

**Biological Assessment  
For  
Seigler Springs Cultivation  
11615 Seigler Springs N. Road, Middletown, CA**

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## 1.2 Effects of Fire

The majority of the property burned in the Valley Fire in September 2015. Evidence of the fire due to the presence of dead trees throughout the property and the dense undergrowth which has developed following the fire.

A map illustrating evidence of fire severity is attached (**Figure 2; Fire Severity Map**).

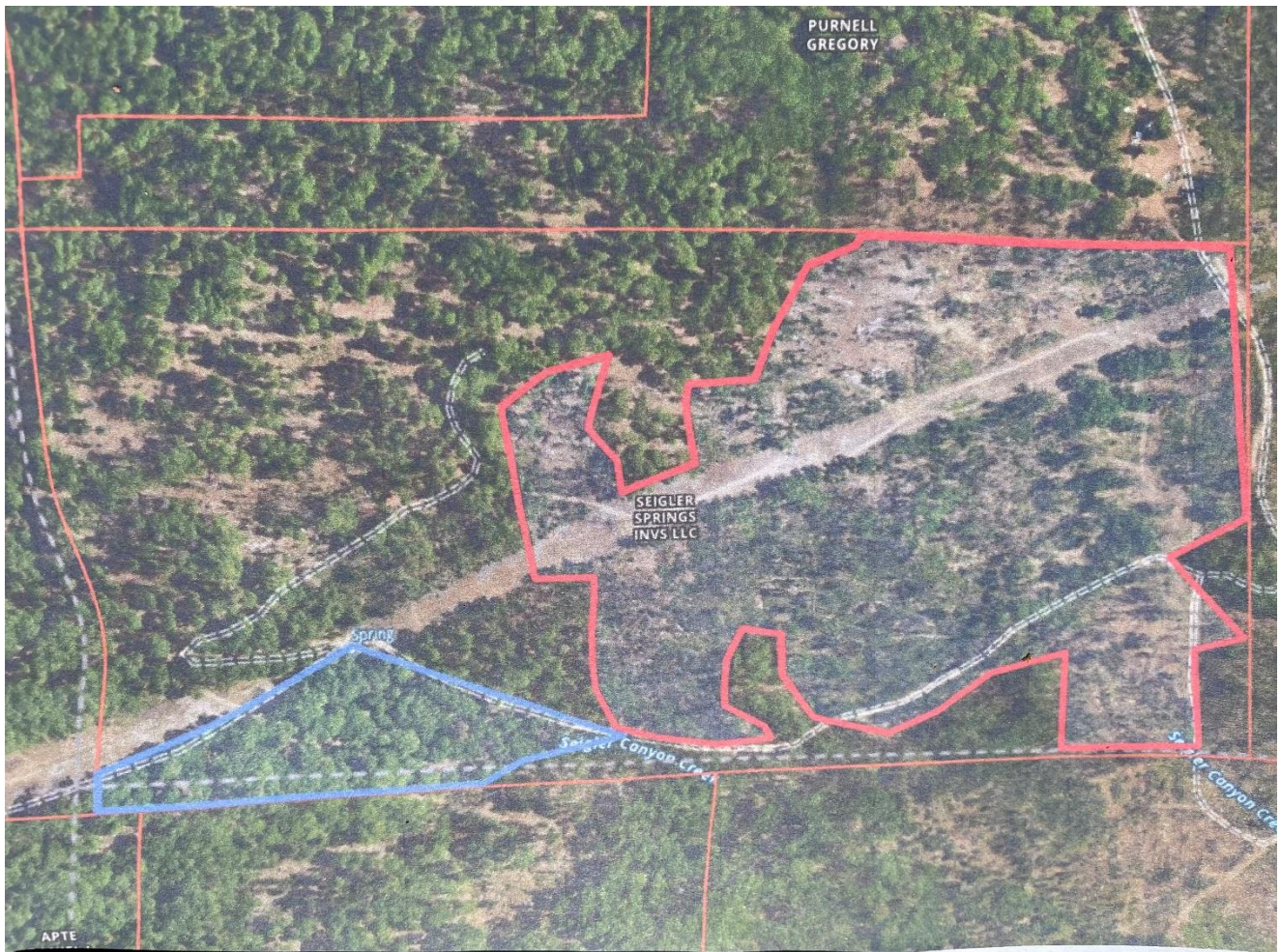


Figure 2: Fire Severity Map

Areas outlined in red illustrate high fire severity, areas where the fire consumed all available fuel with high mortality of vegetation in this area. As a result, this area is typified by a shift in species composition from black oak (*Quercus kelloggii*) to grasses and forbs mixed with shrubs. Some individual trees survived but are few and some are snags with basal (root) sprouting. This area totals 38.14 acres in size.

The area outlined in blue is only area on the property that did not burn in the fire. All remaining areas not outlined experienced low to moderate fire severity resulting in varying

levels of tree mortality and growth of sparse to dense understory brush growth depending on the level of overstory/tree density. This area is 5.96 acres in size out of a total for Black Oak Woodland of 60 acres.

The local permitting agency is requesting completion of a biological assessment on the property as part of the California Environmental Quality Act (CEQA) review required for new development. The initial phase of this assessment evaluates the potential of the property to contain sensitive plants or sensitive wildlife habitat through database searches of CNPS (California Native Plant Society) and CNDDDB (CA Dept of Fish and Wildlife CA Natural Diversity Database). The second phase consists of field surveys, including a botanical survey listing all plant taxa and suitable habitat for sensitive wildlife species identified from a CNDDDB search. The biological resource assessment will determine whether the property contains sensitive plants or wildlife requiring mitigation under the California Environmental Quality Act (CEQA). As used here, the terms sensitive plant/wildlife includes all state or federal rare, threatened, or endangered species as well as CA Native Plant Society plant status designations. This includes all species listed in the California Natural Diversity Database (CNDDDB) list of "Special Vascular Plants, Bryophytes, and Lichens List", April 2021.

**1.3**The site is located at 11615 North Seigler Springs Road, 7.5 miles west of Lower Lake and 16 miles NW of Middletown, CA. A location map is provided in **Figure 3**.



**Figure 3: Location**

## 2.0 ASSESSMENT METHODOLOGY

The basis of the biological resource assessment is a comparison of existing habitat conditions within the project boundaries to the geographic range and habitat requirements of sensitive plants and wildlife. It includes all sensitive species that occupy habitats similar to those found in the project area and whose known geographic ranges encompass it. The approach is conservative in that it tends to over-estimate the actual number of species present. The analysis includes the following site characteristics:

- Location of the project area with regard to the geographic range of sensitive plant and wildlife species
- Location(s) of known populations of sensitive plant and wildlife species as mapped in the California Natural Diversity Database (CNDDDB)
- Soils of the project area
- Elevation
- Presence or absence of special features such as vernal pools and serpentine soils
- Plant communities existing within the project area

In addition to knowledge of the local plants and wildlife, the following computer databases were used to analyze the suitability of the site for sensitive species:

- California Department of Fish and Wildlife (CDFW), *California Natural Diversity Database (CNDDDB)*; RareFind 5, 2021
- California Native Plant Society's (CNPS) *Electronic Inventory of Rare and Endangered Vascular Plants of California* (v9-01 0.0)
- California Department of Fish and Wildlife, *California Wildlife Habitat Relationships System (CWHR Version 9.0)*

The CNDDDB and RareFind 5 databases consist of maps and records of all known populations of sensitive plants and wildlife in California. This data is continually updated by the CDFW with new sensitive species population data.

The CNPS database produces a list of sensitive plants potentially occurring at a site based on the various site characteristics listed above. While use of the CNPS inventory does not in itself 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 CWHR database operates on the same basis as the CNPS inventory. Input includes geographic area, plant community (including development stage), soil structure, and special features such as presence of water, snags, cover, and food (fruit, seeds, insects, etc.).

<sup>1</sup> Many sensitive plants and wildlife are subspecies or varieties which are taxonomic subcategories of species. The term

“taxa” refers to species and their sub-specific categories.

**2.1 Botanical Survey Methods:** An in-season botanical survey was conducted for the project site. The CNDDDB report and maps for the Lower Lake, CA quadrangle were referenced prior to the survey. Vegetation communities were identified based on the nomenclature of *A Manual of California Vegetation* (Sawyer, Keeler-Wolf, and Evens, 2009), and mapped on a 1"=600' aerial photo (due to the large size of the survey area). Vegetation type names are based on an assessment of dominant cover species.

Plants occurring on the site were identified using *The Jepson Manual, Higher Plants of California*, 2012. Where necessary, species names were updated based on the 6<sup>th</sup> edition, *CNPS Inventory of Rare and Endangered Plants of California*. A map of the vegetation types at the site is provided in **Figure 4**.

**2.2 Survey Dates:** Site visits for the plant surveys and vegetation mapping were conducted on May 11, 17, and June 10, 11, 2021.

**2.3 Biological Assessment Staff:** The field surveys, plant taxonomy, and vegetation mapping, were conducted by Lawrence Ray principal biologist. Mr. Ray has a Master of Science Degree in Ecology from the Antioch University/UC Berkeley and a Bachelor of Science Degree in Environmental Studies from the Antioch University. He has over 35 years of experience as a biologist in the government and private sectors. Support ~~st~~ was provided by Austin Ray who holds an AA Degree in Horticulture from Cabrillo College.

## SITE CHARACTERISTICS

**3.0 Site Topography and Drainage:** The parcel occupies sloping (5-50%) topography with an average elevation of 2,683 (mean sea level). Drainage from the surrounding slopes is to Seigler Canyon Creek which drains along the south to Cache Creek at Dam Road and Hwy 53. Topography is shown in **Figure 1**.

**3.1 Soils:** Based on the *Soil Surveys of Lake County and Mendocino County (Eastern Part), California* prepared by the U.S. Resource Conservation Service, the survey area contains the following soil types:

**127-Collayomi-Aiken-Whispering complex, 5 to 30 percent slopes.** This map unit is on mountains. The vegetation is mainly conifers and oaks. Elevation is 1,400 to 4,000 feet. The average annual precipitation is 35 to 60 inches, the average annual air temperature is 50 to 55 degrees F, and the average frost-free period is 130 to 180 days.

This unit is about 35 percent Collayomi very gravelly loam, 35 percent Aiken loam, and 15 percent Whispering loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are small areas of Rock outcrop near ridges. Also included are small areas of Aiken, Collayomi, and Whispering soils that have slopes of more than 30 percent. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Collayomi soil is very deep and well drained. It formed in material weathered from andesite, basalt, or dacite. Typically, about 5 percent of the surface is covered with stones and boulders. The surface layer is light brown very gravelly loam 15 inches thick. The upper 35 inches of the subsoil is light brown and reddish yellow very gravelly loam, and the lower 10 inches is light reddish brown extremely gravelly loam. Permeability of the Collayomi soil is moderate.

Available water capacity is 2.5 to 4.5 inches. Effective rooting depth is 60 inches or more. Surface runoff is rapid, and the hazard of erosion is moderate.

**128-Collayomi-Aiken-Whispering complex, 30 to 50 percent slopes.** This map unit is on mountains. The vegetation is mainly conifers and oaks. Elevation is 1,400 to 4,000 feet. The average annual precipitation is 35 to 60 inches, the average annual air temperature is 50 to 55 degrees F, and the average frost-free period is 130 to 180 days.

This unit is about 40 percent Collayomi very gravelly loam, 35 percent Aiken loam, and 15 percent Whispering loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are small areas of Aiken and Whispering soils that have slopes of less than 30 percent. Also included are small areas of soils that are similar to the Collayomi soil but have more clay in the subsoil. Included areas make up about 10 percent of the total acreage. The percentage varies from one area to another.

The Collayomi soil is very deep and well drained. It formed in material weathered from andesite, basalt, or dacite. Typically, 5 percent of the surface is covered with stones and boulders. The surface layer is light brown very gravelly loam 15 inches thick. The upper 35 inches of the subsoil is light brown and reddish yellow very gravelly loam, and the lower 10 inches is light reddish brown extremely gravelly loam.

Permeability of the Collayomi soil is moderate. Available water capacity is 2.5 to 4.5 inches. Effective rooting depth is 60 inches or more. Surface runoff is rapid, and the hazard of erosion is moderate.

**142-Henneke-Montara-Rock outcrop complex, 15 to 50 percent slopes.** This map unit is on hills and mountains. The vegetation is mainly brush, scattered conifers, and sparse annual grasses. Elevation is 640 to 3,000 feet. The average annual precipitation is 25 to 40 inches, the average annual air temperature is 55 to 60 degrees F, and the average frost-free period is 160 to 205 days.

This unit is about 40 percent Henneke gravelly loam, 30 percent Montara clay loam, and 15 percent Rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are small areas of Dubakella, Maxwell, Millsholm, and Okiota soils. Also included are small areas of clayey soils that are 20 to 40 inches deep to bedrock, clayey soils that develop deep wide cracks when dry and are 20 to 40 inches

deep to bedrock, Henneke and Montara soils that have slopes of 50 to 75 percent, and soils that are similar to the Henneke and Montara soils but are 20 to 40 inches deep to bedrock or are cooler. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

The Henneke soil is shallow and somewhat excessively drained. It formed in material weathered from serpentinitic rock. Typically, about 50 percent of the surface is covered with a pavement of stones, cobbles, and pebbles. The surface layer is reddish brown gravelly loam 3 inches thick. The upper 8 inches of the subsoil is reddish brown gravelly clay loam, and the lower 8 inches is dark reddish brown very gravelly clay. Fractured serpentinite is at a depth of 19 inches.

Permeability of the Henneke soil is moderately slow. Available water capacity is 1 inch to 2 inches. Effective rooting depth is 10 to 20 inches. Surface runoff is rapid, and the hazard of erosion is severe. Calcium to magnesium ratio is less than 1.

The Montara soil is shallow and well drained. It formed in material weathered from serpentinitic rock. Typically, the soil is grayish brown clay loam 12 inches thick over hard, fractured serpentinite.

Permeability of the Montara soil is moderately slow. Available water capacity is 1 inch to 4 inches. Effective rooting depth is 8 to 20 inches. Surface runoff is rapid, and the hazard of erosion is severe. Calcium to magnesium ratio is less than 1.

Rock outcrop consists of hard, fractured serpentinitic rock. It occurs as small masses of intruding bedrock or as detached stones and boulders on the land surface. Areas of Rock outcrop are 50 feet to 1 acre in size.

This unit is used mainly as wildlife habitat and watershed.

The natural vegetation on this unit is mainly brush because of the limited soil depth and the restricted available water capacity. The vegetation in most areas is mainly chamise, manzanita, buckbrush, and Digger pine. Properly planned and applied prescribed burning or chemical or mechanical treatment can be used in small areas to improve habitat for wildlife, increase access, and reduce the risk of fire.

**148-Kidd-Forward complex, 5 to 30 percent slopes.** This map unit is on hills and mountains. The vegetation is mainly brush and scattered conifers on the Kidd soil and hardwoods and conifers with an understory of shrubs on the Forward soil. Elevation is 1,500 to 3,000 feet. The average annual precipitation is 35 to 50 inches, the average annual air temperature is 51 to 55 degrees F, and the average frost-free period is 150 to 185 days.

This unit is about 60 percent Kidd gravelly loam and 20 percent Forward loam. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are small areas of Aiken soils and Rock outcrop. The areas of Rock outcrop occur as escarpments. Also included are small areas of Forward and Kidd soils that have slopes of more than 30 percent; soils that are similar to the Forward soil but have a clayey subsoil; soils that are similar to the Forward and Kidd soils, near Kelseyville and Clearlake Highlands, but have warmer soil temperatures, are sandy loam or loamysand throughout the profile, and have rapid permeability; and soils that are more than 60 inches deep. Included areas make up about 20 percent of the total acreage.

The percentage varies from one area to another.

The Kidd soil is shallow and somewhat excessively drained. It formed in material weathered from rhyolitic tuff. Typically, the surface layer is light gray gravelly loam 9 inches thick. The subsoil is very pale brown gravelly loam 7 inches thick. Rhyolitic tuff is at a depth of 16 inches.

Permeability of the Kidd soil is moderately rapid. Available water capacity is 1 inch to 3 inches. Effective rooting depth is 12 to 20 inches. Surface runoff is medium, and the hazard of erosion is moderate.

The Forward soil is moderately deep and well drained.

It formed in material weathered from rhyolitic tuff. Typically, the surface layer is light gray loam 9 inches thick. The subsoil is light gray gravelly loam 16 inches thick. Rhyolitic tuff is at a depth of 25 inches.

Permeability of the Forward soil is moderately rapid. Available water capacity is 2 to 6 inches. Effective rooting depth is 20 to 40 inches. Surface runoff is medium, and the hazard of erosion is severe.

This unit is used mainly as wildlife habitat and watershed. It is also used for firewood production, timber production, and homesite development.

Estimates of the site index and yield for the Kidd soil have not been made because the vegetation is mainly brush.

Ponderosa pine, Douglas-fir, and sugar pine are the main tree species on the Forward soil. On the basis of a 100-year site curve, the mean site index is 102 for ponderosa pine and 97 for Douglas-fir. The potential annual production of ponderosa pine is 390 board feet per acre from a fully stocked stand of trees. Estimates of the site index and yield for sugar pine have not been made. Among the trees of limited extent are knobcone pine in areas that have been repeatedly burned, tanoak, California black oak, Pacific madrone, and interior live oak.

**247-Wolfcreek loam.** This very deep, well-drained soil is on flood plains. It formed in alluvium derived from mixed rock sources. Slope is 0 to 2 percent. The vegetation is mainly annual grasses and forbs. Elevation is 1,300 to 2,600 feet. The average annual precipitation is 25 to 40 inches, the average annual air temperature is 55 to 59 degrees F, and the average frost-free period is 150 to 205 days.

Typically, the surface layer is pale brown loam 7 inches thick. The upper 39 inches of the underlying material is brown clay loam and sandy clay loam, and the lower part to a depth of 72 inches is brown very gravelly sandy clay loam.

Included in this unit are small areas of Still soils. Also included are small areas of soils that are gravelly sandy loam throughout the profile. Included areas make up about 15 percent of the total acreage. The percentage varies from one area to another.

Permeability of this Wolfcreek soil is moderately slow. Available water capacity is 7.5 to 10.0 inches. Effective rooting depth is 60 inches or more. Surface runoff is very slow, and the hazard of erosion is slight. This soil is subject to rare periods of flooding during prolonged, high-intensity storms.

This unit is used mainly for livestock grazing and hay and pasture. It is also used for homesite development.

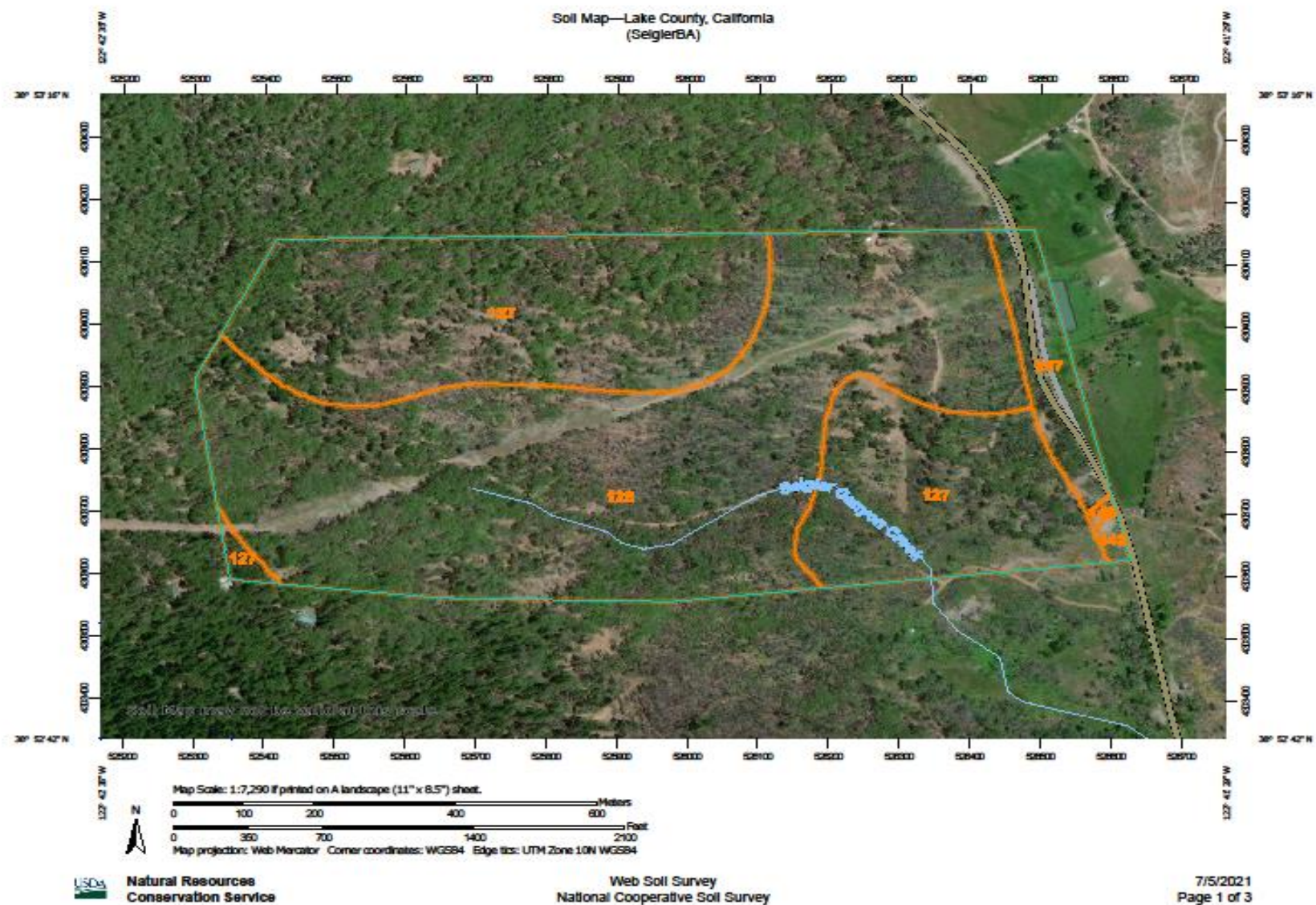
The production of forage is limited by the susceptibility of the soil in this unit to compaction when moist. Grazing should be delayed until the soil has drained sufficiently to withstand trampling by livestock. This unit responds well to fertilizer, rangeland seeding, and proper grazing use. The characteristic plant community is mainly soft chess, filaree, and burclover.

This unit is well suited to hay and pasture.

If this unit is used for homesite development, the main limitations are moderately slow permeability and the hazard of flooding. Increasing the size of the septic tank absorption fields can help to compensate for the moderately slow permeability. Dikes and channels that have outlets for floodwater can be used to protect buildings and onsite sewage disposal systems from flooding. Roads and streets should be located above the expected flood level.

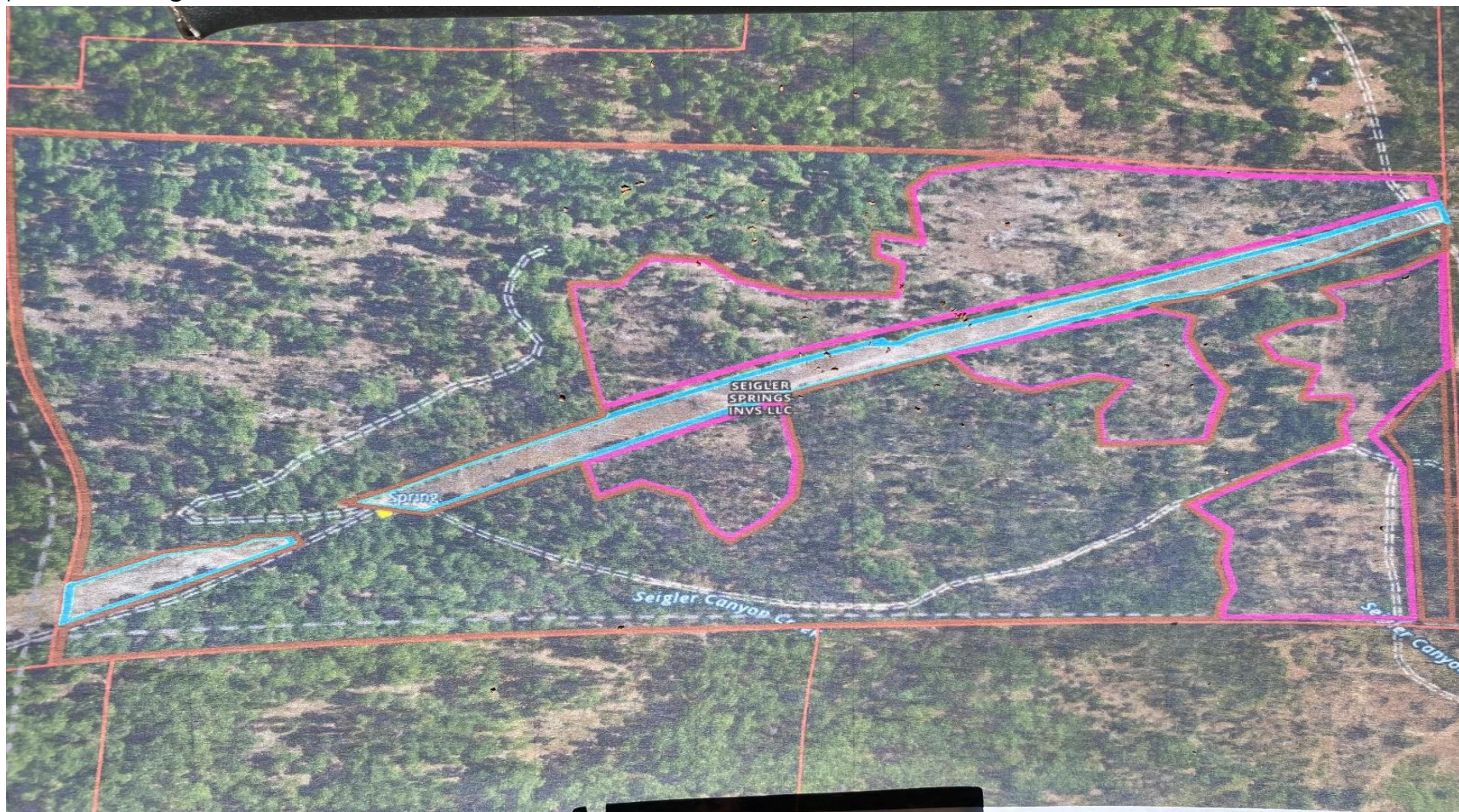
This map unit is in capability class I (14), irrigated, and capability unit IIIc-1 (14), non-irrigated.

A map of site soils is included as **Figure 4**.



**Figure 4- Site Soils Map**

**3.2 Vegetation Types:** This project contains five distinct plant communities or vegetation types based on or derived from the "Standardized Classification" scheme described in the California Native Plant Society (CNPS) *A Manual of California Vegetation*. These vegetation types and other cover types are listed in **Table 1**. They are described below and shown in the vegetation map provided in **Figure 5**.



**Figure 5- Vegetation Map**

Red= Shrubs Blue = Grasses and forbs Brown= black oak woodlands Yellow= Spring

**Table 1- Plant Communities/Alliances**

| COVER TYPE                                                          | Total Acres of<br>Cover Type on<br>Property | Percent of<br>Property<br>Supporting<br>Cover Type |
|---------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------|
|                                                                     |                                             |                                                    |
| Ceanothus integerrimus Shrubland Alliance; Deer brush chaparral     | 20.29                                       | 24                                                 |
| Bromus rubens- Semi-natural Herbaceous stands; Red brome grasslands | 4.26                                        | 5                                                  |
| Quercus kelloggii Forest Alliance- CA black oak forest              | 60.0                                        | 71                                                 |
| <b>Total</b>                                                        | <b>84.55</b>                                | <b>100.00</b>                                      |

**1.**Ceanothus integerrimus Shrubland Alliance/Deer brush chaparral

Ceanothus integerimus is dominant in the shrub canopy with Arctostaphylos manzanita, A. patula, Ceanothus cordulatus, C. cuneatus, C. velutinus, Holodiscus discolor, Lotus crassifolius, Prunus emarginata, Quercus berberidifolia and Symphoricarpos mollis.

Emergent trees may be present, including Pinus ponderosa, Q chrysolepis and Q wislizeni, at low cover. Shrubs <4 meters; canopy is continuous or intermittent. Herbaceous layer is sparse to intermittent. **Habitats:** Ridges and upper slopes. Soils are well drained. **Elevation** 300-2100m.

**2.** Bromus rubens Semi-natural Herbaceous Stands

Bromus rubens Schismus barbatus or S. arabicus is dominant or co-dominant with other non-natives in the herbaceous layer. Emergent shrubs may be present at low cover. Herbs < 75 cm; cover is intermittent to continuous. **Habitats:** All topography settings and soil textures. The USFWS wetlands inventory recognizes Bromus rubens as an UPL plant. **Elevation:** 0-2200m.

**3. Quercus kelloggii Forest Alliance-** CA black oak forest. Quercus kelloggii is dominant or co-dominant in the tree canopy with Abies concolor, Arbutus menziesii, Calocedrus decurrens, Pinus attenuate, P. ponderosa, Pseudotsuga menziesii, Quercus agrifolia, Q. chrysolepis, Q. garryana, Q. lobate and Umbellularia californica. Trees <40m; canopy is open to continuous, or savanna-like. Shrub layer is open to intermittent. Herbaceous layer is sparse or grassy. **Habitats:** All aspects and topographic settings. Soils are moderately to excessively drained. **Elevation:** 60-2500m.

## 4.0 PRE-SURVEY RESEARCH RESULTS

**4.1 CNPS On-Line Electronic Inventory Analysis:** A California Native Plant Society (CNPS) analysis was conducted for all plants with federal and state regulatory status, and all non-status plants on the CNPS Lists 1B through 4. The query included all plants within this area of the county occurring within the plant communities identified on the project site. The inventory lists species potentially occurring at the site; these are listed in **Table 2**. These species were included in the list of potentially sensitive species specifically searched for during field surveys. It is important to note that this list includes species for which appropriate habitat is not present on the parcel. The CNPS database search does not allow fine tuning for specific soil types and many specific habitats.

**Note:** *The CNPS list is used to broaden the list of sensitive species considered during the subsequent field surveys; however, it must be used with discretion because the database search does not allow fine-tuning for specific soil types or for many specific habitats required by sensitive plant taxa. Consequently, the CNPS list generated for a site may include several taxa for which the required habitat is not present.*

**4.2 California Natural Diversity Database:** The California Natural Diversity Database (CNDDB) and CDFW RareFind 5 data and maps for the Whispering Pines, Clearlake Highlands, Lower Lake and Middletown 7½' quadrangles were reviewed for this project. **Table 3** presents a list of sensitive plant and wildlife species known to occur within this quadrangle. In addition to listing the species present within the quadrangle, the table provides a brief descriptor of the habitat requirements and blooming season, along with an assessment of whether the project area contains the necessary habitat requirements for each species.

TABLE 2. CALIFORNIA NATIVE PLANT SOCIETY'S INVENTORY OF RARE AND ENDANGERED PLANTS

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*Selected CNPS Plants by Scientific Name*
***Seigler Springs Cultivation***

| Scientific Name                              | Common Name                    | Family         | Lifeform                   | CRPR | CESA | FESA | Blooming Period   | Habitat                                                                                                                               |
|----------------------------------------------|--------------------------------|----------------|----------------------------|------|------|------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <i>Amsinckia lunaris</i>                     | bent-flowered fiddleneck       | Boraginaceae   | annual herb                | 1B.2 | None | None | Mar-Jun           | Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland                                                               |
| <i>Arctostaphylos manzanita ssp. elegans</i> | Konocti manzanita              | Ericaceae      | perennial evergreen shrub  | 1B.3 | None | None | (Jan)Mar-May(Jul) | Chaparral, Cismontane woodland, Lower montane coniferous forest; volcanic                                                             |
| <i>Astragalus breweri</i>                    | Brewer's milk-vetch            | Fabaceae       | annual herb                | 4.2  | None | None | Apr-Jun           | Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland (open, often gravelly); often serpentinite, volcanic |
| <i>Calystegia collina ssp. oxyphylla</i>     | Mt. Saint Helena morning-glory | Convolvulaceae | perennial rhizomatous herb | 4.2  | None | None | Apr-Jun           | Chaparral, Lower montane coniferous forest, Valley and foothill grassland; serpentinite                                               |
| <i>Ceanothus confusus</i>                    | Rincon Ridge ceanothus         | Rhamnaceae     | perennial evergreen shrub  | 1B.1 | None | None | Feb-Jun           | Closed-cone coniferous forest, Chaparral, Cismontane woodland; volcanic or serpentinite                                               |

| Scientific Name                     | Common Name               | Family         | Lifeform                   | CRPR | CESA       | FESA       | Blooming Period | Habitat                                                                                                                                                                            |
|-------------------------------------|---------------------------|----------------|----------------------------|------|------------|------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Clarkia gracilis ssp. tracyi</i> | Tracy's clarkia           | Onagraceae     | annual herb                | 4.2  | None       | None       | Apr-Jul         | Chaparral (openings, usually serpentinite)                                                                                                                                         |
| <i>Collomia diversifolia</i>        | serpentine collomia       | Polemoniaceae  | annual herb                | 4.3  | None       | None       | May-Jun         | Chaparral, Cismontane woodland serpentinite, rocky or gravelly                                                                                                                     |
| <i>Cryptantha dissita</i>           | serpentine cryptantha     | Boraginaceae   | annual herb                | 1B.2 | None       | None       | Apr-Jun         | Chaparral (serpentinite)                                                                                                                                                           |
| <i>Eryngium constancei</i>          | Loch Lomond button celery |                | Annual herb                | 1B.1 | endangered | endangered |                 | Vernal pool, wetland                                                                                                                                                               |
| <i>Fritillaria purdyi</i>           | Purdy's fritillary        | Liliaceae      | perennial bulbiferous herb | 4.3  | None       | None       | Mar-Jun         | Chaparral, Cismontane woodland, Lower montane coniferous forest; usually serpentinite                                                                                              |
| <i>Gratiola heterosepala</i>        | Boggs Lake hedge-hyssop   | Plantaginaceae | annual herb                | 1B.2 | CE         | None       | Apr-Aug         | Marshes and swamps (lake margins), Vernal pools; clay                                                                                                                              |
| <i>Hesperolinon adenophyllum</i>    | glandular western flax    | Linaceae       | annual herb                | 1B.2 | None       | None       | May-Aug         | Chaparral, Cismontane woodland, Valley and foothill grassland; usually serpentinite                                                                                                |
| <i>Horkelia bolanderi</i>           | Bolander's horkelia       | Rosaceae       | perennial herb             | 1B.2 | None       | None       | (May)Jun-Aug    | Chaparral, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland; edges, vernal mesic areas                                                            |
| <i>Lasthenia burkei</i>             | Burke's goldfields        |                | Annual herb                | 1B.1 | endangered | endangered |                 | Meadow, seeps, vernal pool, wetland                                                                                                                                                |
| <i>Layia septentrionalis</i>        | Colusa layia              | Asteraceae     | annual herb                | 1B.2 | None       | None       | Apr-May         | Chaparral, Cismontane woodland, Valley and foothill grassland; sandy, serpentinite                                                                                                 |
| <i>Lilium rubescens</i>             | redwood lily              | Liliaceae      | perennial bulbiferous herb | 4.2  | None       | None       | Apr-Aug(Sep)    | Broadleaved upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest. Sometimes serpentinite, sometimes roadsides |
| <i>Monardella viridis</i>           | green monardella          | Lamiaceae      | perennial rhizomatous herb | 4.3  | None       | None       | Jun-Sep         | Broadleaved upland forest, Chaparral, Cismontane woodland                                                                                                                          |

|                                                       |                               |              |                           |      |      |      |         |                                                                                           |
|-------------------------------------------------------|-------------------------------|--------------|---------------------------|------|------|------|---------|-------------------------------------------------------------------------------------------|
|                                                       |                               |              |                           |      |      |      |         |                                                                                           |
| <i>Streptanthus glandulosus</i> ssp. <i>hoffmanii</i> | Hoffman's bristly jewelflower | Brassicaceae | annual herb               | 1B.3 | None | None | Mar-Jul | Chaparral, Cismontane woodland, Valley and foothill grassland (often serpentinite); rocky |
| <i>Streptanthus hesperidis</i>                        | green jewelflower             | Brassicaceae | annual herb               | 1B.2 | None | None | May-Jul | Chaparral (openings), Cismontane woodland; serpentinite, rocky                            |
| <i>Tracyina rostrata</i>                              | beaked tracyina               | Asteraceae   | annual herb               | 1B.2 | None | None | May-Jun | Chaparral, Cismontane woodland, Valley and foothill grassland                             |
| <i>Viburnum ellipticum</i>                            | oval-leaved viburnum          | Adoxaceae    | perennial deciduous shrub | 2B.3 | None | None | May-Jun | Chaparral, Cismontane woodland, Lower montane coniferous forest                           |

## KEY FOR TABLE 2:

### CNPS Rare Plant-Threat Rank Definitions:

*1B.1 = Rare, threatened, or endangered in California and elsewhere; seriously threatened in California*  
*1B.2 = Rare, threatened, or endangered in California and elsewhere; moderately threatened in California*  
*1B.3 = Rare, threatened, or endangered in California and elsewhere; not very threatened in California*  
*2A = Presumed extinct in California, but extant elsewhere*

*2B.1 = Rare, threatened, or endangered in Calif., but more common elsewhere; seriously threatened in Calif.*  
*2B.2 = Rare, threatened, or endangered in Calif., but more common elsewhere; moderately threatened in Calif.*  
*2B.3 = Rare, threatened, or endangered in Calif., but more common elsewhere; not very threatened in Calif.*

*3 = Plants about which we need more information (Review List)*

*3.1 = Plants about which we need more information (Review List); seriously threatened in California*

*3.2 = Plants about which we need more information (Review List); moderately threatened in California*

*3.3 = Plants about which we need more information (Review List); not very threatened in California*

*4.1 = Plants of limited distribution (watch list); seriously threatened in California*

*4.2 = Plants of limited distribution (watch list); moderately threatened in California*

*4.3 = Plants of limited distribution (watch list); not very threatened in California*

### State and Federal Status:

*CESA = California Endangered Species Act*  
*FESA = Federal Endangered Species Act*

*SR = State. Rare*

*SE = State Endangered.*

*ST = State. Threatened*

*SD = State Delisted*

*SSC = CDFW Species of Special Concern*

*FP = CDFW Fully Protected*

*WL = CDFW Watch List*

*FE = Federal Endangered*

*FT = Federal Threatened*

*FD = Federal Delisted*

TABLE 3. CNDDDB SENSITIVE PLANT AND WILDLIFE SPECIES WITHIN THE LOWER LAKE AND ADJACENT CALIFORNIA 7½' QUADRANGLES

| Habitat Type                            | Habitat Present |
|-----------------------------------------|-----------------|
| <i>Northern Interior Cypress Forest</i> | No              |
| <i>Serpentine Bunchgrass</i>            | No              |

| Plant Species                                   | Common Name                    | Habitat Requirements/<br>Fed-State-CNPS* Status                                                                                                 | Blooming<br>Season/Form           | Habitat<br>Present                                 |
|-------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| <i>Amsinckia lunaris</i>                        | bent-flowered fiddleneck       | Coastal bluff scrub, cismontane woodland, valley & foothill grassland; --/--/1B.2                                                               | March-June<br>ann. herb           | Habitat present<br>but not found<br>during surveys |
| <i>Antirrhinum virga</i>                        | twig-like snapdragon           | Chaparral, lower montane coniferous forest./rocky, openings, often serpentinite; --/--/4.3                                                      | June-July<br>per. herb            | Poor habitat<br>present                            |
| <i>Arctostaphylos manzanita ssp. elegans</i>    | Konocti manzanita              | Chaparral, cismontane woodland, lower montane conif. forest/volcanic; --/--/1B.3                                                                | March-May<br>everg. shrub         | Poor habitat<br>present                            |
| <i>Arctostaphylos stanfordiana ssp. raichei</i> | Raiche's manzanita             | Chaparral, lower montane coniferous forest/rocky, often serpentinite; --/--/1B.1                                                                | Feb.-April<br>ann. herb           | Poor habitat<br>present                            |
| <i>Astragalus breweri</i>                       | Brewer's milk-vetch            | Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland (open, often gravelly)/often serpentinite, volcanic; --/--/4.2 | April-June<br>ann. herb           | Poor habitat<br>present                            |
| <i>Brasenia schreiberi</i>                      | watershield                    | Marshes & swamps/freshwater; --/--/2B.3                                                                                                         | March-Sept<br>rhizom. herb        | Habitat not<br>present                             |
| <i>Calystegia collina ssp. oxyphylla</i>        | Mt. Saint Helena morning-glory | Chaparral, lower montane conif. forest, valley & foothill grassland/serpentinite; --/--/4.2                                                     | April-June<br>rhizom. herb        | Habitat not<br>present                             |
| <i>Carex comosa</i>                             | bristly sedge                  | Coastal prairie, marshes and swamps (lake margins), valley and foothill grassland; --/--/2B.1                                                   | May-Sept.<br>per. rhizom.<br>herb | Habitat not<br>present                             |
| <i>Ceanothus confusus</i>                       | Rincon ridge ceanothus         | Closed cone conif. forest, chaparral, cismontane woodland/volcanic; --/--/1B.1                                                                  | Feb.-April<br>everg. shrub        | Poor habitat<br>present                            |
| <i>Clarkia gracilis ssp. tracyi</i>             | Tracy's clarkia                | Chaparral (openings, usually serpentinite); --/--/4.2                                                                                           | April-June<br>ann. herb           | Habitat not<br>present                             |
| <i>Collomia diversifolia</i>                    | serpentine collomia            | Chaparral, cismontane woodland/serpentinite, rocky or gravelly; --/--/4.3                                                                       | May-June<br>ann. herb             | Habitat not<br>present                             |
| <i>Cryptantha dissita</i>                       | serpentine cryptantha          | Chaparral/serpentine outcrops; --/--/1B.2                                                                                                       | April-June<br>ann. herb           | Habitat not<br>present                             |

| Plant Species                                 | Common Name               | Habitat Requirements/<br>Fed-State-CNPS* Status                                                                                              | Blooming<br>Season/Form       | Habitat<br>Present                           |
|-----------------------------------------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------|
| <i>Eryngium constancei</i>                    | Loch Lomond button-celery | Vernal pools, wetlands                                                                                                                       | April-June                    | Habitat not present                          |
| <i>Fritillaria purdyi</i>                     | Purdy's fritillary        | Chaparral, cismontane woodland, lower montane coniferous forest; usually serpentinite; --/--/4.3                                             | March-June bulb. herb         | Habitat not present                          |
| <i>Gratiola heterosepala</i>                  | Boggs Lake hedge-hyssop   | Freshwater marsh, marshes & swamps (freshwater), vernal pools, sometimes lake margins/clay; --/SE/1B.2                                       | April-Aug. ann. herb          | Habitat not present                          |
| <i>Hesperolinon didymocarpum</i>              | Lake County western flax  | Chaparral, cismontane woodland, valley & foothill grassland/usually serpentine chaparral; --/SE/1B.2                                         | May-Aug. ann. herb            | Habitat not present                          |
| <i>Horkelia bolanderi</i>                     | Bolander's horkelia       | Lower montane conif. forest, chaparral, meadows & seeps, valley & foothill grassland/grassy margins of vernal pools and meadows; --/ --/1B.2 | June-Aug. per. herb           | Habitat present but not found during surveys |
| <i>Lasthenia burkei</i>                       | Burke's goldenfields      | Meadows, seeps, vernal pools, wetlands                                                                                                       | April-August                  | Habitat not present                          |
| <i>Layia septentrionalis</i>                  | Colusa layia              | Chaparral, cismontane woodland, valley & foothill grassland/sandy or serpentine; --/--/1B.2                                                  | April-May ann. herb           | Habitat present, not found                   |
| <i>Leptosiphon acicularis</i>                 | bristly leptisiphon       | Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland; --/--/4.2                                                    | April-July ann. herb          | Habitat present but not found during surveys |
| <i>Monardella viridis</i>                     | green monardella          | Broadleaved upland forest, chaparral, cismontane woodland; --/--/4.3                                                                         | June-Sept. rhizom. herb       | Habitat present but not found during surveys |
| <i>Navarretia leucocephala ssp pauciflora</i> | Few-flowered navarretia   | Vernal pools, wetlands FE/ST/1B.1                                                                                                            | April-May ann. herb           | No habitat present                           |
| <i>Navarretia leucocephala ssp plieantha</i>  | Many-flowered navarretia  | vernal pools, wetlands FE/SE/1B.2                                                                                                            | April-May ann. herb (aquatic) | Habitat not present                          |
| <i>Orcuttia tenuis</i>                        | Slender Orcutt grass      | Vernal pools, wetlands                                                                                                                       | April-May                     | Habitat not present                          |
| <i>Sidalcea keckii</i>                        | Keck's checkerbloom       | Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland; Endangered/1B1/                                              | April-May annual herb         | Poor habitat not found                       |
| <i>Sedella leiocarpa</i>                      | Lake County stonecrop     | cismontane woodland, valley and foothill grassland/vernal pool/wetland FE/SE/1B.1                                                            | March-July ann. herb          | Habitat not present                          |

| Plant Species              | Common Name          | Habitat Requirements/<br>Fed-State-CNPS* Status                             | Blooming<br>Season/Form  | Habitat<br>Present                                 |
|----------------------------|----------------------|-----------------------------------------------------------------------------|--------------------------|----------------------------------------------------|
| <i>Viburnum ellipticum</i> | oval-leaved viburnum | Chaparral, cismontane woodland, lower montane coniferous forest; --/--/2B.3 | May-June<br>decid. shrub | Habitat present<br>but not found<br>during surveys |

\*See CNPS list for key

| Wildlife Species                        | Common Name                  | Habitat Requirements,<br>Status                                                                                                                                                                                              | Season Present         | Habitat<br>Present        |
|-----------------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------|
| <i>Bombus occidentalis</i>              | western bumblebee            | Once common in the western U.S., these bees are important pollinators of both wild plants and crops. Threats to be bee include insecticides, loss of habitat, climate change and diseases from commercial bee rearing. G4/S1 | year-round             | Habitat may be<br>present |
| <i>Bombus caliginosus</i>               | obscure bumble bee           | A black and yellow bee found in California, Oregon, Washington. Food plant genera: Baccharis, Cirsium, Lupinus, Lotus, Grindelia, Phacelia; G3G4/CA-SNR                                                                      | year-round             | Poor habitat<br>present   |
| <i>Taricha rivularis</i>                | red-bellied newt             | Occurs near high to moderate gradient streams and rivers, riffles, pools. Burrows in soil or debris near water, emerges during fall rains to water to breed; G4/SNR                                                          | year-round             | No<br>Habitat<br>present  |
| <i>Rana boylei</i>                      | foothill yellow-legged frog  | Riparian/aquatic: partly-shaded, shallow streams & riffles with a rocky substrate in variety of habitats; SSC/SCT/G3/S2S3                                                                                                    | year-round             | No<br>Habitat<br>present  |
| <i>Emys marmorata</i>                   | western pond turtle          | Aquatic turtle found in ponds, lakes, rivers, creeks, marshes & irrigation ditches with abundant vegetation and rocky or muddy bottoms; In woodland, forest, & grasslands; SSC/G3G4/S3                                       | year-round             | No<br>Habitat<br>present  |
| <i>Elanus leucurus</i>                  | white-tailed kite            | Open areas near woodlands and water; SFP/G5/S3                                                                                                                                                                               | year-round             | Habitat is<br>present     |
| <i>Circus cyaneus</i>                   | northern harrier             | Coastal salt and freshwater marshes, meadows, grasslands near wetlands; nests in brush on ground; SSC/G5/S3                                                                                                                  | migratory              | Habitat is<br>present     |
| <i>Coccyzus americanus occidentalis</i> | Western yellow-billed cuckoo | Riparian forest FT/SE/G4/S1                                                                                                                                                                                                  | sometimes<br>migratory | Habitat not<br>present    |

| Wildlife Species                    | Common Name              | Habitat Requirements,<br>Status                                                                                                                                                              | Season Present         | Habitat<br>Present                     |
|-------------------------------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------------|
| <i>Agelaius tricolor</i>            | tricolored blackbird     | Fresh emergent wetland (marshes) with cattails, tules, sedges. Largely endemic to California; SCE//G2G3/S1S2                                                                                 | year-round             | No<br>Habitat<br>is<br>present         |
| <i>Ammodramus savannarum</i>        | grasshopper sparrow      | Prefers open grassland habitats with patches of bare ground and shrubby vegetation. Breeds in various types of grassland vegetation. Eats insects, grain, and seeds on the ground; SSC/G5/S3 | sometimes<br>migratory | Habitat is<br>present,<br>not<br>found |
| <i>Corynorhinus townsendii</i>      | Townsend's big-eared bat | Roosts in open near relatively mesic sites, mainly montane forest habitats; SSC/G3/S2                                                                                                        | local migrant          | Habitat is<br>present,<br>not<br>found |
| <i>Antrozous pallidus</i>           | pallid bat               | Open, dry habitats, forest habitats, in caves, tunnels, buildings, bridges; sensitive to human disturbance; SSC/G5/S3                                                                        | local migrant          | Habitat is<br>present,<br>not<br>found |
| <i>Marles caurina humboldtensis</i> | Humboldt marten          | No. Coast conifer forest: old-growth conifers; cavities, snags, logs.; FT/SE/G5/S1                                                                                                           | year-round             | Poor habitat<br>present                |
| <i>Taxidea taxus</i>                | American badger          | Dryer open stages of shrub, forest, & herbaceous habitats. Needs friable soils for burrows and open uncultivated ground; SSC/G5/S3                                                           | year-round             | Habitat is<br>present,<br>not<br>found |
| <i>Erethizon dorsatum</i>           | North American porcupine | Occurs in a wide variety of coniferous and mixed woodland habitats in Sierra Nevada, Cascade, and Coast Ranges/ uses fallen and standing dead trees as cover; G5/S3                          | year-round             | Habitat<br>present,<br>not<br>found    |

**KEY FOR TABLE 3:**State and Federal:

SE/ST/SD=State Endangered/Threatened/Delisted

SC/SCD=State Candidate for Listing/Delisting

SSC=CDFW Species of Special Concern

SFP=CDFW Fully Protected

WL=CDFW Watch List

FE/FT/FD=Federal Endangered/Threatened/Delisted

FPE/FPT/FPD/FP=Federal Proposed Endangered/Threatened/Delisting

FC=Federal Candidate

NatureServe Conservation Status:

G1/S1 = Global/State Critically Imperiled

G2/S2 = Global/State Imperiled

G3/S3 = Global/State Vulnerable

G4/S4 = Global/State Apparently Secure

G5/S5 = Global/State Secure

SNR=Not rated

**4.3 Wildlife Habitat Analysis Results:** The California Wildlife Habitat Relationships analysis lists a number of native species with sensitive and non-sensitive status as potentially occurring on the site based on the geographic location and wildlife habitats present. This list is included as **Appendix B**.

**4.4 Wildlife Assessment:** Based on the pre-survey research conducted for this study, a total of 15 sensitive wildlife species need to be accounted for within the project area. These consist of the species identified as present within and adjacent to the Lower Lake quadrangle by the CNDDDB. Accepted protocol requires that all CNDDDB species in the surrounding U.S.G.S. quadrangle be discussed even though suitable habitat may not occur on the site.

▪ **Western bumble bee (*Bombus occidentalis*):**

Once common in the western and northwestern U.S., these bees are important pollinators of both wild plants and crops and has been commercially reared to pollinate crops such as greenhouse tomatoes and cranberries; they also have been an important pollinator of alfalfa, avocado, apples, cherries, blackberries, and blueberry. Since 1998 populations have declined due to insecticides, loss of habitat, climate change and diseases from commercial bee rearing. This bumblebee is a generic forager and its habitat requirements are non-specific. Identification of bees is based on their sex and markings.

▪ **Obscure bumble bee (*Bombus oliginosus*):**

This bumblebee is native to the west coast; in the Coast Range it inhabits meadows. It is similar in appearance and co-exists with the common *Bombus vosnesenskii* and may be mistaken for this bee. *B. oliginosus* is threatened by climate change and loss of habitat, and does not thrive in developed urban or agricultural areas. Its food sources include plant genera *Baccharis*, *Cirsium*, *Lupinus*, *Lotus*, *Grindelia*, and *Phacelia*. There is a low potential for it to occur on the property.

▪ **Red-bellied newt (*Taricha rivularis*):**

This species is often found under rocks, logs, soil or duff, or in rodent burrows in coastal woodlands and redwood forests. Newts occur near high to moderate gradient streams and rivers, in riffles, and pools. Newts burrow in soil or debris near water, and emerge during fall rains to breed; and may migrate up to a mile or more between terrestrial habitat and stream breeding sites. They usually breed in flowing water, from late February through May. Appropriate habitat for newts does not occur within the streams on the project site. Streams on the surrounding slopes are short-term seasonal drainages, these drainages generally are unsuitable for this species.

- **Foothill yellow-legged frog (*Rana boylei*):**

These frogs are relatively common along the shaded banks of perennial headwater streams. They are heavily dependent on the presence of perennial water and are seldom far from pools where they can seek shelter from predation. The larvae require three to four months to mature, making most ephemeral (seasonal) streams unsuitable as breeding sites. Burns Valley Creek may provide suitable habitat for this species. These frogs may spend dry summer months in shallows and backwaters after stream channels become dry, which do not occur in this watershed.

- **Western pond turtle (*Emys marmorata*):**

These turtles prefer slow or ponded water with sheltering vegetation but will range widely through less suitable habitat in search of these sites. Eggs are laid on land in sheltered nests. Stream channels are often used as movement corridors between waterways or ponds. While turtles may use the stream corridor, there is no suitable habitat on this parcel for them to remain.

- **White-tailed kite (*Elanus leucurus*):**

Usually found near agricultural areas, the kite prefers open terrain near woodlands and water. These raptors hunt over open country and prefer large, deciduous trees surrounded by expanses of grassland, meadows, farmland, and/or wetlands for nesting and roosting sites. The property contains woodlands adjacent to expanses of open grasslands with nearby water (Clearlake); this would provide marginal habitat for kites for both nesting and hunting. This is a California Fully Protected species. All raptors are protected under the Migratory Bird Treaty Act and California Department of Fish and Wildlife code.

- **Northern harrier (*Circus cyaneus hudsonius*):**

This raptor occurs in annual grassland and is also found at high elevations. It inhabits meadows, open grasslands and rangelands, and emergent wetlands; it prefers habitat such as the broad, open grasslands and wetlands of the Sacramento Valley where this species is commonly seen. It is seldom found in wooded or agricultural areas. Formerly called the "marsh hawk", it nests on the ground in dense shrubby vegetation in and near wetlands. The harrier feeds on insects and small mammals, birds, etc., and competes with the red-tailed hawk for food. These raptors nest from April to August and have California Species of Concern status during that period. This parcel does not provide habitat for harriers.

- **Tricolored blackbird (*Agelaius tricolor*):**

These blackbirds are colony nesters in fresh emergent wetland habitat (tule or cattail marsh), but may also occur in dense blackberry or willow shrub communities adjacent to water. Cover is required for nesting. Proximity to insects is preferred, although food includes seeds and grain. Breeding occurs April through June. The species is usually readily observed when present and has a distinctive call. This site does not contain suitable habitat for this species.

- **Grasshopper sparrow (*Ammodramus savannarum*):**

This sparrow is a summer resident in foothills and lowlands west of the Cascade-Sierra Nevada crest from Mendocino and Trinity counties to southern California. It occurs in dry, dense grasslands with scattered shrubs for singing perches. Grasshopper sparrows are secretive in winter. They need thick grasslands and forbs for cover, and nest in small depressions on the ground. They breed from April to mid-July. Sparrows feed primarily on insects but also eat other invertebrates, grains, and forb seeds. They search for food on the ground. They may be present in the grasslands.

- **Townsend's western big-eared bat (*Corynorhinus townsendii* ssp. *townsendii*):**

This bat is a California Species of Special Concern. Physical traits include bilateral nose lumps and very large ears. The most restrictive resource required by this species is daytime roosting habitat. This bat prefers caves and mines and is easily observed when present, hanging from open surfaces in mines and caves. Less frequently it will roost in tunnels, bridges, or other human-made structures, or hollow trees. Roost sites may vary from year to year. These bats typically prefer relatively mesic (moist) habitat such as streams near woodland habitats and may travel long distances for foraging. The majority of their diet consists of moths. This species is extremely sensitive to disturbance of roosting sites: These sites are frequently abandoned after being visited by humans. This property contains a riparian corridor, however it is low quality habitat for this species.

- **Pallid bat (*Antrozous pallidus*):**

Optimal habitat for these bats consists of open, dry habitats with rocky areas, but the bats are also found in oak savanna grasslands, and in open forest and woodlands with access to riparian and open water for feeding and drinking. Foraging occurs over open country. These bats prefer the cool summer temperatures of caves, crevices, and mines as roosting sites where they are known to wedge themselves into small spaces; they will also roost in buildings, bridges, and hollow trees. Preferred roosts are high above the ground and inaccessible to terrestrial predators, although they are occasionally found roosting on the ground underneath sacks, tarps, and other objects left by humans.

The bats have a home range of 1 to 3 miles and are known to roost with other bat species. This species of bat does not migrate long distances between seasons. It is extremely sensitive to human disturbance of roosting sites. Populations in California have declined due to habitat destruction and use of pesticides. The project site contains oak woodlands with limited water, which may provide some habitat for this species.

- **Humboldt marten (*Martes caurina humboldtensis*):**

Martens are found mostly in dense coniferous or deciduous habitats that include older trees and snags. Martens are mainly carnivorous, eating smaller mammals, rodents, birds, carrion, and fruits. They hunt for prey on the ground and in trees. Cover is provided by cavities in large trees, snags and logs and their nests are built in protected cavities, brush-piles or logs. Young are born between February and May. Martens are listed for a distant quad in the CNDDDB near Scotts Creek, but the species has not been reported in this area since 1941. While there is little chance that they occur on this parcel.

- **American badger (*Taxidea taxus*):**

Badgers are found mostly in drier open stages of shrub, forest, and herbaceous habitats with friable soils such as open grasslands, fields, and pastures. They are found from high alpine meadows to sea level and occur throughout the state except for the northern North Coast. This species is carnivorous, eating mostly fossorial rodents; they also will eat reptiles, insects, birds, eggs, and carrion. They dig burrows in friable or sandy soil for cover and nesting, and often reuse old burrows. Breeding occurs in late summer or fall. Nests are in areas with little overstory cover, often a grass-lined den, and young are born mostly in March and April. Young become independent in 5 or 6 months. The single occurrence mapped by CNDDDB within the Lakeport quadrangle is near the west boundary of the City of Lakeport on an unknown date. They would be unlikely to occur on this property.

- **North American porcupine (*Erethizon dorsatum*):**

This large, primarily nocturnal rodent prefers conifer and hardwood forests and woodlands, but is also found in forested wetlands and chaparral. They can withstand extreme cold temperatures. Porcupines use downed logs and debris, as well as snags and tree hollows, as cover and dens. Food is vegetation including twigs, berries, roots, seeds, needles, and bark; porcupines commonly climb trees for food. The porcupine breeds from September to November or December, giving birth in the spring. Lifespan is relatively long.

Porcupines may occur in the area and on the property. This species is listed in the CNDDDB as "G5" (Global Secure) and "SNR" (Species Not Rated-California). It is therefore not a species with sensitive regulatory status although its local accounts are included in the database.

Raptors and passerines lacking sensitive regulatory status but otherwise protected under the Migratory Bird Treaty Act may also be present on the property in their sensitive status.

## 5.0 FIELD SURVEY RESULTS

**5.1 Botanical Field Survey Results:** Table 4 presents the results of the botanical survey for the project. Each of the sensitive plant species potentially occurring at the site and listed in Tables 2 and 3 was specifically searched for during the surveys. The surveys identified a total of 56 plant taxa on the property.

TABLE 4. Flora of 11615 N. Seigler Canyon Road

| Habit | Species                                     | Common Name                           | Family          | Origin |
|-------|---------------------------------------------|---------------------------------------|-----------------|--------|
| forb  | <i>Chlorogalum pomeridianum</i>             | Wavyleaf soap plant                   | Agavaceae       | N      |
| forb  | <i>Allium serra</i>                         | jeweled onion                         | Alliaceae       | N      |
| forb  | <i>Lomatium dasycarpum ssp. dasycarpum</i>  | woolly-fruited lomatium               | Apiaceae        | N      |
| forb  | <i>Sanicula bipinnata</i>                   | Poison sanicle                        | Apiaceae        | N      |
| forb  | <i>Agoseris apargioides var apargioides</i> | coast dandelion                       | Asteraceae      | N      |
| forb  | <i>Chamomilla suaveolens</i>                | pineapple weed                        | Asteraceae      | A      |
| forb  | <i>Centaurea solstitialis</i>               | Yellow star thistle                   | Asteraceae      | A      |
| forb  | <i>Eriogonum nedum</i>                      | Naked buckwheat                       | Polygonaceae    | N      |
| forb  | <i>Eriophyllum lanatum var. lanatum</i>     | common woolly sunflower               | Asteraceae      | N      |
| forb  | <i>Madia gracilis</i>                       | gumweed, slender tarweed              | Asteraceae      | N      |
| forb  | <i>Micropus californicus</i>                | cottontop                             | Asteraceae      | N      |
| forb  | <i>Wyethia angustifolia</i>                 | narrow-leaved mule ears               | Asteraceae      | N      |
| forb  | <i>Cynoglossum grande</i>                   | grand hound's tongue                  | Boraginaceae    | N      |
| forb  | <i>Dichelostemma capitatum</i>              | Blue dicks                            | Brodiaea        | N      |
| forb  | <i>Lonicera interrupta</i>                  | Chaparral honeysuckle                 | Caprifoliaceae  | N      |
| forb  | <i>Cerastium glomeratum</i>                 | mouse-ear chickweed, sticky mouse-ear | Caryophyllaceae | A      |

| Habit | Species                               | Common Name         | Family      | Origin |
|-------|---------------------------------------|---------------------|-------------|--------|
| forb  | <i>Acemisson glaber</i>               | deerweed            | Fabaceae    | N      |
| forb  | <i>Lupinus bicolor</i>                | miniature lupine    | Fabaceae    | N      |
| forb  | <i>Trifolium hirtum</i>               | rose clover         | Fabaceae    | A      |
| forb  | <i>Vicia americana var. americana</i> | American vetch      | Fabaceae    | N      |
| forb  | <i>Erodium cicutarium</i>             | red-stem storksbill | Geraniaceae | A      |
| forb  | <i>Eriophyllum confertiflorum</i>     | Yellow yarrow       | Asteraceae  | N      |
| forb  | <i>Geranium dissectum</i>             | cut-leaved geranium | Geraniaceae | A      |

| Habit | Species                         | Common Name                                | Family           | Origin |
|-------|---------------------------------|--------------------------------------------|------------------|--------|
| forb  | <i>Toxicoscordion fremontii</i> | Fremont's death camas                      | Liliaceae        |        |
| forb  | <i>Clarkia purpurea</i>         | purple clarkia, winecup clarkia, four-spot | Onagraceae       | N      |
| forb  | <i>Eschscholzia californica</i> | California poppy                           | Papaveraceae     | N      |
| forb  | <i>Delphinium hesperium</i>     | foothill larkspur                          | Ranunculaceae    | N      |
| forb  | <i>Galium divaricatum</i>       | Lamarck's bedstraw                         | Rubiaceae        | N      |
| forb  | <i>Penstemon heterophyllus</i>  | foothill penstemon                         | Scrophulariaceae | N      |

| Habit | Species                                     | Common Name                   | Family          | Origin |
|-------|---------------------------------------------|-------------------------------|-----------------|--------|
| grass | <i>Avena barbata</i>                        | slender wild oat              | Poaceae         | A      |
| grass | <i>Briza minor</i>                          | small quaking grass           | Poaceae         | A      |
| grass | <i>Bromus diandrus</i>                      | ripgut grass, ripgut brome    | Poaceae         | A      |
| grass | <i>Bromus hordeaceus</i>                    | soft chess                    | Poaceae         | A      |
| grass | <i>Bromus jinermis</i>                      | smooth brome                  | Poaceae         | A      |
| grass | <i>Bromus laevipes</i>                      | woodland brome                | Poaceae         | N      |
| grass | <i>Bromus madritensis ssp. rubens</i>       | red brome                     | Poaceae         | A      |
| grass | <i>Elymus caput-medusae</i>                 | medusahead                    | Poaceae         | A      |
| grass | <i>Elymus glaucus ssp. glaucus</i>          | blue wildrye                  | Poaceae         | N      |
| grass | <i>Festuca idahoensis</i>                   | Idaho fescue                  | Poaceae         | N      |
| shrub | <i>Sambucus nigra ssp. caerulea</i>         | blue elderberry               | Adoxaceae       | N      |
| shrub | <i>Toxicodendron diversilobum</i>           | poison oak                    | Anacardiaceae   | N      |
| shrub | <i>Baccharis pilularis</i>                  | coyote brush, chaparral broom | Asteraceae      | N      |
| shrub | <i>Symphoricarpos albus var. laevigatus</i> | common snowberry              | Caryophyllaceae | N      |

| Habit | Species                                        | Common Name                  | Family          | Origin |
|-------|------------------------------------------------|------------------------------|-----------------|--------|
| shrub | <i>Arctostaphylos manzanita ssp. manzanita</i> | common manzanita             | Ericaceae       | N      |
| shrub | <i>Arctostaphylos viscida</i>                  | white-leaf manzanita         | Ericaceae       | N      |
| shrub | <i>Eriodictyon californicum</i>                | California yerba santa       | Hydrophyllaceae | N      |
| shrub | <i>Ceanothus cuneatus var. cuneatus</i>        | buckbrush                    | Rhamnaceae      | N      |
| shrub | <i>Ceanothus integerrimus</i>                  | Deer brush                   | Rhamnaceae      | N      |
| shrub | <i>Cercocarpus betuloides var. betuloides</i>  | birch-leaf mountain mahogany | Rosaceae        | N      |
| shrub | <i>Heteromeles arbutifolia</i>                 | toyon                        | Rosaceae        | N      |
| forb  | <i>Iris microsphon</i>                         | Ground iris                  | Iridaceae       | N      |
| tree  | <i>Quercus kelloggii</i>                       | Black oak                    | Fagaceae        | N      |
| Tree  | <i>Quercus wislizeni</i>                       | interior live oak            | Fagaceae        | N      |
| Tree  | <i>Pinus ponderosa</i>                         | Ponderosa pine               | Pinaceae        | N      |
| shrub | <i>Sambucus nigra ssp caerulea</i>             | Blue elderberry              | Acanthaaceae    | N      |

|      |                                                  |                       |                |   |
|------|--------------------------------------------------|-----------------------|----------------|---|
| vine | <i>Calystegia occidentalis ssp. occidentalis</i> | western morning-glory | Convolvulaceae | N |
|------|--------------------------------------------------|-----------------------|----------------|---|

|  |                                      |  |  |  |
|--|--------------------------------------|--|--|--|
|  | <i>N=Native A=Alien (non-native)</i> |  |  |  |
|--|--------------------------------------|--|--|--|

## 6.0 SUMMARY AND RECOMMENDATIONS

**6.1 Summary:** This biological resource assessment involved the following analyses and surveys for sensitive plants and wildlife potentially occurring in the vicinity of the project:

- Review of current California Natural Diversity Database (CNDDDB) mapping of known sensitive plant and wildlife populations within the region.
- An analysis of the suitability of the site for sensitive plants and wildlife using the California Native Plant Society *On-line Inventory of Rare and Endangered Vascular Plants of California*, and the California Department of Fish and Wildlife's *California Wildlife Habitat Relations System*.
- A California Department of Fish and Wildlife protocol, floristic-level field survey of the plants occurring within the property.
- A delineation of waters of the U.S.

**Sensitive Plants:** A total of 56 native and introduced plant taxa were identified within the survey areas during the in-season botanical survey. As used here, the term sensitive includes species having state or federal regulatory status, included on Lists 1B through 4 by the California Native Plant Society, or otherwise listed in the California Natural Diversity Database.

**Sensitive Wildlife:** A total of 15 sensitive wildlife species were assessed for potential occurrence at the site because of inclusion in the CNDDDB database for the quadrangle and the CWHR database. Based on the habitat assessment, the following conclusions are made regarding species with sensitive regulatory status:

- *Sensitive status species that have a potential to be present in their sensitive state:*  
Obscure bumble bee, Foothill yellow legged frog; Western pond turtle; White- tailed kite; Northern harrier; Tricolored blackbird; Grasshopper sparrow; Yellow-billed cuckoo, Townsend's big-eared bat; Pallid bat; American badger; Humboldt marten; North American porcupine

**Possible Waters of the U.S.:** A small riparian area is present on this parcel. It is of very low quality and does not exhibit all three criteria for designation as wetland.

6.2 Potential Impacts and Proposed Mitigation for Biological Resources:

(For all recommended mitigation measures accepted as conditions of approval, the text should be modified to use declarative language, i.e. "should" should become "shall", etc.)

- *Habitat Fragmentation*

**Potential Impacts:** The proposed gardens and processing facility shown in Figure 2 are comparatively small and unlikely to significantly impair wildlife movement through the corridor. Use of outdoor lighting has a potential to disrupt wildlife movement, much of which occurs at night.

Proposed Mitigation for Habitat Fragmentation:

**Measure 1:** The use of deer fencing should be restricted to the perimeters of the proposed gardens. No deer fencing or other obstacles to wildlife passage should be installed that will restrict wildlife movement.

**Measure 2:** Outdoor lighting, if used, should be restricted to the processing facility and should be directed downward so as not to illuminate adjacent areas.

- *Woodland and Forest Resources*

**Potential Impact:** As shown in **Table 1**, the property contains a combined total of 60 acres of woodland. The proposed project design limits project components to the existing infrastructure areas and would not impact woodland resources.

Existing Black Oaks within the development zone should be preserved when possible.

**Proposed Mitigation for Impacts to Woodland and Forest:** No mitigation recommended if the project is constructed within the area of existing infrastructure.

- *Sensitive Plants and Wildlife*

Potential Impacts:

**Plants:** No plants with sensitive regulatory status were found on the property during the floristic-level botanical survey.

**Wildlife:** The following wildlife species have a potential to be present on the property:

- Obscure bumble bee
- Western pond turtle
- White-tailed kite
- Northern harrier
- Grasshopper sparrow
- Pallid bat
- North American porcupine

Use of pesticides resulting in drift has a potential to result in the incidental take of the obscure bumble bee, if present. Pesticide contamination of waterways or direct impacts to waterways has a potential to result in incidental take of foothill yellow-legged frog and/or western pond turtle downstream from the project area.

Other sensitive species listed above depend primarily on woodland, forest, and grassland habitats. Woodland and forest habitat would not be impacted by this project. Impacts to grasslands would be minimal based on the current project design.

Proposed Mitigation for impacts to Wildlife:

**Measure 3:** To mitigate potential impacts to obscure bumble bee, foothill yellow-legged frog, and western pond turtle, State and Federal regulations on pesticide selection and use should be strictly followed. Pesticide use should not occur during periods when winds may transport spray to adjacent areas. As an alternative, the operator may wish to use organic growing methods. It should be noted that State of California regulations for cannabis cultivation include strict standards for purity which may pre-empt use of pesticides.

- *Waters of the U.S.*

**Potential Impacts:** As shown in **Figure 1**, the development would not significantly alter the existing forest or shrub area.

Placement of fill within Waters of the U.S. may require a Nationwide permit by the Corps of Engineers (possibly a non-reporting permit under the Nationwide Permit Program), along with a 401 Water Quality Certification from the Regional Water Quality Control Board, and 1604 Stream Alteration Agreement from the California Department of Fish and Wildlife. The County of Lake may require stream setbacks.

*Erosion Control:*

**Potential Impacts:** Vegetation clearing and grading activities have a potential to result in sediment runoff to Seigler Canyon Creek.

**Proposed Mitigation:** All work in or near waterways and wetlands should incorporate extensive erosion control measures consistent with Lake County Grading Regulations in order to avoid erosion and the potential for transport of sediments to Seigler Canyon Creek. Coverage under the National Pollutant Discharge Elimination System (NPDES), General Permit for Storm Water Discharges associated with a Construction Activity (General Permit) and a Storm Water Pollution Prevention Plan (SWPPP) may be required.

## 7.0 BIBLIOGRAPHY

Adams, Lowell W. and Louise E. Dove. 1989. *Wildlife Reserves and Corridors in the Urban Environment*. National Institute for Urban Wildlife.

Animal Diversity Web, University of Michigan Museum of Zoology. Internet site - <http://animaldiversity.ummz.umich.edu>.

Baldwin, Bruce G. et al. 2012. *The Jepson Manual, Higher Plants of California*. University of California Press, 2<sup>nd</sup> Edition.

Bennett, Andrew F. *Linkages in the Landscape: The Role of Corridors and Connectivity in Wildlife Conservation*. IUCN Forest Conservation Programme, 2003.

The Birds of North America Online. Cornell Lab of Ornithology. Internet site – [www.bna.birds.cornell.edu](http://www.bna.birds.cornell.edu).

Calflora Database. 2018. Internet site - [www.calflora.org](http://www.calflora.org).

California Native Plant Society. 2001. *California Native Plant Society's Inventory of Rare and Endangered Plants of California*. (6<sup>th</sup> Edition Updated).

California Native Plant Society. 2018. Internet site – "Inventory of Rare and Endangered Plants (online edition, 8<sup>th</sup> Edition)", Sacramento, CA; <http://www.cnps.org/inventory>.

California Department of Fish and Wildlife. 2013. California Interagency Wildlife Task Group. CWHR Version 9.0 personal computer program. Sacramento, CA.

California Department of Fish and Wildlife. 2018. *California Natural Diversity Database*, RareFind 5, Internet site - <https://map.dfg.ca.gov/rarefind>.

Clark, William S. et al. 2001. *Hawks of North America*. Peterson Field Guide Series. County of Lake. ESRI *ArcGIS Enterprise (Server and Portal) 10.5.1*.

Crampton, Beecher. 1974. *Grasses in California*. Berkeley, California. University of California Press.

Elrich, Paul R. et al. 1988. *The Birder's Handbook: A Field Guide to the Natural History of North American Birds*. Simon and Shuster, New York, New York, 785 pp.

Fiedler, Peggy L. 1996. *Common Wetland Plants of Central California*. Army Corps of Engineers.

Google Earth 2018. Aerial photos of Lake County.

Grillos, Steve L. 1996. *Ferns and Fern Allies*. University of California Press.

Hilty, Jodi A., William Z. Lidecker Jr., Adina M. Merenlender. 2006. *Corridor Ecology: The Science and Practice of Linking Landscapes for Biodiversity Conservation*. Island Press.

Internet site. [www.owling.com](http://www.owling.com).

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

McMinn, Howard E. 1939. *An Illustrated Manual of California Shrubs*. University of California Press.

Moyle, Peter B. 1976; Revised 2002. *Inland Fishes of California*, University of California Press.

Munz, Philip A. & David D. Keck. 1973. *A California Flora and Supplement*. University of California Press.

NatureServe Explorer. Internet site - <http://explorer.natureserve.org>.

Northern California Bats (NorCalBats). Internet site – [www.norcalbats.org](http://www.norcalbats.org).

Sawyer, John O., Keeler-Wolf, Todd, Evens, Julie M. 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society Press.

Shuford, W. David and Gardali, Thomas, Editors. Feb. 2008. *Studies of Western Birds No. 1: California Bird Species of Special Concern*. Western Field Ornithologists and California Department of Fish and Game.

Sibley, David A. 2000. *The Sibley Guide to Birds*. National Audubon Society. Alfred A. Knopf, New York, 545 pp.

Stebbins, Robert C. 2003. *Peterson Field Guides: Reptiles and Amphibians, Third Edition*.

The Peterson Field Guide Series. Houghton Mifflin Company.

U.S. Army Corps of Engineers. 1987. *Corps of Engineers Wetlands Delineation Manual. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Ver. 2.0, 2008.*

U.S. Department of Agriculture, Natural Resources Conservation Service.  
*Soil Surveys for Lake County, California; Mendocino County-Eastern Part, California*

U.S. Department of Agriculture, Natural Resources Conservation Service. Web Soil Survey.  
Internet site – [websoilsurvey.nrcs.usda.gov](http://websoilsurvey.nrcs.usda.gov).

U.S. Fish and Wildlife Service. *National List of Plant Species that Occur in Wetlands: Arid West; California.*

U.S. Geological Survey. 2018. Quadrangle Maps, Lower Lake, Middletown.

Western Bat Working Group. Internet site – [www.wbwg.org](http://www.wbwg.org).

Xerces Society for Invertebrate Conservation. Internet site -