when cubs may be present and dependent on parental care, as determined by a CDFW-qualified biologist. (CDFW's Conservation Measures for Biological Resources That May Be Affected by Program-level Actions – Appendix I).

[2] "Take" includes all activities listed in Section 86 of the Fish and Game Code, as well as collecting, handling, marking, manipulating or conducting other procedures on wildlife, whether wildlife are released, or retained in possession (https://www.wildlife.ca.gov/Licensing/Scientific-Collecting).

CWHR

CWHR Predicted Habitat Suitability is a dataset accessed through CNDDB BIOS Commercial/Spotted Owl Viewer that represents areas of suitable habitat within the species ranges based on California Wildlife Habitat Relationships (CWHR). Habitat suitability ranks of Low (less than 0.34), Medium (0.34-0.66) and High (greater than 0.66) suitability are based on the mean expert opinion suitability value for each habitat type for breeding, foraging, and cover (CDFW 2019).

Examination of the CWHR dataset was applied when: 1) the data is available for the species of concern, and 2) when there is a moderate to high potential for an animal to occur on or within 100 feet of the Study Area. As with all models, these maps are not perfect and do not predict the occurrence of an organism. CWHR examines whether the areas being examined in the biological assessment is habitat which *may* support a species of special concern. This information not only informs the landowner of what may occur on their property, but also assists the biologist when conducting a survey.

6.3 Wildlife Corridors

No change to foraging or wintering habitat for migratory birds is expected as a result of the existing or proposed cannabis cultivation sites. Additionally, no significant impacts to migratory corridors for amphibian, aquatic, avian, mammalian, or reptilian species is expected as a result of the existing or proposed cannabis cultivation sites.

6.4 Critical Habitat

The Study Area does not contain any critical habitat for Federal or State-listed species.

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Appendix A: Table of Potential for Special-Status Plants and Wildlife within the Study Area

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Amphibians				
California giant salamander *Dicamptodon ensatus*	CDFW: SSC IUCN: NT	California *Dicamptodon* salamanders are year-round residents of California and were split into two species – California giant salamander (*Dicamptodon ensatus*) occurring south of the Mendocino County line and the coastal giant salamander (*Dicamptodon tenebrosus*) occurring in the north (Thomas et al. 2016). *D. ensatus* are found in meadows and seeps, north coast coniferous forest and riparian forested habitats. *D. ensatus* occur in wet coastal forests in or near clear, cold permanent and semi-permanent streams and seepages. Adults leave terrestrial habitats to reproduce and both the reproduction and larval stages are aquatic with breeding occurring mostly in the spring.	**No Potential.** CWHR Predicted Habitat Suitability[3] does not list *D. ensatus*. Additionally, suitable aquatic and riparian forested habitat for this species does not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
foothill yellow-legged frog *Rana boylii*	SCT BLM: S CDFW: SSC IUCN: NT USFS: S	*R. boylii* occupy a diverse range of ephemeral and permanent streams, rivers, and adjacent moist terrestrial habitats. Occupied streams are often partly shaded, low gradient, and dominated by coarse, unconsolidated rocky substrates. Adults breed and tadpoles develop in slow water velocity habitats. Dispersing juvenile and adult frogs will seek refugia in Class II streams pre-and-post breeding, opposite of salmonids.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the southern section of the parcel and Study Area falls within Low (0.33) habitat suitability for this species. No watercourses traverse the property that this species could utilize. It is considered very unlikely that *R. boylii* would be able to utilize habitat within the Study Area.	**Not Present.** There are no further recommendations for this species.

[3] CWHR Predicted Habitat Suitability is a dataset that represents areas of suitable habitat within the species ranges based on California Wildlife Habitat Relationships (CWHR 2016). Habitat suitability ranks of Low (less than 0.34), Medium (0.34-0.66) and High (greater than 0.66) suitability are based on the mean expert opinion suitability value for each habitat type for breeding, foraging, and cover. (Data obtained through CNDDB in BIOS)

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
California red-legged frog *Rana draytonii*	FT CDFW: SSC IUCN: VU	California red-legged frogs (CRLF) primarily inhabit permanent or nearly permanent water sources (quiet streams, marshes, and ponds) containing shorelines with extensive vegetation. Breeding tends to occur primarily in ponds, less likely in streams, and happens from November to April. This ranid frog will also use upland habitats outside of the breeding season and may be discovered under logs, rocks, and other debris during wet conditions.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the southern section of the parcel and Study Area falls within Low (0.33) habitat suitability for this species. No permanent water sources or watercourses exist within the Study Area that this species could utilize. It is considered very unlikely that *R. draytonii* would be able to utilize habitat within the Study Area.	**Not Present.** There are no further recommendations for this species.
red-bellied newt *Taricha rivularis*	CDFW: SSC IUCN: LC	*T. rivularis* inhabits coastal forests, typically in redwood (*Sequoia sempervirens*) forest habitat although also found in other forest types (hardwood etc.). Adults are terrestrial and fossorial. Transformed juveniles leave aquatic environments and go into hiding in underground shelters, often until ready to reproduce. Breeding occurs in streams often with relatively strong flows.	**High Potential.** According to CWHR Predicted Habitat Suitability, the Study Area falls within High (1.0) habitat suitability for this species.	**Not Observed.** Grading or vegetation removal within the Study Area would likely have a significant impact on this species if present. If grading or vegetation removal is proposed, it is recommended that pre-development surveys for *T. rivularis* are conducted prior to vegetation removal. There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Avifauna				
tricolored blackbird *Agelaius tricolor*	SCE BLM: S CDFW: SSC IUCN: EN NABCI: RWL USFWS: BCC	*A. tricolor* breed and forage in a variety of habitats including salt marshes, moist grasslands, freshwater marshes, bay-shore habitats, riparian forests and oak savannahs. *A. tricolor* use dense riparian vegetation such as Himalayan blackberry (*Rubus armeniacus*) for nesting and forage in cultivated fields, wetlands, and feedlots associated with dairy farms.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area is not mapped, indicating suitable habitat for this species does not exist within the parcel. There are no nesting or foraging habitats that this species could utilize within the Study Area.	**Not Present.** No further recommendations for this species.
golden eagle *Aquila chrysaetos*	BLM: S CDF: S CDFW: FP, WL IUCN: LC USFWS: BCC	*A. chrysaetos* inhabit rolling foothills, mountain areas, sage-juniper flats and desert. This species frequently nests in cliff-walled canyons and large trees in open areas. A carnivore that feeds primarily on small mammals (rabbits, ground squirrels etc.) sometimes includes snakes, juvenile ungulates and carrion.	**Moderate Potential.** According to CWHR Predicted Habitat Suitability, the Study Area falls within Medium (0.39) to High (0.77) habitat suitability for this species. Foraging and nesting habitat exists within the Ponderosa pine (*Pinus ponderosa*) and manzanita (*Arctostaphylos* sp.) shrub habitat.	**Not Observed.** If development of the lower portion of the parcel is proposed, including vegetation/tree removal, it is recommended that surveys for nest structures are conducted prior to tree removal; however, surveys are not necessary if the only vegetation removed is shrub manzanita (*Arctostaphylos* sp.). No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
great egret *Ardea alba*	CDF: S IUCN: LC	*A. alba* requires groves of trees suitable for nesting and roosting, relatively isolated from human activities, near aquatic foraging areas. Prey on small fish, aquatic insects, crabs, frogs, etc. Prefer to forage in shallow, relatively still waters of estuaries, lakes, slow moving watercourses, salt ponds, or mud flats. Colonial nesters that build groups of platform nests in large trees or snags, usually near a feeding area. Great egrets are highly dependent upon wetland habitats and riparian areas. The great egret requires forested areas for nesting and roosting and aquatic habitat for foraging. Night roosting and nesting occurs in trees; day roosting occurs in feeding habitat. Typical feeding habitats include fresh and saline emergent wetlands, the edges of estuaries, lakes and slow-moving rivers, mudflats and salt ponds and irrigated croplands and pastures. The method of hunting is similar to the great blue heron--standing motionless or stalking slowing then rapidly striking their prey is customary.	**No Potential.** According to CWHR Predicted Habitat Suitability, the Study Area is not mapped indicating suitable habitat for this species does not exist within the parcel. There is no aquatic foraging habitat and no rookery trees were observed during the biological assessment that this species could utilize.	**Not Present.** No further recommendations for this species.
great blue heron *Ardea herodias*	CDF: S IUCN: LC	*A. herodias* are commonly found in shallow estuaries and fresh and saline emergent wetlands. Foraging areas include river and creek banks, ponds, lakes, and watercourses in mountainous areas. Diet consists primarily of aquatic invertebrates, frogs, snakes and fish (Cogswell 1977). This species often nests in colonies within a rookery tree.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within a range of Low (0.22) to Medium (0.47) habitat suitability for this species. There is no aquatic foraging habitat and no rookery trees were observed during the biological assessment that this species could utilize.	**Not Observed.** No foraging habitat (wetlands, marsh) or nesting and roosting habitat (rookery trees) were observed during the biological assessment. No further recommendations.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Bell's sage sparrow *Artemisiospiza belli belli*	CDFW: WL USFWS: BCC	*A. belli belli* inhabit coastal sagebrush, chaparral often dominated by chamise and/or California sagebrush (Johnson and Marten 1992), and other open, scrubby habitats. In chaparral *A. belli belli* tend toward younger, less dense stands, becoming less common in older, taller stands. Nest sites are often found within shrubs, bunchgrasses, and occasionally on the ground under shrubs including California sagebrush, brittlebush, white sage, black sage, California buckwheat, bush mallow, chamise, cholla, and willow. This species is an opportunistic feeder, eating grains and insects from a variety of habitats.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area is not mapped; however, adjacent parcels have been mapped as Medium (0.63) habitat suitability. Shrubby/chaparral (*Arctostaphylos* sp.) habitat does exist within the Study Area that this species could utilize.	**Not Present.** No further recommendations for this species.
cackling goose *Branta hutchinsii leucopareia*	CDFW: SSC	*B. hutchinsii leucopareia* winters on lakes and inland prairies. Foraging occurs on natural pasture or that cultivated to grain; loafs on lakes, reservoirs and ponds. This species is found within natural/artificial standing waters and valley and foothill grasslands.	**No Potential.** According to CWHR Predicted Habitat Suitability, the Study Area is not mapped indicating suitable habitat for this species does not exist within the parcel. There is no lake, pasture, or prairie habitat within the parcel that this species could utilize.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT, SE BLM: S NABCI: RWL USFS: S USFWS: BCC	*C. americanus occidentalis* use wooded habitat with dense cover and water nearby, including woodlands with low, scrubby vegetation, overgrown orchards, abandoned farmland, and dense thickets along streams and marshes. This species makes their nests along horizontal branches or the fork of a tree or large shrub, often between 3 to 90 feet (1 to 28 meters). Trees are often oak (*Quercus* sp.), beech, hawthorn (*Crataegus* sp.) and ash, often with lower story of blackberry, nettles or wild grapes. A generalist feeder, typical forage includes primarily of caterpillars, webworms and moth larvae but also include beetles, ants, spiders, sometimes small amphibians (frogs) and reptiles (lizards) and some fruits and seeds.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area is not mapped indicating suitable habitat for this species does not exist within the parcel. While some oak species (*Quercus agrifolia*, *Quercus kelloggii*) exist within the Study Area with a manzanita shrub (*Arctostaphylos* sp.) understory, there are no water bodies (streams, marshes ect.) that this species could utilize.	**Not Present.** No further recommendations for this species.
snowy egret *Egretta thula*	CDFW: SSC IUCN: LC	The snowy egret is widespread in California along shores of coastal estuaries, fresh and saline emergent wetlands, ponds, slow-moving rivers, irrigation ditches, and wet fields. Snowy egrets' nest in colonies on thick vegetation in isolate places – such as barrier islands, dredge-spoil islands, salt marsh islands, swamps, and marshes. They often change location from year to year. During the breeding season they feed in estuaries, salt marshes, tidal channels, shallow bays, and mangroves. They roost in dense, emergent vegetation and in trees near water. They winter in mangroves, saltwater lagoons, freshwater swamps, grassy ponds, and temporary pools. Snowy egrets forage on beaches, shallow reefs and wet fields.	**No Potential.** According to CWHR Predicted Habitat Suitability, the Study Area is not mapped indicating suitable habitat for this species does not exist within the parcel. There is no aquatic habitat (estuaries, wetlands, ponds, etc.) that this species could utilize within the parcel.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
white-tailed kite *Elanus leucurus*	BLM: S CDFW: FP IUCN: LC	Often found in coastal, valley lowlands and agricultural areas, *E. leucurus* inhabit herbaceous and open stages of most habitats especially in cismontane California. This species' primary diet consists of small mammals (voles and other rodents), found in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands (Waian et. al. 1970). Nests are often found in isolated, dense-topped trees.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the majority of the Study Area (*P. ponderosa* habitat) is not mapped; however, the open area along the northern parcel boundary falls within Medium (0.34) habitat suitability for this species.	**Not Observed.** While some suitable foraging habitat exists within the Study Area, the majority of habitat is considered sub-optimal for this species. No nest structures were observed within the *P. ponderosa* habitat. Nesting and foraging habitat is considered sub-optimal. It is Jacobszoon and Associates' Inc. understanding that no trees are proposed for removal; therefore, there are no further recommendations for this species.
prairie falcon *Falco mexicanus*	CDFW: SSC IUCN: LC USFWS: BCC	Prairie falcons breed in open country wherever they find bluffs and cliffs to nest on, including alpine habitat to about 11,000 feet. Breeding habitats include grasslands, shrubsteppe desert, areas of mixed shrubs and grasslands, or alpine tundra that supports abundant ground squirrel or pika (*Ochotona princeps*) populations. Winter habitat includes grasslands, sage scrub, dry-farmed wheat fields, irrigated cropland, and cattle feedlots. Their diet primarily consists of small mammals (ground squirrel, pika), mourning doves, horned larks, western meadowlarks, and European starlings.	**High Potential.** According to CWHR Predicted Habitat Suitability, the Study Area falls within a range of Medium (0.35) to High (0.77) habitat suitability for this species; however, no cliffs or bluffs exist that this species could utilize for nesting habitat.	**Not Observed.** While suitable foraging habitat exists within the Study Area, there are no bluffs or cliffs that this species could utilize within the parcels. No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
bald eagle *Haliaeetus leucocephalus*	BLM: S CDF: S CDFW: FP IUCN: LC USFS: S USFWS: BCC	*H. leucocephalus* require large bodies of water or free-flowing rivers with abundant fish and adjacent snags, cliffs, or perches (Zeiner et al. 1990a). Perches are often high in large-limbed trees on snags, broken-topped trees, or on rocks near water. Nests are found in large, old-growth, or dominant live trees with open branches (Call 1978). Nest stands frequently have less than 40% canopy, with some foliage shading the nest, and are within a mile of a permanent water source. In the winter, they roost communally in dense, sheltered, remote conifer stands often within 10 to 12 miles from feeding areas. *H leucocephalus* are tolerant of human activity when feeding, and may congregate around fish processing plants, dumps, and below dams where fish concentrate. In winter, bald eagles can also be seen in dry, open uplands if there is access to open water for fishing.	**Unlikely.** According to CWHR Predicted Habitat Suitability the Study Area falls within Low (0.11) habitat suitability for this species. Nesting habitat is marginal for this species within the Study Area; however, no fish-bearing water bodies exist that this species could utilize for foraging.	**Not Present.** If development of the lower portion of the parcel is proposed, including vegetation/tree removal, it is recommended that surveys for nest structures are conducted prior to tree removal; however, surveys are not necessary if the only vegetation removed is shrub manzanita (*Arctostaphylos* sp.) or if no vegetation is proposed for removal. There are no further recommendations for this species.
black-crowned night heron *Nycticorax nycticorax*	CDFW: SSC IUCN: LC	*N. nycticorax* are common in wetlands across North America, including saltmarshes, freshwater marshes, swamps, streams, rivers, lakes, ponds, lagoons, tidal mudflats, canals, reservoirs, and wet agricultural fields. They require aquatic habitat for foraging and terrestrial vegetation for cover. They nest and roost in dense-foliaged trees and dense emergent wetlands. They are very common in large nesting colonies and feed along the margins of lacustrine, large riverine, and fresh and saline emergent habitats. They spend the winter in southern and coastal portions of their breeding range as well as across Mexico and Central America, where they use mangroves, marshes, swamps, lagoons, and flooded rice fields.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within Low (0.28) habitat suitability for this species. Foraging habitat (wetlands, marshes, ponds etc.) do not exist within the Study Area for this species to utilize.	**Not Present.** No foraging habitat exists that this species could utilize within the Study Area and nesting and roosting habitat is considered sub-optimal for this species as there are no nearby water sources for this species to utilize. There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
osprey *Pandion haliaetus*	CDF: S CDFW: WL IUCN: LC	*P. haliaetus* are strictly associated with large, fish-bearing waters, primarily in ponderosa pine and mixed conifer stands. Foraging habitat consists of open, clear waters, rivers, lakes, reservoirs, estuaries, lagoons, swamps, marshes, and bays. Diet consists almost exclusively live fish. Large trees, snags, and blown-out treetops are used for cover and nesting. Nests are located on or near the tops of trees, snags, cliffs, or human-made structures.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within a range of Low (0.11) to Medium (0.44) habitat suitability for this species.	**Not Present.** While the southern portion of the Study Area (*P. ponderosa* habitat) is considered Medium habitat suitability, there are no large fish-bearing watercourses that this species could utilize. There are no further recommendations for this species.
double-crested cormorant *Phalacrocorax auritus*	CDFW: WL IUCN: LC	*P. auritus* are year-long resident along the entire coast of California and on inland lakes, in fresh, salt, and estuarine waters. They rest in the daytime and roost overnight beside water on offshore rocks, islands, steep cliffs, dead branches of trees, wharfs, jetties, or even transmission lines. Their perching sites must be barren of vegetation. They require a considerable length of water, or elevated perch, for a labored take-off. The cormorant's diet is nearly exclusively fish, supplemented with insects, crustaceans, or amphibians. Nests are mostly made of finger-size sticks, often with seaweed and flotsam, lined with grass.	**No Potential.** According to CWHR Predicted Habitat Suitability, the Study Area is not mapped indicating suitable habitat for this species does not exist within the parcel. There is no aquatic habitat (inland lakes, estuarine waters etc.) that this species could utilize within the parcel.	**Not Present.** There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
purple martin *Progne subis*	CDFW: SSC IUCN: LC	*P. subis* often inhabit tall old-growth trees or snags in coniferous forests with multilayered canopy and are second cavity nesters using old woodpecker cavities, crevices in rocks, trees and cactus (Baicich et. al. 2005). Typically, *P. subis* forage in open areas near water, and their diet consists primarily of invertebrates (dragonflies, beetles, flies etc.).	**Unlikely.** According to CWHR Predicted Habitat Suitability, the northern portion of the Study Area falls within Low (0.33) habitat suitability for this species; however, the southern portion (conifer/oak dominated habitat) is unmapped. Old-growth trees were not observed; however, various oaks (*Q. agrifolia, Q. kelloggii*), Ponderosa pine (*P. ponderosa*) and some Douglas fir (*P. menziesii*) exist within the Study Area that this species could utilize.	**Not Present.** The northern parcel boundary falls within Low habitat suitability and no *P. subis* were observed during the biological assessment. There are no further recommendations for this species.
northern spotted owl *Strix occidentalis caurina*	FT, ST CDF: S IUCN: NT NABCI: YWL	*S. occidentalis caurina* are year-round residents in dense, structurally complex forests, primarily with old-growth conifers. Nests on snags and within tree cavities, and often is associated with existing structures (old raptor nests, squirrel nests and *A. pomo* nests).	**No Potential.** Required dense, structurally complex forests with old-growth does not occur within the Study Area. One (1) mapped NSO Activity Center (LAK0047) exists approximately 1.9 miles southeast of the Study Area.	**Not Present.** There are no further recommendations for this species.
Crustaceans				
an isopod *Calasellus californicus*	CDFW: SSC	*C. californicus* are a subaquatic and subterranean obligate species, found in freshwater habitats (wells, springs) known from Lake, Napa, Marin, Santa Cruz and Santa Clara counties within the Upper Cache (18020116)+, San Pablo Bay (18050002)+ and Coyote (18050003)+ watersheds.	**No Potential.** Habitat for this species (fish-bearing streams) do not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
California linderiella *Linderiella occidentalis*	CDFW: SSC IUCN: NT	*L. occidentalis* are the most common fairy shrimp in the Central Valley. They are often found in the same vernal pools as the Vernal pool fairy shrimp, seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. The water in the pools has very low alkalinity, conductivity, and total dissolved solids.	**No Potential.** Habitat for this species (fish-bearing streams) do not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
Fish				
Sacramento perch *Archoplites interruptus*	AFS: VU CDFW: SSC	*A. interruptus* prefer sloughs and slow-flowing streams, existing in Clear Lake and Alameda Creek/Calaveras Reservoir and Sonoma Reservoir in the Russian River watershed. *A. interruptus* are most often found in warm reservoirs and ponds where summer temperatures range from 18-28°C. Juveniles were found to feed mostly on aquatic insect larvae copepods and later cladocerans.	**No Potential.** Habitat for this species (fish-bearing streams) do not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
Pacific lamprey *Entosphenus tridentatus*	AFS: VU BLM: S CDFW: SSC USFS: S	*E. tridentatus* are anadromous, but also with a number of permanent freshwater resident populations. This species is parasitic as adults, feeding on blood and body fluids of its prey. To breed, *E. tridentatus* migrate into fresh water and dig nests. Adults die post-breeding. Larvae/juveniles live 5-6 years in freshwater before returning to the ocean.	**No Potential.** Habitat for this species (fish-bearing streams) do not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
Russian River tule perch *Hysterocarpus traskii pomo*	AFS: VU CDFW: SSC	*H. traskii pomo* inhabits clear, flowing streams and rivers, and occupy deep pools that have complex cover in the form of aquatic and overhanging vegetation. This species is endemic to the Russian River and the lower parts of its tributaries. They feed on invertebrates, plants, and zooplankton. Mating occurs in July-Sept. In May-June, the female bears 10-60 live fish.	**No Potential.** Habitat for this species (fish-bearing streams) do not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Clear Lake hitch *Lavinia exilicauda chi*	ST AFS: VU USFS: S	*L. exilicauda chi* are found exclusively in Clear Lake, Lake County, and associated ponds. This species spawns in tributary streams flowing into Clear Lake. Individuals over 80 days old (4-5 cm SL) are often found in the limnetic zone of Clear Lake; juveniles occupy near-shore shallow waters with protective aquatic vegetation (Moyle et al. 1989). *L. exilicauda chi* requires clean, fine-to-medium gravel substrate for spawing and egg-laying, in lower reaches of intermittent tributary streams, mostly in sections that dry up in summer (Moyle et al. 1989).	**No Potential.** Habitat for this species (fish-bearing streams) do not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
Clear Lake – Russian River roach *Lavinia symmetricus ssp. 4*	CDFW: SSC	*L. symmetricus* are generally found in small, warm intermittent streams, and dense populations are frequently found in isolated pools (Moyle 1976, Moyle and Daniels 1982). Roach are tolerant of relatively high temperatures (30-35 C) and low oxygen levels (1-2 ppm) (Taylor et al. 1982). However, they are habitat generalists, also being found in cold, well-aerated clear "trout" streams (Taylor et al. 1982), in human-modified habitats (Moyle 1976, Moyle and Daniels 1982) and in the main channels of rivers. Clear Lake roach are restricted today to the tributaries of Clear Lake, where they are widely distributed in the basin's seven major drainages. There are no recent collections from Clear Lake itself; roach are now unable to occupy the lake because of their vulnerability to alien predators (Moyle 2002). Roach are subject to barriers to their upstream dispersal (waterfalls and other high gradient stream sections).	**No Potential.** Habitat for this species (fish-bearing streams) do not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
steelhead - central California coast DPS *Oncorhynchus mykiss irideus pop. 8*	FT AFS: TH	*O. mykiss irideus* are anadromous coastal rainbow trout. As adults, this species requires high flows, with depths of at least 18cm for passage (Bjornn and Reiser 1991). Clean, well aerated gravel beds, typically in steep, rocky reaches of upper tributaries are needed for spawning. The central California coast DPS are found from the Russian River south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay basins. This DPS does not include summer-run steelhead.	**No Potential.** Habitat for this species (fish-bearing streams) do not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
chinook salmon – California coastal ESU *Oncorhynchus tshawytscha pop. 17*	FT AFS: TH	The California coastal ESU includes all naturally spawned populations of Chinook salmon from the Klamath River (exclusive) to the Russian River (inclusive). Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temperatures greater than 27°C are lethal.	**No Potential.** Habitat for this species (fish-bearing streams) do not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Insects				
Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	CDFW: SSC	*A. blennospermatis* are associated with the early spring bloom of Common stickyseed (*Blennosperma nanum*) and Baker's stickyseed (*Blennosperma bakeri*). The blooming period for Common stickyseed is Feb-Apr, whereas the blooming period for Baker's stickyseed is from Mar-May. *A. blennospermatis* is a solitary, ground-nesting bee with adults emerging early in the spring. After emergence, the females of this species mate, and then begin excavating nests in the upland areas around vernal pools. The flight period for females ranges from late Feb-Apr (Thorp and Leong, 1995). *A. blennospermatis* spatially restricts its foraging activities to near-neighbor flowers thus, bees may have difficulty colonizing areas around artificially constructed vernal pools because of their limited flight ability and low dispersal tendencies (Leong 1994, Thorp and Leong 1995, Leong, Randolph, and Thorp 1995).	**Unlikely.** Suitable habitat (wet areas adjacent to vernal pools) for this species does not exist within the Study Area.	**Not Present.** Neither stickyseed species (*B. nanum, B. bakeri*) was observed and no vernal pools exist within the Study Area. There are no further recommendations for this species.
obscure bumble bee *Bombus caliginosus*	CDFW: SSC IUCN: VU	*B. caliginosus* are often found in coastal areas from Santa Barbara county north to Washington state. Food plant genera includes *Baccharis*, *Crisum, Lupinus, Lotus*, *Grindelia*, and *Phacelia*.	**Moderate Potential.** The Study Area provides marginal nesting and foraging habitat for this species as many *Baccharis pilularis* were observed within the mixed oak/conifer habitat (*Q. agrifolia, Q. kelloggii, P. ponderosa*).	**Not Observed.** No bumblebees or bee nests were observed within the Study Area. It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
western bumble bee *Bombus occidentalis*	State: CE USFS: S Xerces: IM	*B. occidentalis* are formerly common throughout much of western North America; however, populations from southern British Columbia to central California have nearly disappeared (Xerces 2017). This species occurs in a wide variety of habitat types and are considered a generalist pollinator. This genus is most commonly encountered along stream banks, in meadows, recently burned or logged areas, or on flowers by roadsides.	**Unlikely.** The Study Area provides marginal nesting habitat for this species, as they exist within mixed oak stands; however, minimal herbaceous flowering plants exist within the Study Area that would provide this species with suitable foraging habitat.	**Not Present.** No bumblebees or bee nests were observed within the Study Area. It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.
brownish dubiraphian riffle beetle *Dubiraphia brunnescens*	CDFW: SSC	Found within the Upper Cache watershed (HUC 18020116+) within Lake county, CA, the brownish dubiraphian riffle beetle occurs in shallow water among submerged roots of various species of aquatic plant life (including *Salex sp.*) and on rocky shores.	**No Potential.** Aquatic habitat for this species does not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
Borax Lake cuckoo wasp *Hedychridium milleri*	CDFW: SSC	*H. milleri* are apparently only endemic to Lake County. Very little information is available regarding their life history or habitat range. The only recorded data available (as of 2019) was from Kimsey, in Bohard & Kimsey 1978:620; California, Lake county, Borax Lake (UCDC).	**Unlikely.** Suitable aquatic habitat for this species does not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	CDFW: SSC	*H. rickseckeri* habitat is considered unknown, and individuals have been observed in artificial ponds as well as vernal ponds. Adults of the species are capable of flight; however, are aquatic by nature. All known collection records are from 27 December to 30 July (most in April and May), which would correspond to when vernal pools are most likely to contain water (Short, Post, Toussaint, 2017).	**No Potential.** Habitat for this species (vernal pools, artificial ponds etc.) does not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Mammals				
pallid bat *Antrozous pallidus*	BLM: S CDFW: SSC IUCN: LC USFS: S WBWG: H	*A. pallidus* are found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roosting sites include crevices in rocky outcrops and cliffs, caves, mines, basal hollows in large conifers and various human structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within Low (0.11) habitat suitability for this species.	**Not Present.** The CWHR Predicted Habitat Suitability is Low within the Study Area, no signs of bat presence (guano) were observed and there are no watercourses within the Study Area that this species could utilize. It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.
Townsend's big-eared bat *Corynorhinus townsendii*	BLM: S CDFW: SSC IUCN: LC USFS: S WBWG: H	*C. townsendii* is associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest, basal hollows in large conifers. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats where they glean moths from vegetation.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within Low (0.11) habitat suitability for this species.	**Not Present.** The CWHR Predicted Habitat Suitability is Low within the Study Area and no signs of bat presence (guano) were observed. It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
North American porcupine *Erethizon dorsatum*	CDFW: SSC IUCN: LC	*E. dorsatum* are commonly found in coniferous and mixed forested areas, and can also inhabit shrublands, tundra and deserts, albeit less frequently as this species tends to spend much of its time in trees. This herbivore eats leaves, twigs, and green plants like Skunk cabbage (*Symplocarpus foetidus*) and clovers (*Trifolium spp.*). This species makes its dens in hollow trees, decaying logs and caves in rocky areas. Recognized as primarily solitary and nocturnal, *E. dorsatum* may be seen foraging during daytime.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within Low (0.33) habitat suitability for this species. Preferred mixed coniferous-deciduous (*P. ponderosa, Q. agrifolia, Q. kelloggii*) forest does exist within the Study Area that this species could utilize.	**Not Present.** The CWHR Predicted Habitat Suitability is Low within the Study Area. No *E. dorsatum* or den sites were observed during the biological assessment; however, some basal hollows were observed during the biological assessment that this species could utilize. It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.
silver-haired bat *Lasionycteris noctivagans*	CDFW: SSC IUCN: LC WBWG: M	*L. noctivagans* is primarily a coastal and montane forest dweller, feeding over streams, ponds, and open brushy areas. This species roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes and rarely under rocks. Additionally, *L. noctivagans* requires a water source for drinking.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area is not mapped indicating suitable habitat for this species does not exist within the Study Area.	**Not Present.** The CWHR Predicted Habitat Suitability does not provide suitable habitat for this species within the Study Area. It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
western red bat *Lasiurus blossevillii*	CDFW: SSC IUCN: LC WBWG: H	*L. blossevillii* prefer habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging. Roosting sites are often in trees found from sea level through mixed conifer forests. This species is often associated with riparian habitats set within coniferous forests and meadows.	**Moderate Potential.** According to CWHR Predicted Habitat Suitability, the Study Area falls within a range of Low (0.18) to Medium (0.55) habitat suitability for this species. While the canopy is comprised of mixed conifers and oaks, there are no riparian habitats within the Study Area that this species could utilize.	**Not Observed.** It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.
hoary bat *Lasiurus cinereus*	CDFW: SSC IUCN: LC WBWG: M	*L. cinereus* prefers open habitats or habitat mosaics with access to trees for cover and open areas or habitat edges for foraging. This species roosts in dense foliage of medium to large trees and feeds primarily on moths. Additionally, *L. cinereus* requires a water sources for drinking.	**Moderate Potential.** According to CWHR Predicted Habitat Suitability, the Study Area falls within a range of Low (0.11) to Medium (0.55) habitat suitability for this species. Vegetation within the parcel is comprised primarily of dense shrub (*Arctostaphylos* sp.), Ponderosa pine (*P. ponderosa*) and mixed oak (*Q. agrifolia, Q. kelloggii*) habitat without many openings of the canopy.	**Not Observed.** It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
long-eared myotis *Myotis evotis*	BLM: S CDFW: SSC IUCN: LC WBWG: M	*M. evotis* have been found in nearly all brush, woodland and forest habitats, but appears to prefer coniferous woodlands and forests. They roost in caves, under bark, snags, and crevices. They forage along habitat edges, in open habitats and over water.	**Moderate Potential.** According to CWHR Predicted Habitat Suitability, the Study Area falls within a range of Low (0.11) to Medium (0.66) habitat suitability for this species. Vegetation within the parcel is comprised primarily of dense shrub (*Arctostaphylos* sp.), Ponderosa pine (*P. ponderosa*) and mixed oak (*Q. agrifolia, Q. kelloggii*) habitat without many openings of the canopy. No caves or watercourses exist within the Study Area that this species could utilize.	**Not Observed.** It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
little brown bat *Myotis lucifugus*	CDFW: SSC IUCN: LC WBWG: M	*M. lucifugus* is found in most of the United States and Canada, except for the south central and southeastern United States and northern Alaska and Canada. *M. lucifugus* typically lives and feeds in forested areas near or over water, mainly on aquatic insects such as caddisflies, mayflies, moths, wasps, beetles, and midges. The little brown bat lives in three different roosting sites throughout the year: day roosts, night roosts, and hibernation roosts. Stable, ambient temperatures greatly influence site selection. Human-made structures are often selected, however both day and night roosts may be found in trees, under rocks, and in piles of wood. Day roosts provide excellent shelter, limited to no light, and typically have southwestern exposure. Night roosts are larger areas these bats can use when outside temperatures necessitate communal congregation for warmth. Hibernaculum habitats tend to include mines and caves and are typically warmer and more humid.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within Low (0.11) habitat suitability for this species. Suitable foraging habitat, including watercourses, does not exist within the Study Area.	**Not Present.** The CWHR Predicted Habitat Suitability is Low within the Study Area and no signs of bat presence (guano) were observed. It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.
fringed myotis *Myotis thysanodes*	BLM: S CDFW: SSC IUCN: LC USFS: S WBWG: H	*M. thysanodes* are widespread in California, occurring in a wide variety of habitats including pinyon-juniper, valley foothill hardwood and hardwood-conifer, generally found at 1300-2200m elevations (4000-7000ft) (Harris). They forage around streams, lakes, and ponds and their prey consists mainly of beetles and other insects. Typical roosting habitat includes caves, mine tunnels, rock crevices and old buildings.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within Low (0.11) habitat suitability for this species. Foraging habitat (around water bodies) does not exist within the Study Area that this species could utilize. Additionally, the elevation ranges that this species is typically found at exceeds that of the Study Area.	**Not Present.** The CWHR Predicted Habitat Suitability is Low within the Study Area and no signs of bat presence (guano) were observed. It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Yuma myotis *Myotis yumanensis*	CDFW: SSC BLM: S IUCN: LC WBWG: LM	*M. yumanensis* commonly inhabits open forests and woodlands from British Columbia across the western U.S. and south into Baja and southern Mexico. This species will use a variety of lowland habitats from scrub to coniferous forest, always near slow moving or standing water habitats. Foraging occurs almost exclusively over water, with distribution being closely tied to bodies of water. Typical roosting habitat are caves, mines, buildings, under bridges and in cliff and tree crevices. Maternity colonies are often in caves, mines, buildings and crevices.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within Low (0.13) habitat suitability for this species. The Study Area provides marginal roosting habitat (tree crevices) in mixed oak stands; however, there are no water bodies (lakes, streams, rivers etc.) that provide suitable foraging habitat for this species.	**Not Present.** The CWHR Predicted Habitat Suitability is Low within the Study Area and no signs of bat presence (guano) were observed. It is Jacobszoon and Associates, Inc. understanding that there is no vegetation (including shrub/trees) proposed for removal. There are no further recommendations for this species.
fisher [West Coast DPS] *Pekania pennanti*	ST CDFW: SSC USFS: S	*P. pennanti* are primarily solitary, except during breeding season (February – April and they inhabit forest stands with late-successional characteristics including intermediate-to-large tree stages of coniferous forest and deciduous-riparian areas with high percent canopy closure. Den site and prey availability are often associated with these characteristics. *P. pennanti* use cavities, snags, logs and rocky areas for cover and denning and require large areas of mature, dense forest (CDFW 2019).	**No Potential.** According to CWHR Predicted Habitat Suitability, the Study Area is not mapped indicating suitable habitat for this species does not exist within the Study Area. Required late-successional characteristics and riparian areas with high canopy percent canopy closure do not exist within the Study Area.	**Not Present.** Trees within the Study Area do not provide the required old-growth or late-successional characteristics that this species requires. No signs of *P. pennanti* were observed during the biological assessment. There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
American badger *Taxidea taxus*	CDFW: SSC IUCN: LC	*T. taxus* are most abundant in drier open stages of most shrub, forest and herbaceous habitats, with friable soils (Zeiner et al. 1990b). *T. taxus* dig burrows in the friable soils and frequently reuse old burrows. They prey on burrowing rodents, especially ground squirrels and pocket gophers, also on birds, insects, reptiles and carrion. Their diet shifts seasonally depending on the availability of prey. *T. taxus* are non-migratory and are found throughout most of California, except the northern North Coast area.	**Moderate Potential.** According to CWHR Predicted Habitat Suitability, the northern portion of the Study Area (around the domestic area) falls within Medium (0.48) habitat suitability for this species. The remainder of the Study Area is unmapped indicating that suitable habitat within this area is not suitable for this species to utilize.	**Not Observed.** If groundbreaking activities (excavation, grading etc.) are proposed, it is recommended that surveys for *T. taxus* be conducted following CDFW's survey protocol prior to development. If no groundbreaking activities are proposed within the Study Area, there are no further recommendations for this species.
Mollusks				
Oregon floater *Anodonta oregonensis*	CDFW: SSC	*A. oregonensis* is distributed across western North America, including Oregon, Washington, California, Nevada and British Columbia. This species prefers low-gradient and low elevation rivers, lakes and reservoirs and often overlaps with *A. californiensis* in habitat. Coho salmon (*Oncorhynchus kisutch*) are considered host species for *A. oregonensis.*	**No Potential.** Habitat for this species (fish-bearing streams) does not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
western ridged mussel *Gonidea angulata*	CDFW: SSC	*G. angulata* inhabits cold creeks and streams from low-to-mid elevations that are seasonally and not continuously turbid. *G. angulata* requires a host species to reproduce and disperse and can be found in diverse substrates from firm mud to coarse particles. Documented fish hosts for this species include hardhead (*Mylopharodon conocephalus*), pit sculpin (*Cottus pitensis*), and Tule perch (*Hysterocarpus traski*).	**No Potential.** Habitat for this species (fish-bearing streams) does not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
western pearlshell *Margaritifera falcata*	CDFW: SSC	*M. falcata* populations occur in cold, clear streams and rivers, often in reaches having fast currents and coarse substrate. This species is intolerant of heavy nutrient loads, siltation, and water pollution. This mollusk requires a fish host for its larval stage.	**No Potential.** Habitat for this species (fish-bearing streams) does not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
Clear Lake pyrg *Pyrgulopsis ventricosa*	CDFW: SSC	*P. ventricosa* inhabits springs and small spring-fed streams, where it is found on vegetation. It was historically widespread in the Clear Lake region but currently it is restricted to the Seigler Creek drainage in the south end of the Clear Lake basin.	**No Potential.** Habitat for this species (fish-bearing streams) does not exist within the Study Area.	**Not Present.** There are no further recommendations for this species.
Reptiles				
western pond turtle *Emys marmorata*	BLM: S CDFW: SSC IUCN: VU USFS: S	*E. marmorata* are associated with permanent ponds, lakes, streams, stock ponds, marshes, seasonal wetlands, artificial areas including reservoirs or irrigation ditches, or permanent pools along intermittent streams in a wide variety of habitats. This species requires basking sites in the aquatic environment or upland, grassy openings with loose soil for nesting and overwintering. Nest sites can be found from 100-500 meters from aquatic habitat.	**Unlikely.** According to CWHR Predicted Habitat Suitability, the Study Area falls within Low (0.27) habitat suitability for this species. No suitable aquatic habitat exists within the Study Area that this species could utilize.	**Not Present.** There are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Plants				
bent-flowered fiddleneck *Amsinckia lunaris*	Rank 1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. Elevation ranges from 10 to 2609 feet (3 to 795 meters). An annual herb, the blooming period is from Mar-Jun.	**No Potential.** The Study Area does not provide suitable habitat (cismontane woodland, grassland, coastal scrub, etc.) for this species.	**Not Present.** No further recommendations for this species.
dimorphic snapdragon *Antirrhinum subcordatum*	Rank 4.3	Chaparral, lower montane coniferous forest, generally on serpentine or shale in foothill woodland or chaparral on south and west-facing slopes (ultramafic). *A. subcordatum* has a moderate serpentine affinity (4.3, broad endemic/strong indicator). Elevation ranges from 607 to 2625 feet (185 to 800 meters). An annual herb, the blooming period is from Apr-Jul.	**Moderate Potential.** The Study Area does provide suitable habitat (chaparral, lower montane coniferous forest) for this species; however, no serpentine sites were observed during the biological assessment.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
twig-like snapdragon *Antirrhinum virga*	Rank 4.3	Chaparral, lower montane coniferous forest, rocky openings, often on serpentine. *A. virga* has a minor serpentine affinity (2.8, strong indicator). Elevation ranges from 328 to 6611 feet (100 to 2015 meters). A perennial herb, the blooming period is from Jun-Jul.	**Moderate Potential.** The Study Area does provide suitable habitat (chaparral, lower montane coniferous forest) for this species; however, no serpentine sites were observed during the biological assessment.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
coast rockcress *Arabis blepharophylla*	Rank 4.3	Broadleaved upland forest, coastal prairie, coastal scrub, coastal bluff scrub, often found on rocky sites. Elevation ranges from 10 to 3609 feet (3 to 1100 meters). A perennial herb, the blooming period is from Feb-May.	**No Potential.** The Study Area does not provide suitable habitat (broadleaved upland forest, coastal prairie, coastal scrub, etc.) for this species.	**Not Present.** No further recommendations for this species.
Konocti manzanita *Arctostaphylos stanfordiana* ssp. *elegans*	Rank 1B.3	Chaparral, cismontane woodland, lower montane coniferous forest, often on volcanic soils. Elevation ranges from 738 to 6004 feet (225 to 1830 meters). A shrub, the blooming period is from Mar-May.	**High Potential.** The Study Area does provide suitable habitat (chaparral, lower montane coniferous forest) for this species. Additionally, other *Arctostaphylos* sp. and obsidian fragments exist within the Study Area indicating volcanic soils exist within the region.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Raiche's manzanita *Arctostaphylos stanfordiana* ssp. *raichei*	Rank 1B.1	Chaparral, lower montane coniferous forest (openings), rocky, serpentine sites, often on slopes and ridges. *A. stanfordiana ssp. raichei* has a minor serpentine affinity (2.6, strong indicator). Elevation ranges from 1591 to 3511 feet (485 to 1070 meters). A perennial evergreen shrub, the blooming period is from Feb-Apr.	**High Potential.** The Study Area does provide suitable habitat (chaparral, lower montane coniferous forest) for this species. Additionally, many *Arctostaphylos* sp. exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
serpentine milkweed *Asclepias solanoana*	Rank 4.2	Chaparral, cismontane woodland, lower montane coniferous forest, typically growing on serpentine soils and confined to clearings and gentle slopes with southern exposure. *A. solanoana* has a strong serpentine affinity (6.0, strict endemic). Elevation ranges from 755 to 6103 feet (230 to 1860 meters). A perennial herb, the blooming period is from May-Jul.	**Moderate Potential.** The Study Area does provide suitable habitat (chaparral, lower montane coniferous forest) for this species; however, no serpentine soils exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Brewer's milk-vetch *Astragalus breweri*	Rank 4.2	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland. Often in grassy flats, meadows moist in spring, and open slopes in chaparral. Commonly on or near volcanic or serpentine sites. *A. breweri* has a minor serpentine affinity (3.2, strong indicator). Elevation ranges from 296 to 2395 feet (90 to 730 meters). An annual herb, the blooming period is from Apr-Jun.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, *A. breweri* is commonly found in moist grassland habitat which is not found within the Study Area.	**Not Present.** No further recommendations for this species.
Cleveland's milk-vetch *Astragalus clevelandii*	Rank 4.3	Chaparral, cismontane woodland, riparian forest, ultramafic seeps and creeks; sandy stream banks, gravel bars moist in spring, hillside seeps on slopes. *A. clevelandii* has a strong serpentine affinity (6.1, strict endemic). Elevation ranges from 656 to 4922 feet (200 to 1500 meters). A perennial herb, the blooming period is from Jun-Sep.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, *A. clevelandii* is commonly found in riparian habitat (creeks, streambanks, etc.) which do not exist within the Study Area. Additionally, no serpentine sites were observed within the Study Area.	**Not Present.** No further recommendations for this species.
Jepson's milk-vetch *Astragalus rattanii* var. *jepsonianus*	Rank 1B.2	Cismontane woodland, valley and foothill grassland, chaparral, commonly on serpentine (ultramafic) in grasslands or in openings of chaparral. *A. rattanii* var. *jepsonianus* has a moderate serpentine affinity (4.3, broad endemic/strong indicator). Elevation ranges from 574 to 3297 feet (175 to 1005 meters). An annual herb, the blooming period is from Mar-Jun.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, *A. ratanii* var. *jepsonianus* is commonly found in grassland habitats on serpentine soils which is not found within the Study Area.	**Not Present.** No further recommendations for this species.
Mexican mosquito fern *Azolla microphylla*	Rank 4.2	Marshes and swamps (wetlands), pools and still water. Elevation ranges from 99 to 328 feet (30 to 100 meters). A fern, the blooming period is in Aug.	**No Potential.** The Study Area does not provide suitable habitat (marshes, wetlands) for this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
watershield *Brasenia schreberi*	Rank 2B.3	Freshwater marshes and swamps. Aquatic, known from water bodies both natural and artificial. Elevation ranges from 3 to 7152 feet (1 to 2180 meters). A perennial rhizomatous herb (aquatic), the blooming period is from Jun-Sep.	**No Potential.** The Study Area does not provide suitable habitat (marshes, swamps, aquatic sites) for this species.	**Not Present.** No further recommendations for this species.
Indian Valley brodiaea *Brodiaea rosea* ssp. *rosea*	Rank 3.1	Closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland, often serpentine gravelly creek bottoms and in meadows/swales. Elevation ranges from 1116 to 3921 feet (340 to 1195 meters). A perennial herb (bulb), the blooming period is from May-Jun.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, closed-cone coniferous forest, cismontane woodland and grasslands with serpentine soils or meadows/swales do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
serpentine reed grass *Calamagrostis ophitidis*	Rank 4.3	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grasslands, often on serpentine, rocky sites (ultramafic). Elevation ranges from 296 to 3494 (90-1065 meters). A perennial grass, the blooming period is from Apr-Jul.	**Moderate Potential.** The Study Area does provide suitable habitat (chaparral, lower montane coniferous forest) for this species; however, no meadow and seep, valley and foothill grassland, or serpentine sites exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
pink star-tulip *Calochortus uniflorus*	Rank 4.2	Coastal scrub, coastal prairie, north coast coniferous forest, meadows and seeps. Seasonally moist meadows, sometimes within coastal scrub or forested habitats, usually in wetlands or at low elevations on the coast. *C. uniflorus* has a minor serpentine affinity (1.7, weak indicator). Elevation ranges from 33 to 3511 feet (10 to 1070 meters). A perennial herb, the blooming period is from Apr-Jun.	**No Potential.** The Study Area does not provide suitable habitat (coastal sites, meadows and seeps) for this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
small-flowered calycadenia *Calycadenia micrantha*	Rank 1B.2	Chaparral, valley and foothill grassland, meadows and seeps. Rocky talus or scree; sparsely vegetated areas, occasionally on roadsides, sometimes serpentine. Elevation ranges from 1427 to 4610 feet (435 to 1405 meters). An annual herb, the blooming period is from Jun-Sep.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, valley and foothill grasslands with rocky talus or scree, serpentine soils or meadows/swales do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
four-petaled pussypaws *Calyptridium quadripetalum*	Rank 4.3	Chaparral, lower montane coniferous forest, sandy or gravelly areas, generally on serpentine (ultramafic). *C. quadripetalum* has a moderate serpentine affinity (4.6, broad endemic). Elevation ranges from 1034 to 6693 feet (315 to 2040 meters). An annual herb, the blooming period is from Apr-Jun.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest); however, gravelly areas with serpentine soils do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Mt. Saint Helena morning-glory *Calystegia collina* ssp. *oxyphylla*	Rank 4.2	Chaparral, lower montane coniferous forest, valley and foothill grassland, often along serpentine barrens, slopes and hillsides (ultramafic). *C. collina ssp. oxyphylla* has a moderate serpentine affinity (5.6, strict endemic). Elevation ranges from 919 to 3314 feet (280 to 1010 meters). A perennial herb (rhizomatous), the blooming period is from Apr-Jun.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest); however, serpentine soils do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
three-fingered morning-glory *Calystegia collina* ssp. *tridactylosa*	Rank 1B.2	Chaparral, cismontane woodland, often on rocky, gravelly openings on serpentine substrates (ultramafic). Elevation ranges from 1985 to 2313 feet (605 to 705 meters). A perennial herb, the blooming period is from Apr-Jun.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland and serpentine soils do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
northern meadow sedge *Carex praticola*	Rank 2B.2	Meadows and seeps, wetlands, moist to wet meadows. Elevation ranges from 49 to 10499 feet (15 to 3200 meters). A perennial grasslike herb, the blooming period is from May-Jul.	**No Potential.** The Study Area does not provide suitable habitat (meadows and seeps, wetlands, etc.) for this species.	**Not Present.** No further recommendations for this species.
Rincon Ridge ceanothus *Ceanothus confusus*	Rank 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland, known from volcanic or serpentine soils, dry shrubby slopes. *C. confusus* has a minor serpentine affinity (1.3, weak indicator/indifferent). Elevation ranges from 492 to 4200 feet (150 to 1280 meters). A shrub, the blooming period is from Feb-Jun.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest, volcanic soils); however, serpentine soils do not exist within the Study Area and no *Ceanothus* sp. were observed within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Calistoga ceanothus *Ceanothus divergens*	Rank 1B.2	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, often found in openings of chaparral or grasslands, sometimes on serpentine. Elevation ranges from 66 to 3002 feet (20 to 915 meters). *C. divergens* has a minor serpentine affinity (2.0, weak indicator). A shrub, the blooming period is from Feb-Apr.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, meadows and seeps, valley and foothill grassland and serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
dwarf soaproot *Chlorogalum pomeridianum* var. *minus*	Rank 1B.2	Chaparral, often found on serpentine sites (ultramafic). Elevation ranges from 394 to 4003 feet (120 to 1220 meters). *C. pomeridianum* var. *minus* has a strong serpentine affinity (6.1, strict endemic). A perennial herb (bulb), the blooming period is from May-Aug.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral); however, serpentine soils do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Tracy's clarkia *Clarkia gracilis* ssp. *tracyi*	Rank 4.2	Chaparral, openings, usually on serpentine. *C. gracilis* ssp. *tracyi* has a moderate serpentine affinity (5, broad endemic). Elevation ranges from 214 to 2133 feet (65 to 650 meters). An annual herb, the blooming period is from Apr-Jul.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral); however, serpentine soils do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
serpentine collomia *Collomia diversifolia*	Rank 4.3	Chaparral, cismontane woodland, often on rocky or gravelly sites (ultramafic). *C. diversifolia* has a strong serpentine affinity (5.6, strict endemic). Elevation ranges from 985 to 1969 feet (300 to 600 meters). An annual herb, the blooming period is from May-Jun.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral); however, rocky or gravelly (ultramafic) sites and serpentine soils do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
serpentine bird's-beak *Cordylanthus tenuis* ssp. *brunneus*	Rank 4.3	Chaparral, closed-cone coniferous forest, cismontane woodland, often along barren, rocky serpentine soil (ultramafic). *C. tenuis ssp. brunneus* has a moderate serpentine affinity (5.1, broad endemic). Elevation ranges from 1559 to 3002 feet (475 to 915 meters). An annual herb (hemiparasitic), the blooming period is from Jul-Aug.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, closed-cone coniferous forest, cismontane woodland, and ultramafic serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Pennell's bird's-beak *Cordylanthus tenuis* ssp. *capillaris*	Rank 1B.2	Closed-cone coniferous forest, chaparral, often in open or disturbed areas on serpentine within forest or chaparral (ultramafic). *C. tenuis* ssp. *capillaris* has a strong serpentine affinity (6.1, strict endemic). Elevation ranges from 296 to 706 feet (90 to 215 meters). An annual herb (hemiparisitic), the blooming period is from Jun-Sep.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, closed-cone coniferous forest, and ultramafic serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
serpentine cryptantha *Cryptantha dissita*	Rank 1B.2	Chaparral, serpentine outcrops (ultramafic). Elevation ranges from 443 to 2412 feet (135 to 735 meters). An annual herb, the blooming period is from Apr-Jun.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, ultramafic serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
mountain lady's-slipper *Cypripedium montanum*	Rank 4.2	Lower montane coniferous forest, broadleaved upland forest, cismontane woodland, north coast coniferous forest, often on dry, undisturbed slopes. Elevation ranges from 607 to 7300 feet (185 to 2225 meters). A perennial herb (rhizomatous), the blooming period is from Mar-Aug.	**High Potential.** The Study Area does provide marginal habitat for this species (lower montane coniferous forest, chaparral.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
swamp larkspur *Delphinium uliginosum*	Rank 4.2	Chaparral, valley and foothill grassland, often found in moist drainages, meadows and creekbeds on mesic ultramafic substrates. *D. uliginosum* has a strong serpentine affinity (5.7, strict endemic). Elevation ranges from 1116 to 2002 feet (340 to 610 meters). A perennial herb, the blooming period is from May-Jun.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, valley and foothill grassland, meadows and moist drainages with ultramafic substrates do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Cascade downingia *Downingia willamettensis*	Rank 2B.2	Cismontane woodland, valley and foothill grasslands, vernal pools, lake margins. Elevation ranges from 49 to 3642 feet (15 to 1110 meters). An annual herb, the blooming period is from Jun-Jul.	**No Potential.** The Study Area does not provide suitable habitat (cismontane woodland, valley and foothill grassland, vernal pools and lake margins) for this species.	**Not Present.** No further recommendations for this species.
Brandegee's eriastrum *Eriastrum brandegeeae*	Rank 1B.1	Chaparral, cismontane woodland, on barren volcanic soils, often in open areas. Elevation ranges from 1345 to 2773 feet (410 to 845 meters). An annual herb, the blooming period is from Apr-Aug.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, volcanic soils); however, cismontane woodland habitat does not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Greene's narrow-leaved daisy *Erigeron greenei*	Rank 1B.2	Chaparral, serpentine and volcanic substrates, generally in shrubby vegetation. Elevation ranges from 296 to 2740 feet (90 to 835 meters). A perennial herb, the blooming period is from May-Sep.	**High Potential.** The Study Area does provide marginal habitat for this species (chaparral, shrubby vegetation, volcanic soils).	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Snow Mountain buckwheat *Eriogonum nervulosum*	Rank 1B.2	Chaparral, ultramafic, dry serpentine outcrops, balds and barrens. *E. nervulosum* has a strong serpentine affinity (6.2, strict endemic). Elevation ranges from 1460 to 6906 feet (445 to 2105 meters). A perennial herb (rhizomatous), the blooming period is from Jun-Sep.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, ultramafic, dry serpentine outcrops do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Loch Lomond button-celery *Eryngium constancei*	Rank 1B.1	Vernal pools, volcanic ash flow vernal pools, wetlands. Elevation ranges from 1509 to 2805 feet (460 to 855 meters). An annual or perennial herb, the blooming period is from Apr-Jun.	**No Potential.** The Study Area does not provide suitable habitat (vernal pools, wetlands, etc.) for this species.	**Not Present.** No further recommendations for this species.
bare monkeyflower *Erythranthe nudata*	Rank 4.3	Chaparral, cismontane woodland, moist areas, often along drainages and roadsides in serpentine seeps. Elevation ranges from 820 to 2297 feet (250 to 700 meters). An annual herb, the blooming period is from May-Jun.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, moist areas and serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
St. Helena fawn lily *Erythronium helenae*	Rank 4.2	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland often associated with serpentine and volcanic soils. Commonly grows in the open, inter-shrub spaces. *E. helenae* has a moderate serpentine affinity (4.5, broad endemic). Elevation ranges from 1149 to 4003 feet (350 to 1220 meters). A perennial herb (bulb), the blooming period is from Mar-May.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest, volcanic soils); however, cismontane woodland, valley and foothill grasslands and serpentine soils do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Purdy's fritillary *Fritillaria purdyi*	Rank 4.3	Chaparral, cismontane woodland, lower montane coniferous forest, usually on serpentine. *F. fritillary* has a moderate serpentine affinity (4.5, broad endemic). Elevation ranges from 574 to 7399 feet (175 to 2255 meters). A perennial bulbiferous herb, the blooming period is from Mar-Jun.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest); however, cismontane woodland and serpentine soils do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	Rank 1B.2	Marshes and swamps (freshwater), vernal pools, often found in clay soils, usually in vernal pools or sometimes lake margins. Elevation ranges from 13 to 7907 feet (4 to 2410 meters). An annual herb, the blooming period is from Apr-Aug.	**No Potential.** The Study Area does not provide suitable habitat (marshes and swamps, vernal pools, etc.) for this species.	**Not Present.** No further recommendations for this species.
Toren's grimmia *Grimmia torenii*	Rank 1B.3	Cismontane woodland, lower montane coniferous forest, chaparral, often found in openings, rocky, boulder and rock walls, carbonate, volcanic. Elevation ranges from 1067 to 3806 feet (325 to 1160 meters). A moss, no distinct blooming period.	**High Potential.** The Study Area does provide marginal habitat for this species (lower montane coniferous forest, chaparral, volcanic soils); however, cismontane woodland does not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Hall's harmonia *Harmonia hallii*	Rank 1B.2	Chaparral, serpentine hills and ridges, open, rocky areas within chaparral (ultramafic). *H. hallii* has a strong serpentine affinity (6.1, strict endemic). Elevation ranges from 1099 to 3101 feet (335 to 945 meters). An annual herb, the blooming period is from Apr-Jun.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
serpentine sunflower *Helianthus exilis*	Rank 4.2	Chaparral, cismontane woodland, often in serpentine seeps (ultramafic). *H. exilis* has a strong serpentine affinity (5.7, strict endemic). Elevation ranges from 492 to 5004 feet (150 to 1525 meters). An annual herb, the blooming period is from Jun-Nov.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland and serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Mendocino tarplant *Hemizonia congesta* ssp. *calyculata*	Rank 4.3	Cismontane woodland, valley and foothill grassland, open woods and forests, sometimes on serpentine. *H. congesta ssp. calyculata* has a serpentine affinity (1.5, weak indicator). Elevation ranges from 738 to 4593 feet (225 to 1400 meters). An annual herb, the blooming period is from Jul-Nov.	**No Potential.** The Study Area does not provide suitable habitat (cismontane woodland, valley and foothill grassland, etc.) for this species.	**Not Present.** No further recommendations for this species.
glandular western flax *Hesperolinon adenophyllum*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland, serpentine soils, generally found in serpentine chaparral. *H. adenophyllum* has a serpentine affinity (5.7, strict endemic). Elevation ranges from 1395 to 4413 feet (425 to 1345 meters). An annual herb, the blooming period is from May-Aug.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, valley and foothill grasslands and serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
two-carpellate western flax *Hesperolinon bicarpellatum*	Rank 1B.2	Serpentine barrens at edges of chaparral. *H. bicarpellatum* has a serpentine affinity (6.2, strict endemic). Elevation ranges from 574 to 2707 feet (175 to 825 meters). An annual herb, the blooming period is from May-Jul.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Lake County western flax *Hesperolinon didymocarpum*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland, serpentine soils in open grasslands and near chaparral (ultramafic). *H. didymocarpum* has a strong serpentine affinity (6.2, strict endemic). Elevation ranges from 1067 to 1313 feet (325 to 400 meters). An annual herb, the blooming period is from May-Jul.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, valley and foothill grasslands and serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Bolander's horkelia *Horkelia bolanderi*	Rank 1B.2	Lower montane coniferous forest, chaparral, meadows and seeps, valley and foothill grassland, often found in grassy margins of vernal pools and meadows. Elevation ranges from 1493 to 2805 feet (455 to 855 meters). A perennial herb, the blooming period is from Jun-Aug.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest); however, meadows and seeps, valley and foothill grasslands and vernal pools do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
California satintail *Imperata brevifolia*	Rank 2B.1	Coastal scrub, chaparral, riparian scrub, mojavean desert scrub, meadows and seeps (alkali), riparian scrub. Mesic sites, alkali seeps, riparian areas. Elevation ranges from 10 to 4905 feet (3 to 1495 meters). A perennial grass, the blooming period is from Sep-May.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, coastal scrub, riparian scrub, mojavean desert scrub and meadows and seeps (mesic sites) do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Burke's goldfields *Lasthenia burkei*	Rank 1B.1	Found in vernal pools and swales, meadows and seeps. Elevation ranges from 49 to 1969 feet (15 to 600 meters). An annual herb, the blooming period is from Apr-Jun.	**No Potential.** The Study Area does not provide suitable habitat (vernal pools, swales, meadows and seeps, etc.) for this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Colusa layia *Layia septentrionalis*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland, scattered colonies in fields and grassy slopes in sandy or serpentine soil. Elevation ranges from 49 to 3609 feet (15 to 1100 meters). An annual herb, the blooming period is from Apr-May.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, valley and foothill grassland, and serpentine soils do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
legenere *Legenere limosa*	Rank 1B.1	Beds of vernal pools, wetlands. Elevation ranges from 4 to 3298 feet (1 to 1005 meters). An annual herb, the blooming period is from Apr-Jun.	**No Potential.** The Study Area does not provide suitable habitat (vernal pools, wetlands, etc.) for this species.	**Not Present.** No further recommendations for this species.
bristly leptosiphon *Leptosiphon acicularis*	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 181 to 4922 feet (55 to 1500 meters). An annual herb, the blooming period is from Apr-Jul.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, coastal prairie, and valley and foothill grasslands do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
large-flowered leptosiphon *Leptosiphon grandifloras*	Rank 4.2	Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland, often on open, grassy flats, generally with sandy soils. Elevation ranges from 17 to 3937 feet (5 to 1200 meters). An annual herb, the blooming period is from Apr-Aug.	**No Potential.** The Study Area does not provide suitable habitat (coastal habitats with sandy soils, closed-cone coniferous forest, cismontane woodlands, valley and foothill grasslands, etc.) for this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
broad-lobed leptosiphon *Leptosiphon latisectus*	Rank 4.3	Broadleaved upland forest, cismontane woodland. *L. latisectus* has a serpentine affinity (2.0, weak indicator). Elevation ranges from 558 to 4922 feet (170 to 1500 meters). An annual herb, the blooming period is from Apr-Jun.	**No Potential.** The Study Area does not provide suitable habitat (broadleaved upland forest, cismontane woodlands, etc.) for this species.	**Not Present.** No further recommendations for this species.
Jepson's leptosiphon *Leptosiphon jepsonii*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland often found in open-to-partially shaded grassy slopes on volcanics or the periphery of serpentine substrates (ultramafic). Elevation ranges from 181 to 2805 feet (55 to 855 meters. An annual herb, the blooming period is from Mar-May.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, volcanic soils); however, cismontane woodland, and valley and foothill grasslands do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
woolly meadowfoam *Limnanthes floccosa* ssp. *floccosa*	Rank 4.2	Chaparral, cismontane woodland, valley and foothill grassland, vernal pools, vernally wet areas, ditches and ponds. Elevation ranges from 197 to 4380 feet (60 to 1335 meters). An annual herb, the blooming period is from Mar-May.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, valley and foothill grassland, and vernal pools do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Anthony Peak lupine *Lupinus antoninus*	Rank 1B.2	Upper montane coniferous forest, lower montane coniferous forest, often in open areas with surrounding forest; rocky sites. Elevation ranges from 3986 to 7399 feet (1215 to 2255 meters). A perennial herb, the blooming period is from May-Jul.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (lower montane coniferous forest, rocky sites); however, upper montane coniferous forest does not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Cobb Mountain lupine *Lupinus sericatus*	Rank 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest, broadleaved upland forest. Often in stands of knobcone pine (*Pinus attenuata*)-oak woodland, on open wooded slopes in gravelly soils, sometimes on serpentine. Elevation ranges from 394 to 4561 feet (120 to 1390 meters). A perennial herb, the blooming period is from Mar-Jun.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest, rocky sites); however, cismontane woodland, broadleaved upland forest does not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Mt. Diablo cottonweed *Micropus amphibolus*	Rank 3.2	Valley and foothill grassland, cismontane woodland, chaparral, broadleaved upland forest, often on bare, grassy, or rocky slopes. Elevation ranges from 148 to 2707 feet (45 to 825 meters). An annual herb, the blooming period is from Mar-May.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, valley and foothill grassland, and broadleaved upland forest do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
elongate copper moss *Mielichhoferia elongata*	Rank 4.3	Cismontane woodland often grows on very acidic, metamorphic rock or substrate, usually in higher potions of fens. Substrates often are naturally enriched with heavy metals (e.g. copper) such as mine tailings. Elevation ranges from 17 to 3560 feet (5 to 1085 meters). A moss, there is no distinct blooming period.	**No Potential.** The Study Area does not provide suitable habitat (cismontane woodlands with acidic, metamorphic rock or substrate) for this species.	**Not Present.** No further recommendations for this species.
green monardella *Monardella viridis*	Rank 4.3	Broadleaved upland forest, chaparral, cismontane woodland. Elevation ranges from 328 to 3314 feet (100 to 1010 meters). A perennial herb, the blooming period is from Jun-Sep.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland and broadleaved upland forest do not exist within the Study Area.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
little mousetail *Myosurus minimus* ssp. *apus*	Rank 3.1	Vernal pools, valley and foothill grassland, wetlands, often in alkaline soils. Elevation ranges from 66 to 2100 feet (20 to 640 meters). An annual herb, the blooming period is from Mar-Jun.	**No Potential.** The Study Area does not provide suitable habitat (vernal pools, valley and foothill grassland, wetlands, etc.) for this species.	**Not Present.** No further recommendations for this species.
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	Rank 1B.1	Cismontane woodland, meadows and seeps, vernal pools and swales, valley and foothill grassland, lower montane coniferous forest, adobe or alkaline soils. Elevation ranges from 10 to 5512 feet (3 to 1680 meters). An annual herb, the blooming period is from Apr-Jul.	**Unlikely.** The Study Area does provide marginal habitat for this species (lower montane coniferous forest); however, cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, and wetlands do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
few-flowered navarretia *Navarretia leucocephala* ssp. *pauciflora*	Rank 1B.1	Vernal pools, volcanic ash flow and volcanic substrate within and adjacent to vernal pools. Elevation ranges from 1395 to 2805 feet (425 to 855 meters). An annual herb, the blooming period is from May-Jun.	**No Potential.** The Study Area does not provide suitable habitat (vernal pools, etc.) for this species.	**Not Present.** No further recommendations for this species.
many-flowered navarretia *Navarretia leucocephala* ssp. *plieantha*	Rank 1B.2	Vernal pools, volcanic ash flow vernal pools (wetlands). Elevation ranges from 99 to 3002 feet (30 to 915 meters). An annual herb, the blooming period is from Apr-Jun.	**No Potential.** The Study Area does not provide suitable habitat (vernal pools, etc.) for this species.	**Not Present.** No further recommendations for this species.
slender Orcutt grass *Orcuttia tenuis*	Rank 1B.1	Vernal pools, often in gravelly substrate, wetlands. Elevation ranges from 82 to 5758 feet (25 to 1755 meters). An annual grass, the blooming period is from May-Sep.	**No Potential.** The Study Area does not provide suitable habitat (vernal pools, wetlands, etc.) for this species.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Geysers panicum *Panicum acuminatum* var. *thermale*	Rank 1B.2	Closed-cone coniferous forest, riparian forest, valley and foothill grassland, wetland, usually around moist, warm soil in the vicinity of hot springs. Elevation ranges from 1793 to 8104 feet (455 to 2470 meters). A perennial grass, the blooming period is from Jun-Sep.	**No Potential.** The Study Area does not provide suitable habitat (closed-cone coniferous forest, riparian forest, valley and foothill grassland, wetlands, etc.) for this species.	**Not Present.** No further recommendations for this species.
Sonoma beardtongue *Penstemon newberryi* var. *sonomensis*	Rank 1B.3	Chaparral, crevices in rock outcrops and talus slopes. Elevation ranges from 591 to 4610 feet (180 to 1405 meters). A perennial herb, the blooming period is from Apr-Aug.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral).	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Michael's rein orchid *Piperia michaelii*	Rank 4.2	Coastal bluff scrub, coastal scrub, cismontane woodland, chaparral, closed-cone coniferous forest, lower montane coniferous forest, mudstone and humus, generally dry sites. Elevation ranges from 10 to 3002 feet (3 to 915 meters). A perennial herb, the blooming period is from Apr-Aug.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest); however, coastal habitats, cismontane woodland, closed-cone coniferous forest do not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.
Mayacamas popcornflower *Plagiobothrys lithocaryus*	Rank 1A	Chaparral, cismontane woodland, valley and foothill grassland, moist sites. Elevation ranges from 985 to 1477 feet (300 to 450 meters). An annual herb, the blooming period is from Apr-May.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, and valley and foothill grassland do not exist within the Study Area.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
eel-grass pondweed *Potamogeton zosteriformis*	Rank 2B.2	Marshes, swamps, wetlands, ponds, lakes and streams. Elevation ranges from 296 to 7005 feet (90 to 2135 meters). An annual herb (aquatic), the blooming period is from Jun-Jul.	**No Potential.** The Study Area does not provide suitable habitat (marshes, swamps, wetlands, ponds and watercourses, etc.) for this species.	**Not Present.** No further recommendations for this species.
Lobb's aquatic buttercup *Ranunculus lobbii*	Rank 4.2	Cismontane woodland, valley and foothill grassland, vernal pools, north coast coniferous forest (mesic sites). Elevation ranges from 50 to 1542 feet (15 to 470 meters). An annual herb (aquatic), the blooming period is from Feb-May.	**No Potential.** The Study Area does not provide suitable habitat (cismontane woodland, valley and foothill grassland, vernal pools, north coast coniferous forest (mesic sites), etc.) for this species.	**Not Present.** No further recommendations for this species.
Lake County stonecrop *Sedella leiocarpa*	Rank 1B.1	Valley and foothill grassland, vernal pools, cismontane woodland, level areas that are seasonally wet and dry out in late spring; usually volcanic in origin. Elevation ranges from 1690 to 2100 feet (515 to 640 meters). An annual herb, the blooming period is from Apr-May.	**No Potential.** The Study Area does not provide suitable habitat (cismontane woodland, valley and foothill grassland, vernal pools, etc.) for this species.	**Not Present.** No further recommendations for this species.
marsh checkerbloom *Sidalcea oregana* ssp. *hydrophila*	Rank 1B.2	Meadows and seeps, riparian forest, wet soils along streambanks. Elevation ranges from 1493 to 6660 feet (455 to 2030 meters). A perennial herb, the blooming period is from Jul-Aug.	**No Potential.** The Study Area does not provide suitable habitat (meadows and seeps, riparian forest, streambanks, etc.) for this species.	**Not Present.** No further recommendations for this species.
bearded jewelflower *Streptanthus barbiger*	Rank 4.2	Chaparral, serpentine soils (ultramafic). *S. barbiger* has a strong serpentine affinity (6.0, strict endemic). Elevation ranges from 492 to 3511 feet (150 to 1070 meters). An annual herb, the blooming period is from May-Jul.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, serpentine soils (ultramafic) do not exist within the Study Area.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Socrates Mine jewelflower *Streptanthus brachiatus* ssp. *brachiatus*	Rank 1B.2	Chaparral, closed-cone coniferous forest, serpentine sites in chaparral (ultramafic). *S. brachiatus* ssp. *brachiatus* has a strong serpentine affinity (5.6, strict endemic). Elevation ranges from 1985 to 6398 feet (605 to 1950 meters). A perennial herb, the blooming period is from May-Jun.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, closed-cone coniferous forest and serpentine soils (ultramafic) do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Freed's jewelflower *Streptanthus brachiatus* ssp. *hoffmanii*	Rank 1B.2	Chaparral, cismontane woodland, on serpentine rock outcrops, primarily in geothermal development areas. *S. brachiatus* ssp. *brachiatus* has a strong serpentine affinity (6.1, strict endemic). Elevation ranges from 1591 to 3412 feet (485 to 1040 meters). A perennial herb, the blooming period is from May-Jul.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland and serpentine outcrops do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Hoffman's bristly jewelflower *Streptanthus glandulosus* ssp. *hoffmanii*	Rank 1B.3	Chaparral, cismontane woodland, valley and foothill grassland, moist, steep rocky banks in serpentine and non-serpentine soils. Elevation ranges from 197 to 2510 feet (60 to 765 meters). An annual herb, the blooming period is from Mar-Jul.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, valley and foothill grassland, and serpentine soils (ultramafic) do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
green jewelflower *Streptanthus hesperidis*	Rank 1B.2	Chaparral, cismontane woodland, openings in chaparral or woodlands, serpentine, rocky sites (ultramafic). Elevation ranges from 788 to 2510 feet (240 to 765 meters). An annual herb, the blooming period is from May-Jul.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland and serpentine soils (ultramafic) do not exist within the Study Area.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
Kruckeberg's jewelflower *Streptanthus morrisonii* ssp. *kruckebergii*	Rank 1B.2	Cismontane woodland on scattered serpentine outcrops near the Lake/Napa County line (ultramafic). *S. morrisonii ssp. kruckebergii* has a strong serpentine affinity (6.1, strict endemic). Elevation ranges from 788 to 2182 feet (240 to 665 meters). A perennial herb, the blooming period is from Apr-Jul.	**No Potential.** The Study Area does not provide suitable habitat (cismontane woodland and serpentine sites, etc.) for this species.	**Not Present.** No further recommendations for this species.
marsh zigadenus *Toxicoscordion fontanum*	Rank 4.2	Chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps, vernally moist or marshy areas; often on serpentine sites. Elevation ranges from 50 to 3281 feet (15 to 1000 meters). A perennial herb, the blooming period is from Apr-Jul.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest); however, cismontane woodland, meadows and seeps, marshes and swamps, and vernally mesic serpentine sites do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
beaked tracyina *Tracyina rostrata*	Rank 1B.2	Cismontane woodland, valley and foothill grassland, chaparral, often observed in open grassy meadows commonly within oak woodland and grassland habitats. Elevation ranges from 492 to 2609 feet (150 to 795 meters). An annual herb, the blooming period is from May-Jun.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral); however, cismontane woodland, valley and foothill grasslands do not exist within the Study Area.	**Not Present.** No further recommendations for this species.
Napa bluecurls *Trichostema ruygtii*	Rank 1B.2	Cismontane woodland, chaparral, valley and foothill grassland, vernal pools, lower montane coniferous forest, often in open sunny areas or around vernal pools. Elevation ranges from 99 to 2231 feet (30 to 680 meters). An annual herb, the blooming period is from Jun-Oct.	**Unlikely.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest); however, cismontane woodland, valley and foothill grassland, and vernal pools do not exist within the Study Area.	**Not Present.** No further recommendations for this species.

SPECIES	STATUS*	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA	RECOMMENDATIONS
oval-leaved viburnum *Viburnum ellipticum*	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 706 to 4593 feet (215 to 1400 meters). A shrub, the blooming period is from May-Jun.	**Moderate Potential.** The Study Area does provide marginal habitat for this species (chaparral, lower montane coniferous forest); however, cismontane woodland does not exist within the Study Area.	**Not Observed.** If vegetation removal is proposed, then a botanical assessment is recommended during the blooming period. If vegetation removal is not proposed, there are no further recommendations for this species.

TERRESTRIAL OR AQUATIC COMMUNITY	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA AND RECOMMENDATIONS
Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh (Terrestrial plant community). Coastal and Valley Freshwater Marsh can be categorized into twenty-two (22) distinct MCV2 Alliances that have the potential to occur within the region; however, this terrestrial plant community does not exist within the Study Area. Several mapped locations for Coastal and Valley Freshwater Marsh exist along the Clear Lake shoreline; however, greater than five (5) miles from the Study Area.	**No Potential.** Coastal and Valley Freshwater Marsh habitat does not exist within the Study Area. **Not Present.** No further recommendations.
Great Valley Mixed Riparian Forest	Great Valley Mixed Riparian Forest (Terrestrial Community): Great Valley Mixed Riparian Forest can be categorized into six (6) distinct MCV2 Alliances, four (4) of which have the potential to occur within the region. The four (4) Great Valley Mixed Riparian Forest MCV2 Alliances with potential to occur within the Study Area include: • *Acer negundo* (MCV2 Alliance), Box-elder forest. *Acer negundo* is dominant or co-dominant in the tree canopy with *Alnus rhombifolia, Fraxinus latifolia, Juglans hindsii, Juglans hindsii x regia, Platanus racemosa, Populus fremontii, Populus trichocarpa, Quercus lobata, Salix gooddingii* and *Salix* spp. Vegetation Layers: Trees < 20m; cover is intermittent to continuous, and it may be two tiered. Shrub layer is open to intermittent. Herbaceous layer is sparse to abundant. Habitats: Streams, bottomlands. Soils are deep alluvium. The USFWS Wetland Inventory (1996 national list) recognizes *Acer negundo* as a FACW plant. Membership rules: o *Acer negundo* > 50% relative cover in the tree canopy (Stillwater Sciences 2001) o *Acer negundo* > 50% relative cover in the tree canopy, with *Fraxinus latifolia, Populus fremontii, Quercus lobata,* and *Salix gooddingii* at < 5% cover (Hickson and Keeler-Wolf 2007) • *Fraxinus latifolia* (MCV2 Alliance), Oregon ash groves. *Fraxinus latifolia* is dominant or co-dominant in the tree canopy with *Acer macrophyllum, Alnus rhombifolia, Calocedrus decurrens, Pinus ponderosa, Quercus kelloggii, Quercus wislizeni* and *Salix laevigata*. Vegetation Layers: Trees < 25m; canopy is open to continuous. Shrub layer is sparse to intermittent. Herbaceous layer is variable. Habitats: Riparian corridors, incised canyons, seeps, stream banks, terraces. Soils are alluvial. The USFWS Wetland Inventory (1996 national list) recognizes *Fraxinus latifolia* as a FACW plant. Membership rules: o *Fraxinus latifolia* > 5% absolute cover and > 30% relative cover in the tree canopy (Klein et al. 2007). o *Fraxinus latifolia* > 5% absolute cover in the tree canopy (Potter 2005).	**No Potential.** Great Valley Mixed Riparian Forest terrestrial community does not exist within the Study Area. There are no watercourses or riparian corridors within the Study Area. **Not Present.** No further recommendations.

TERRESTRIAL OR AQUATIC COMMUNITY	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA AND RECOMMENDATIONS
Great Valley Mixed Riparian Forest (continued)	• *Populus fremontii* (MCV2 Alliance), Fremont cottonwood forest. *Populus fremontii* is dominant or co-dominant in the tree canopy with *Acer negundo, Baccharis sergiloides, Fraxinus latifolia, Juglans hindsii, Juglans hindsii x regia, Plantanus racemosa, Quercus agrifolia, Salix exigua, Salix gooddingii, Salix laevigata, Salix lasiolepis, Salix lucida* ssp. *lasiandra* and *Salix lutea.* Vegetation Layers: Trees < 25m; canopy is continuous to open. Shrub layer is intermittent to open. Herbaceous layer is variable. Habitats: On floodplains, along low gradient rivers, perennial or seasonally intermittent streams, springs, in lower canyons in desert mountains, in alluvial fans, and in valleys with a dependable subsurface water supply that varies considerably during the year. The USFWS Wetland Inventory (1996 national list) recognizes *Populus fremontii* as a FACW plant. Membership rules: o *Populus fremontii* > 5% absolute cover in the tree layer (Potter 2005). o *Populus fremontii* > 50% relative cover in the tree layer (Keeler-Wolf et al. 1998b, Thomas et al. 2004). o *Populus fremontii* > 50% relative cover in the tree layer, though sometimes *P. fremontii* > 30% relative cover if *Salix* species are co-dominant (Evens and San 2005, Klein and Evens 2005, cf. Stillwater Sciences and URS 2007). • *Salix gooddingii* (MCV2 Alliance), Black willow thickets. *Salix gooddingii* is dominant or co-dominant in the tree canopy with *Alnus rhombifolia, Populus fremontii, Salix laevigata, Salix lasiolepis, Salix lucida* ssp. *lasiandra, Sambucas nigra* and *Washingtonia filifera.* Shrubs include *Baccharis pilularis, Baccharis salicifolia* or *Cornus sericea.* Vegetation Layers: Trees < 30m; canopy is open to continuous. Shrub layer is open to continuous. Herbaceous layer is variable. Habitats: Terraces along large rivers, canyons, along rocky floodplains of small, intermittent streams, seeps, and springs. The USFWS Wetland Inventory (1996 national list) recognizes *Salix gooddingii* as a FACW plant. Membership rules: o *Salix gooddingii* > 50% relative cover in the canopy; if other willows are present, willows may co-dominate and *S. gooddingii* > 30% relative cover in the canopy (Evens and San 2005, Klein and Evens 2005). o *Salix gooddingii* > 50% relative cover in the canopy; if *Populus fremontii* are present, *S. gooddingii* > 60% relative cover (cf. Hickson and Keeler-Wolf 2007).	**No Potential.** Great Valley Mixed Riparian Forest terrestrial community does not exist within the Study Area. There are no watercourses or riparian corridors within the Study Area. **Not Present.** No further recommendations.

TERRESTRIAL OR AQUATIC COMMUNITY	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA AND RECOMMENDATIONS
Northern Basalt Flow Vernal Pool	Northern Basalt Flow Vernal Pool (Terrestrial Community): Northern Basalt Flow Vernal Pool can be categorized into two (2) distinct communities (*Elocharis acicularis* – MCV2 Alliance, *Montia fontana* – *Sidalcea calycosa* – MCV2 Alliance); however, neither has the potential to occur within the Study Area. Northern Basalt Flow Vernal Pools have variable soils and occur over a greater elevation range than other vernal pool types. Small pools form over bedrock and larger pools form over clay-rich soils (e.g. Supan soil series) and are typically inhabited by rare taxa.	**No Potential.** Northern Basalt Flow Vernal Pool terrestrial community does not exist within the Study Area. There are no vernal pools within the Study Area. **Not Present.** No further recommendations.
Northern Volcanic Ash Vernal Pool	Northern Volcanic Ash Vernal Pool (Terrestrial Community): Northern Volcanic Ash Vernal Pool does not have a distinct MCV2 Alliance; however, these systems are shallow ephemeral waterbodies found in very small depressions (typically no larger than 50 square meters) throughout foothills of the southern Cascades and Sierra Nevada. Where short inundation periods are characteristic, *Lasthenia californica, Downingia bicornuta, Psathyrotes* spp., and *Sedella* spp. are often present. Where longer inundation periods are characteristic, *Eryngium constancei* and *Eleocharis acicularis* may be found. They are often on solid volcanic bedrock, but also can be found on volcanic ash flows (lahars) over bedrock. This terrestrial community does not have the potential to occur within the Study Area.	**No Potential.** Northern Volcanic Ash Vernal Pool terrestrial community does not exist within the Study Area. There are no vernal pools within the Study Area **Not Present.** No further recommendations.
Clear Lake Drainage Cyprinid/Catostomid Stream	Clear Lake Drainage Cyprinid/Catostomid Stream: This aquatic community does not occur within the Study Area. There are no watercourses that occur within the Study Area; however, a Clear Lake Drainage Cyprinid/Catostomid Stream is located approximately 3.5 miles southwest of the Study Area.	**No Potential.** Clear Lake Drainage Cyprinid/Catostomid Stream aquatic community does not exist within the Study Area. There are no watercourses within the Study Area. **Not Present.** No further recommendations.

TERRESTRIAL OR AQUATIC COMMUNITY	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE STUDY AREA AND RECOMMENDATIONS
Clear Lake Drainage Resident Trout Stream	Clear Lake Drainage Resident Trout Stream: This aquatic community does not occur within the Study Area. There are no watercourses that occur within the Study Area; however, a Clear Lake Drainage Resident Trout Stream is located adjacent to the parcel, approximately 0.2 miles south of the Study Area.	**No Potential.** Clear Lake Drainage Resident Trout Stream aquatic community does not exist within the Study Area. There are no watercourses within the Study Area. **Not Present.** No further recommendations.
Clear Lake Drainage Seasonal Lakefish Spawning Stream	Clear Lake Drainage Seasonal Lakefish Spawning Stream: This aquatic community does not occur within the Study Area. There are no watercourses that occur within the Study Area; however, a Clear Lake Drainage Seasonal Lakefish Spawning Stream is located adjacent to the parcel, approximately two (2) miles west of the Study Area.	**No Potential.** Clear Lake Drainage Seasonal Lakefish Spawning Stream aquatic community does not exist within the Study Area. There are no watercourses within the Study Area. **Not Present.** No further recommendations.

Abbreviation	Organization
FC	Federal Candidate
FE	Federal Endangered
FT	Federal Threatened
FPE	Federally Proposed for listing as Endangered
FPT	Federally Proposed for listing as Threatened
FPD	Federally Proposed for delisting
SC	State Candidate
SE	State Endangered
ST	State Threatened
SCE	State Candidate for listing as Endangered
SCT	State Candidate for listing as Threatened
SCD	State Candidate for delisting
Rank 1A	CRPR Rank 1A: Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	CRPR Rank 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2B	CRPR Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3	CRPR Rank 3: Plants about which CNPS needs more information (a review list)

Potential to Occur:
No Potential. Habitat on and within 100 feet adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and within 100 feet adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or within 100 feet adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or within 100 feet adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Results and Recommendations:
Present. Species was observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.
Not Present. Species is assumed to not be present due to a lack of key habitat components.
Not Observed. Species was not observed during surveys.

Abbreviation	Organization
AFS_EN	American Fisheries Society - Endangered
AFS_TH	American Fisheries Society - Threatened
AFS_VU	American Fisheries Society – Vulnerable
BLM_S	Bureau of Land Management – Sensitive
BCC	USFWS Birds of Conservation Concern
CDF_S	Calif. Dept. of Forestry & Fire Protection – Sensitive
CDFW_SSC	Calif. Dept. of Fish & Wildlife – Species of Special Concern
CDFW_FP	Calif. Dept. of Fish & Wildlife – Fully Protected
CDFW_WL	Calif. Dept. of Fish & Wildlife – Watch List
IUCN_CR	IUCN – Critically Endangered
IUCN_EN	IUCN – Endangered
IUCN_NT	IUCN – Near Threatened
IUCN_VU	IUCN – Vulnerable
IUCN_LC	IUCN – Least Concern
IUCN_DD	IUCN – Data Deficient
IUCN_CD	IUCN – Conservation Dependent
NABCI_RWL	North American Bird Conservation Initiative – Red Watch List
NABCI_YWL	North American Bird Conservation Initiative – Yellow Watch List
NMFS_SC	National Marine Fisheries Service – Species of Concern
USFS_S	U. S. Forest Service - Sensitive
USFWS_BCC	U. S. Fish & Wildlife Service Birds of Conservation Concern
WBWG_H	Western Bat Working Group – High Priority
WBWG_MH	Western Bat Working Group – Medium-High Priority
WBWG_M	Western Bat Working Group – Medium Priority
WBWG_LM	Western Bat Working Group – Low-Medium Priority
Xerces: CI	Xerces Society – Critically Imperiled
Xerces: IM	Xerces Society – Imperiled
Xerces: VU	Xerces Society – Vulnerable
Xerces: DD	Xerces Society – Data Deficient

Appendix B: List of Species Observed within the Study Area

SCIENTIFIC NAME	COMMON NAME
Plants	
Arbutus menziesii	Pacific madrone
Arctostaphylos sp.	manzanita
Avena sp.	oats
Baccharis pilularis	coyote brush
Centaurea solstitialis	yellow starthistle
Heteromeles arbutifolia	toyon
Picea sp.	spruce
Pinus ponderosa	ponderosa pine
Populus fremontii	Fremont cottonwood
Pseudotsuga menziesii	Douglas-fir
Quercus agrifolia	coast live oak
Quercus kelloggii	California black oak
Wildlife	
Amphibians	
N/A	-
Avifauna	
Aphelocoma californica	California scrubjay
Buteo jamaicensis	red-tailed hawk
Cathartes aura	turkey vulture
Corvus corax	common raven
Junco hyemalis	dark-eyed junco
Melanerpes formicivorus	acorn woodpecker
Fish	
N/A	-
Insects	
N/A	-
Mammals	
N/A	-
Mollusks	
N/A	-
Reptiles	
N/A	-

Appendix C: Representative Photographs of the Study Area

Photo 1: Representative photograph of the Study Area. Primary habitat within the parcel is comprised of dense-canopied ponderosa pine forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) with some mixed oaks (*Quercus agrifolia, Quercus kelloggii*) and Pacific manzanita (*Arbutus menziesii*). The understory within the Study Area is minimal within the ponderosa pine habitat; however, some shrub species (*Arctostaphylos manzanita, Baccharis pilularis, Heteromeles arbutifolia*) are present. Herbaceous layer is also sparse with some *Avena* sp.

Date: December 9, 2019

Photo 2: Representative photograph of the Study Area. Primary habitat within the parcel is comprised of dense-canopied ponderosa pine forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) with some mixed oaks (*Quercus agrifolia, Quercus kelloggii*) and Pacific manzanita (*Arbutus menziesii*). The understory within the Study Area is minimal within the ponderosa pine habitat; however, some shrub species (*Arctostaphylos manzanita, Baccharis pilularis, Heteromeles arbutifolia*) are present. Herbaceous layer is also sparse with some *Avena* sp.

Date: December 9, 2019

Photo 3: Representative photograph of the Study Area. Primary habitat within the parcel is comprised of dense-canopied ponderosa pine forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) with some mixed oaks (*Quercus agrifolia, Quercus kelloggii*) and Pacific manzanita (*Arbutus menziesii*). The understory within the Study Area is minimal within the ponderosa pine habitat; however, some shrub species (*Arctostaphylos manzanita, Baccharis pilularis, Heteromeles arbutifolia*) are present. Herbaceous layer is also sparse with some *Avena* sp.

Date: December 9, 2019

Photo 4: Representative photograph of the Study Area. Primary habitat within the parcel is comprised of dense-canopied ponderosa pine forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) with some mixed oaks (*Quercus agrifolia, Quercus kelloggii*) and Pacific manzanita (*Arbutus menziesii*). The understory within the Study Area is minimal within the ponderosa pine habitat; however, some shrub species (*Arctostaphylos manzanita, Baccharis pilularis, Heteromeles arbutifolia*) are present. Herbaceous layer is also sparse with some *Avena* sp.

Date: December 9, 2019

Photo 5: Representative photograph of the Study Area. Primary habitat within the parcel is comprised of dense-canopied ponderosa pine forest (*Pinus ponderosa – Pseudotsuga menziesii* – MCV2 Alliance) with some mixed oaks (*Quercus agrifolia, Quercus kelloggii*) and Pacific manzanita (*Arbutus menziesii*). The understory within the Study Area is minimal within the ponderosa pine habitat; however, some shrub species (*Arctostaphylos manzanita, Baccharis pilularis, Heteromeles arbutifolia*) are present. Herbaceous layer is also sparse with some *Avena* sp.

Date: December 9, 2019

Photo 6: Representative photograph of the habitat adjacent to the northern parcel boundary (vineyards). Photo is taken from the gate at the entrance to the property where the canopy and understory is the most minimal.

Date: December 9, 2019

Appendix D: Supporting Figures (Maps)