

**BIOLOGICAL RESOURCES ASSESSMENT FOR THE
CANNABIS CULTIVATION OPERATION AT
3681 BENMORE VALLEY ROAD, LAKEPORT, CALIFORNIA**



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1. INTRODUCTION

1.1. PROJECT LOCATION AND DESCRIPTION

Natural Investigations Company conducted a biological resources assessment for a cannabis cultivation operation on a 63.03-acre parcel (APN 007-002-27) at 3681 Benmore Valley Road, Lakeport, in Lake County, California.

The proposed cannabis cultivation operation consists of five cultivation areas totaling 1.5 acres (see Exhibits):

- a 0.45-acre compound in Benmore Valley in an area previously cleared and containing an existing shed and former cultivation operation;
- 4 compounds (0.33 acre, 0.23 acre, 0.25 acre, and 0.24 acre) on the ridgeline in areas that have been partially cleared of vegetation in the past and are connected by an unpaved road

To establish the full extent of the 4 compounds on the ridgeline, additional vegetation will need to be removed and some minor grading may be necessary. An existing groundwater well in the northwest corner of the property will supply the irrigation water. Three plastic tanks (one 3,000-gallon tank and two 2,500-gallon tanks) are located in the center of the property and be used for water storage.

For this assessment, the Project Area was defined as the cultivation area plus the ancillary facilities, and this 1.5-acre area was the subject of the impact analysis. The entire 63.03-acre property was defined as the Study Area. The Study Area is defined to identify biological resources adjacent to the Project Area, and is the area subject to potential indirect effects from Project implementation.

1.2. PURPOSE AND SCOPE OF ASSESSMENT

This Biological Resources Assessment was prepared to assist in compliance with the California Environmental Quality Act and the state and federal Endangered Species Acts. This assessment also functions to fulfill requirements for obtaining enrollment (a Notice of Applicability) in the State Water Resources Control Board's Order WQ 2019-0007-DWQ General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities (General Order).

This assessment provides information about the biological resources within the Study Area, the regulatory environment affecting such resources, any potential Project-related impacts upon these resources, and finally, to identify mitigation measures and other recommendations to reduce the significance of these impacts. The specific scope of services performed for this assessment consisted of the following tasks:

- Compile all readily-available historical biological resource information about the Study Area;
- Spatially query state and federal databases for any occurrences of special-status species or habitats within the Study Area and vicinity;
- Perform a reconnaissance-level field survey of the Study Area, including photographic documentation;
- Inventory all flora and fauna observed during the field survey;
- Characterize and map the habitat types present within the Study Area, including any potentially-jurisdictional water resources;
- Evaluate the likelihood for the occurrence of any special-status species;
- Assess the potential for the Project to adversely impact any sensitive biological resources;
- Recommend mitigation measures designed to avoid or minimize Project-related impacts; and
- Prepare and submit a report summarizing all of the above tasks.

The scope of services does not include other services that are not described in this Section, such as formal aquatic resource delineations or protocol-level surveys for special-status species.

1.3. REGULATORY SETTING

The following section summarizes some applicable regulations of biological resources on real property in California.

1.3.1. Special-status Species Regulations

The United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service implement the Federal Endangered Species Act of 1973 (FESA) (16 USC §1531 *et seq.*). Threatened and endangered species on the federal list (50 CFR §17.11, 17.12) are protected from “take” (direct or indirect harm), unless a FESA Section 10 Permit is granted or a FESA Section 7 Biological Opinion with incidental take provisions is rendered. Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed species may be present in the project area and determine whether the proposed project will have a potentially significant impact upon such species. Under FESA, habitat loss is considered to be an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC §1536[3], [4]). Therefore, project-related impacts to these species or their habitats would be considered significant and would require mitigation. Species that are candidates for listing are not protected under FESA; however, USFWS advises that a candidate species could be elevated to listed status at any time, and therefore, applicants should regard these species with special consideration.

The California Endangered Species Act of 1970 (CESA) (California Fish and Game Code §2050 *et seq.*, and CCR Title 14, §670.2, 670.51) prohibits “take” (defined as hunt, pursue, catch, capture, or kill) of species listed under CESA. A CESA permit must be obtained if a project will result in take of listed species, either during construction or over the life of the project. Section 2081 establishes an incidental take permit program for state-listed species. Under CESA, California Department of Fish and Wildlife (CDFW) has the responsibility for maintaining a list of threatened and endangered species designated under state law (CFG Code 2070). CDFW also maintains lists of species of special concern, which serve as “watch lists.” Pursuant to requirements of CESA, an agency reviewing proposed projects within its jurisdiction must determine whether any state-listed species may be present in the Study Area and determine whether the proposed project will have a potentially significant impact upon such species. Project-related impacts to species on the CESA list would be considered significant and would require mitigation.

California Fish and Game Code Sections 4700, 5050, and 5515 designates certain mammal, amphibian, and reptile species “fully protected”, making it unlawful to take, possess, or destroy these species except under issuance of a specific permit. The California Native Plant Protection Act of 1977 (CFG Code §1900 *et seq.*) requires CDFW to establish criteria for determining if a species or variety of native plant is endangered or rare. Section 19131 of the code requires that landowners notify CDFW at least 10 days prior to initiating activities that will destroy a listed plant to allow the salvage of plant material.

Many bird species, especially those that are breeding, migratory, or of limited distribution, are protected under federal and state regulations. Under the Migratory Bird Treaty Act of 1918 (16 USC §703-711), migratory bird species and their nests and eggs that are on the federal list (50 CFR §10.13) are protected from injury or death, and project-related disturbances must be reduced or eliminated during the nesting cycle. California Fish and Game Code (§3503, 3503.5, and 3800) prohibits the possession, incidental take, or needless destruction of any bird nests or eggs. Fish and Game Code §3511 designates certain bird species “fully protected”, making it unlawful to take, possess, or destroy these species except under issuance of a specific permit. The Bald and Golden Eagle Protection Act (16 USC §668) specifically protects bald and golden eagles from harm or trade in parts of these species.

California Environmental Quality Act (CEQA) (Public Resources Code §15380) defines “rare” in a broader sense than the definitions of threatened, endangered, or fully protected. Under the CEQA definition, CDFW can request additional consideration of species not otherwise protected. CEQA requires that the impacts of a project upon environmental resources must be analyzed and assessed using criteria determined by the lead agency. Sensitive species that would qualify for listing but are not currently listed may be afforded protection under CEQA. The CEQA Guidelines (§15065) require that a substantial reduction in numbers of a rare or endangered species be considered a significant effect. CEQA Guidelines (§15380) provide for assessment of unlisted species as rare or endangered under CEQA if the species can be shown to meet the criteria for listing. Plant species on the California Native Plant Society (CNPS) Lists 1A, 1B, or 2 are typically considered rare under CEQA. California “Species of Special Concern” is a category conferred by CDFW on those species that are indicators of regional habitat changes or are considered potential future protected species. While they do not have statutory protection, Species of Special Concern are typically considered rare under CEQA and thereby warrant specific protection measures.

1.3.2. Water Resource Protection

Real property that contains water resources are subject to various federal and state regulations and activities occurring in these water resources may require permits, licenses, variances, or similar authorization from federal, state and local agencies, as described next.

The Federal Water Pollution Control Act Amendments of 1972 (as amended), commonly known as the Clean Water Act (CWA), established the basic structure for regulating discharges of pollutants into “waters of the United States”. Waters of the US includes essentially all surface waters, all interstate waters and their tributaries, all impoundments of these waters, and all wetlands adjacent to these waters. CWA Section 404 requires approval prior to dredging or discharging fill material into any waters of the US, especially wetlands. The permitting program is designed to minimize impacts to waters of the US, and when impacts cannot be avoided, requires compensatory mitigation. The US Army Corps of Engineers (USACE) is responsible for administering Section 404 regulations. Substantial impacts to jurisdictional wetlands may require an Individual Permit. Small-scale projects may require only a Nationwide Permit, which typically has an expedited process compared to the Individual Permit process. Mitigation of wetland impacts is required as a condition of the CWA Section 404 Permit and may include on-site preservation, restoration, or enhancement and/or off-site restoration or enhancement. The characteristics of the restored or enhanced wetlands must be equal to or better than those of the affected wetlands to achieve no net loss of wetlands.

Under CWA Section 401, every applicant for a federal permit or license for any activity which may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with State water quality standards. The California State Water Resources Control Board is responsible for administering CWA Section 401 regulations.

Section 10 of the Rivers and Harbors Act of 1899 requires approval from USACE prior to the commencement of any work in or over navigable Waters of the US, or which affects the course, location, condition or capacity of such waters. Navigable waters of the United States are defined as waters that have been used in the past, are now used, or are susceptible to use, as a means to transport interstate or foreign commerce up to the head of navigation. Rivers and Harbors Act Section 10 permits are required for construction activities in these waters.

California Fish and Game Code (§1601 - 1607) protects fishery resources by regulating “*any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake.*” CDFW requires notification prior to commencement, and issuance of a Lake or Streambed Alteration Agreement, if a proposed project will result in the alteration or degradation of “waters of the State”. The limit of CDFW jurisdiction is subject to the judgment of the Department;

currently, this jurisdiction is interpreted to be the “stream zone”, defined as “*that portion of the stream channel that restricts lateral movement of water*” and delineated at “*the top of the bank or the outer edge of any riparian vegetation, whichever is more landward*”. CDFW reviews the proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the CDFW and the applicant is the Streambed Alteration Agreement. Projects that require a Streambed Alteration Agreement may also require a CWA 404 Section Permit and/or CWA Section 401 Water Quality Certification.

For construction projects that disturb one or more acres of soil, the landowner or developer must obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ).

The State Water Resources Control Board’s Order WQ 2019-0007-DWQ General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities protects receiving water bodies from water-quality impacts associated with cannabis cultivation using a combination of Best Management Practices, buffer zones, sediment and erosion controls, site management plans, inspections and reporting, and regulatory oversight.

1.3.3. Tree Protection

At the State level, in areas inside timberland, any tree removal is subject to the conditions and requirements set forth in the Z’berg-Nejedly Forest Practice Act and the California Forest Practice Rules. If development of a project will result in the removal of commercial tree species, one of the following permits is needed: Less than 3 Acre Conversion Exemption; Christmas Tree; Dead, Dying or Diseased, Fuelwood, or Split Products Exemption; a Public Agency, Public and Private Utility Right of Way Exemption; a Notice of Exemption from Timberland Conversion Permit for Subdivision; or an Application for Timberland Conversion Permit.

Lake County does not have a specific ordinance protecting native trees. However, under the Cannabis Ordinance 3084, Section 4, Subsection iii) Prohibited Activities (a) Tree Removal, Lake County restricts tree removal as follows:

“The removal of any commercial tree species as defined by the California Code of Regulations section 895.1, Commercial Species for the Coast Forest District and Northern Forest District, and the removal of any true oak species (Quercus species) or Tan Oak (Notholithocarpus species) for the purpose of developing a cannabis cultivation site should be avoided and minimized. This shall not include the pruning of any such tree species for the health of the tree or the removal of such trees if necessary for safety or disease concerns.”

During the permitting process, Lake County requires mitigation for the removal of protected trees; typical mitigation is tree replacement at a ratio of 2:1 or 3:1.

2. ENVIRONMENTAL SETTING

The Study Area is located within the Inner North Coast Range geographic subregion, which is contained within the Northwestern California geographic subdivision of the larger California Floristic Province (Baldwin et al. 2012). This region has a Mediterranean-type climate, characterized by distinct seasons of hot, dry summers and wet, moderately-cold winters. The Study Area and vicinity is in climate Zone 14 “Northern California’s Inland Areas with Some Ocean Influence”, with maritime air moderating temperatures that would otherwise be hotter in summer and colder in the winter (Sunset, 2020).

The topography of the Study Area is mountainous, with some steep hillslopes and a ridgeline that divides two watersheds. The elevation ranges from approximately 2,550 feet to 2,880 feet above mean sea level. Drainage on the western portion of the property flows to the northwest, and eventually flows into Benmore Creek. Drainage on the eastern portion of the property flows toward McDowell Creek. Surrounding land uses are an Indian reservation, vineyards, private estates, open space, timberland, and grazing land.

3. METHODOLOGY

3.1. PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field survey, the following information sources were reviewed:

- Any readily-available previous biological resource studies pertaining to the Study Area or vicinity
- Aerial photography of the Study Area (current and historical)
- United States Geologic Service 7.5 degree-minute topographic quadrangles of the Study Area and vicinity
- USFWS National Wetland Inventory
- USDA Natural Resources Conservation Service soil survey maps
- California Natural Diversity Database (CNDDDB), electronically updated monthly by subscription
- USFWS species list (IPaC Trust Resources Report).

3.2. FIELD SURVEY

Consulting biologist Tim Nosal, MS. conducted a reconnaissance-level field survey on June 4, 2020. Weather conditions were hot and sunny. A variable-intensity pedestrian survey was performed, and modified to account for differences in terrain, vegetation density, and visibility. All visible fauna and flora observed were recorded in a field notebook, and identified to the lowest possible taxon. Survey efforts emphasized the search for any special-status species that had documented occurrences in the CNDDDB within the vicinity of the Study Area and those species on the USFWS species list (Appendix 1).

When a specimen could not be identified in the field, a photograph or voucher specimen (depending upon permit requirements) was taken and identified in the laboratory using a dissecting scope where necessary. Dr. Graening holds the following scientific collection permits: CDFW Scientific Collecting Permit No. SC-006802; and CDFW Plant Voucher Specimen Permit 09004. Tim Nosal holds CDFW Plant Voucher Specimen Permit 2081(a)-16-102-V. Taxonomic determinations were facilitated by referencing museum specimens or by various texts, including the following: Powell and Hogue (1979); Pavlik (1991); (1993); Brenzel (2012); Stuart and Sawyer (2001); Lanner (2002); Sibley (2003); Baldwin et al. (2012); Calflora (2020); CDFW (2020b,c); NatureServe 2020; and University of California at Berkeley (2020a,b).

The locations of any special-status species sighted were marked on aerial photographs and/or georeferenced with a geographic positioning system (GPS) receiver. Habitat types occurring in the Study Area were mapped on aerial photographs, and information on habitat conditions and the suitability of the habitats to support special-status species was also recorded. The Study Area was also informally

assessed for the presence of potentially-jurisdictional water features, including riparian zones, isolated wetlands and vernal pools, and other biologically-sensitive aquatic habitats

3.3. MAPPING AND OTHER ANALYSES

Locations of species' occurrences and habitat boundaries within the Study Area were digitized to produce the final habitat maps. The boundaries of potentially jurisdictional water resources within the Study Area were identified and measured in the field, and similarly digitized to calculate acreage and to produce informal delineation maps. Geographic analyses were performed using geographical information system software (ArcGIS 10, ESRI, Inc.). Vegetation communities (assemblages of plant species growing in an area of similar biological and environmental factors), were classified by Vegetation Series (distinctive associations of plants, described by dominant species and particular environmental setting) using the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf, 1995). Informal wetland delineation methods consisted of an abbreviated, visual assessment of the three requisite wetland parameters (hydrophytic vegetation, hydric soils, hydrologic regime) defined in the US Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, 1987). Wildlife habitats were classified according to the CDFW's California Wildlife Habitat Relationships System (CDFW, 2020c). Species' habitat requirements and life histories were identified using the following sources: Baldwin et al. (2012); CNPS (2020), Calflora (2020); CDFW (2020a,b,c); and University of California at Berkeley (2020a,b).

4. RESULTS

4.1. INVENTORY OF FLORA AND FAUNA FROM FIELD SURVEY

All plants detected during the field survey of the Study Area are listed in Appendix 2. The following animals were detected within the Study Area during the field survey:

American bullfrog (*Lithobates catesbeianus*); northwestern fence lizard (*Sceloporus occidentalis*); Botta's pocket gopher (*Thomomys bottae*); Columbian black-tailed deer (*Odocoileus hemionus columbianus*); dusky-footed wood rat (*Neotoma fuscipes*); pig (*Sus scrofa*); Anna's hummingbird (*Calypte anna*); California scrub jay (*Aphelocoma californica*); California towhee (*Melospiza crissalis*); common raven (*Corvus corax*); mourning dove (*Zenaidura macroura*); red-tailed hawk (*Buteo jamaicensis*); red-winged blackbird (*Agelaius phoeniceus*); Stellar's jay (*Cyanocitta stelleri*); wild turkey (*Meleagris gallopavo*); and common songbirds.

4.2. VEGETATION COMMUNITIES AND WILDLIFE HABITAT TYPES

4.2.1. Terrestrial Vegetation Communities

The Study Area contains the following terrestrial vegetation communities: ruderal/disturbed; chaparral (chamise); oak-pine forest; and riparian. These vegetation communities are discussed here and are delineated in the Exhibits.

Ruderal/Disturbed. These areas consist of disturbed or converted natural habitat that is now either in ruderal state, graded, or urbanized with gravel roads. Vegetation within this habitat type consists primarily of nonnative weedy or invasive species lacking a consistent community structure. This habitat type provides limited resources for wildlife and is utilized primarily by species tolerant of human activities. The disturbed and altered condition of these lands greatly reduces their habitat value and ability to sustain rare plants or diverse wildlife assemblages.

Chaparral (Chamise): The warm south-facing slopes are vegetated with a dense cover of drought-tolerant shrubs. Typical plants within this habitat include chamise (*Adenostoma fasciculatum*) as the dominant shrub with common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), Jim brush (*Ceanothus oliganthus* ssp. *sorediatus*), chaparral pea (*Pickeringia montana*), yerba santa (*Eriodictyon californicum*) and pitcher sage (*Lepechinia calycina*). The understory of this habitat is heavily shaded, but species such as purple sanicle (*Sanicula bipinnatifida*) and ground rose (*Rosa spithamea*) are found in openings and along margins of the chaparral. This vegetation type can be classified as the Holland Type "Chamise Chaparral" or as "37.101.19 Chamise Chaparral (CDFW 2019)".

Oak-Pine Forest: Tree dominated habitats found on the cooler north-facing slopes of the Study Area are dominated by various species of oak and pine. The composition of the oak forest varies across the Study Area, depending upon aspect, slope, soil and site history. Dominant canopy species include canyon live oak (*Quercus chrysolepis*), bush interior live oak (*Quercus wislizeni* var. *frutescens*), madrone (*Arbutus menziesii*), knobcone pine (*Pinus attenuata*), sugar pine (*Pinus lambertiana*) and California bay (*Umbellularia californica*). The shrub layer within this habitat is comprised of poison oak (*Toxicodendron diversilobum*) and California scrub oak (*Quercus berberidifolia*). The herbaceous layer is sparse within the forest habitat, although several species were commonly encountered including Indian warrior (*Pedicularis densiflorus*), Pacific starflower (*Lysmachia latifolia*), modesty (*Whipplea modesta*) and bedstraw (*Galium* sp.) This vegetation can be classified as the Holland Type "Oak Forest" or as "*Quercus (agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni)* Mixed Oak Forest" (CDFW 2019).

Riparian: Riparian habitat can be found along the channel of the Class II creek that is found in the northwestern corner of the Study Area. The riparian vegetation consists of an intermittent canopy of red willow (*Salix laevigata*), dusky willow (*Salix melanopsis*) and Fremont cottonwood (*Populus fremontii*). The riparian understory includes Himalayan blackberry (*Rubus armeniacus*), rush (*Juncus* spp.), pennyroyal (*Mentha pulegium*) and water plantain (*Alisma plantago-aquatica*). The riparian forest can be classified as the Holland Type “Great Valley Mixed Riparian Forest” or as “61.205.01 Red Willow Riparian” (CDFW 2019).

4.2.2. Wildlife Habitat Types

Wildlife habitat types were classified using CDFW’s Wildlife Habitat Relationship System. The Study Area contains the following wildlife habitat types: Montane Hardwood-Conifer; Montane Riparian; Montane Chaparral; Annual Grassland; Urban; and Barren.

4.2.3. Critical Habitat and Special-status Habitat

No critical habitat for any federally-listed species occurs within the Project Area or the surrounding Study Area. The CNDDDB reported no special-status habitats within the Project Area or surrounding Study Area. The CNDDDB reported the following special-status habitats in a 10-mile radius outside of the Study Area: Clear Lake Drainage Cyprinid/Catostomid Stream; Clear Lake Drainage Seasonal Lakefish Spawning Stream; Serpentine Bunchgrass; Coastal and Valley Freshwater Marsh and Northern Interior Cypress Forest. No special-status habitats were detected within the Project Area. However, the surrounding Study Area contains the following special-status habitats: riparian and watercourses.

4.2.4. Habitat Plans and Wildlife Corridors

Wildlife movement corridors link remaining areas of functional wildlife habitat that are separated primarily by human disturbance, but natural barriers such as rugged terrain and abrupt changes in vegetation cover are also possible. Wilderness and open lands have been fragmented by urbanization, which can disrupt migratory species and separate interbreeding populations. Corridors allow migratory movements and act as links between these separated populations.

No fishery resources exist in or near the Study Area, although Benmore Creek flows to fishery resources downstream. Although there are no designated wildlife corridors, the open space within the Study Area allows for unrestricted animal movement. The Study Area is not located within any adopted Habitat Conservation Plan or Natural Community Conservation Plan.

4.3. LISTED SPECIES AND OTHER SPECIAL-STATUS SPECIES

For the purposes of this assessment, “special status” is defined to be species that are of management concern to state or federal natural resource agencies, and include those species that are:

- Listed as endangered, threatened, proposed, or candidate for listing under the Federal Endangered Species Act;
- Listed as endangered, threatened, rare, or proposed for listing, under the California Endangered Species Act of 1970;
- Designated as endangered or rare, pursuant to California Fish and Game Code (§1901);
- Designated as fully protected, pursuant to California Fish and Game Code (§3511, §4700, or §5050);
- Designated as a species of special concern by CDFW;
- Plants considered to be rare, threatened or endangered in California by the California Native Plant Society (CNPS); this consists of species on Lists 1A, 1B, and 2 of the CNPS Ranking System; or
- Plants listed as rare under the California Native Plant Protection Act.

4.3.1. Reported Occurrences of Listed Species and Other Special-status Species

A list of special-status plant and animal species that have occurred within the Study Area and vicinity was compiled based upon the following:

- Any previous and readily-available biological resource studies pertaining to the Study Area;
- Informal consultation with USFWS by generating an electronic Species List (Information for Planning and Conservation website at <https://ecos.fws.gov/ipac/>); and
- A spatial query of the CNDDDB.

The CNDDDB was queried and any reported occurrences of special-status species were plotted in relation to the Study Area boundary using GIS software (see exhibits). The CNDDDB reported no special-status species occurrences within the Project Area or the surrounding Study Area. Within a 10-mile buffer of the Study Area boundary, the CNDDDB reported several special-status species occurrences, summarized in the following table. Several

A USFWS species list was generated online using the USFWS' IPaC Trust Resource Report System (see Appendix 1). This list is generated using a regional and/or watershed approach and does not necessarily indicate that the Study Area provides suitable habitat. The following listed species should be considered in the impact assessment:

- Fisher – West Coast DPS (*Pekania pennanti*) Threatened
- Northern Spotted Owl (*Strix occidentalis caurina*) Threatened
- Western Snowy Plover (*Charadrius nivosus nivosus*) Threatened
- Yellow-billed Cuckoo (*Coccyzus americanus*) Threatened
- California Red-legged Frog (*Rana draytonii*) Threatened
- California Freshwater Shrimp (*Syncaris pacifica*) Endangered
- Burke's Goldfields (*Lasthenia burkei*) Endangered
- Contra Costa Goldfields (*Lasthenia conjugens*) Endangered
- Showy Indian Clover (*Trifolium amoenum*) Endangered

Migratory birds should also be considered in the impact assessment.

Special-status Species Reported by CNDDB in the Vicinity of the Study Area

Common Name Scientific Name	Status*	General Habitat	Microhabitat
Red-bellied newt <i>Taricha rivularis</i>	CSSC	Found in coastal woodlands and redwood forests along the coast of Northern California	A stream or river dweller. Larvae retreat into vegetation and under stones during the day.
Foothill yellow-legged frog <i>Rana boylei</i>	CCT/CSSC	Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats.	Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.
Double-crested cormorant <i>Phalacrocorax auritus</i>	CWL	Colonial nester on coastal cliffs, offshore islands, & along lake margins in the interior of the state.	Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.
Great blue heron <i>Ardea herodias</i>	CSSC	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.
Osprey <i>Pandion haliaetus</i>	CWL	Ocean shore, bays, fresh-water lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.
Bell's sage sparrow <i>Artemisiospiza belli belli</i>	CWL	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range.	Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.
Grasshopper sparrow <i>Ammodramus savannarum</i>	CSSC	Dense grasslands on rolling hills, lowland plains, in valleys & on hillsides on lower mountain slopes.	Favors native grasslands with a mix of grasses, forbs & scattered shrubs. Loosely colonial when nesting.
Tricolored blackbird <i>Agelaius tricolor</i>	CT/CSSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, & foraging area with insect prey within a few km of the colony.
Clear Lake hitch <i>Lavinia exilicauda chi</i>	CT	Found only in Clear Lake, Lake Co, and associated ponds. Spawns in streams flowing into Clear Lake.	Adults found in the limnetic zone. Juveniles found in the nearshore shallow-water habitat hiding in the vegetation.
Sacramento perch <i>Archoplites interruptus</i>	CSSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley.	Prefers warm water. Aquatic vegetation is essential for young. Tolerates wide range of physio-chemical water conditions.
Hoary bat <i>Lasiurus cinereus</i>	CSSC	Prefers open habitats or habitat mosaics, with access to trees for cover & open areas or habitat edges for feeding.	Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	CSSC	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.
Pallid bat <i>Antrozous pallidus</i>	CSSC	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.
North American porcupine <i>Erethizon dorsatum</i>	CSSC	Coast ranges, Klamath Mountains, southern Cascades, Modoc Plateau, Sierra Nevada and Transverse Ranges.	Montane conifer and wet meadow habitats.
Fisher - West Coast DPS <i>Pekania pennanti</i>	CT/CSSC	Intermediate to large-tree stages of coniferous forests & deciduous-riparian areas with high percent canopy closure.	Uses cavities, snags, logs & rocky areas for cover & denning. Needs large areas of mature, dense forest.
American badger <i>Taxidea taxus</i>	CSSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Needs sufficient food, friable soils & open, uncultivated ground. Preys on burrowing rodents. Digs burrows.

Common Name Scientific Name	Status*	General Habitat	Microhabitat
Western pond turtle <i>Emys marmorata</i>	CSSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation, be	Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying
An isopod <i>Calasellus californicus</i>	CSSC	Known from Lake, Napa, Marin, Santa Cruz and Santa Clara counties.	
Brownish dubiraphian riffle beetle <i>Dubiraphia brunnescens</i>	CSSC	Aquatic; known only from the NE shore of Clear Lake, Lake County.	Inhabits exposed, wave-washed willow roots.
Obscure bumble bee <i>Bombus caliginosus</i>	CSSC	Open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests.	Food plants include <i>Ceanothus</i> , <i>Cirsium</i> , <i>Clarkia</i> , <i>Keckiella</i> , <i>Lathyrus</i> , <i>Lotus</i> , <i>Lupinus</i> , <i>Rhododendron</i> , <i>Rubus</i> , <i>Trifolium</i> , and <i>Vaccinium</i> .
Blennosperma vernal pool andrenid bee <i>Andrena blennospermatis</i>	CSSC	This bee is oligolectic on vernal pool <i>Blennosperma</i> .	Bees nest in the uplands around vernal pools.
Koch's cord moss <i>Entosthodon kochii</i>	1B.3	Cismontane woodland, valley and foothill grasslands.	Moss growing on soil on river banks. Known from serpentine on the Plumas NF. 500-1000 m.
Small-flowered calycadenia <i>Calycadenia micrantha</i>	1B.2	Chaparral, valley and foothill grassland, meadows and seeps.	Rocky talus or scree; sparsely vegetated areas. Occasionally on roadsides; sometimes on serpentine. 5-1500 m.
Burke's goldfields <i>Lasthenia burkei</i>	FE/CE/1B.1	Vernal pools, meadows and seeps.	Most often in vernal pools and swales. 15-600 m.
Colusa layia <i>Layia septentrionalis</i>	1B.2	Chaparral, cismontane woodland, valley and foothill grassland.	Scattered colonies in fields and grassy slopes in sandy or serpentine soil. 145-1095m.
Guggolz's harmonia <i>Harmonia guggolziorum</i>	1B.1	Chaparral.	Open areas on serpentine. 160-195 m.
Beaked tracyina <i>Tracyina rostrata</i>	1B.2	Cismontane woodland, valley and foothill grassland.	Open grassy meadows within oak woodland and grassland habitats. 90-790 m.
Bent-flowered fiddleneck <i>Amsinckia lunaris</i>	1B.2	Cismontane woodland, valley and foothill grassland.	50-500m.
Serpentine cryptantha <i>Cryptantha dissita</i>	1B.2	Chaparral.	Serpentine outcrops. 330-730m.
Mayacamas popcornflower <i>Plagiobothrys lithocaryus</i>	1A	Meadows? Valley and foothill grassland, cismontane woodland, chaparral?	Moist sites. 285-450m.
Hoffman's bristly jewelflower <i>Streptanthus glandulosus</i> ssp. <i>hoffmanii</i>	1B.3	Chaparral, cismontane woodland, valley and foothill grassland.	Moist, steep rocky banks, in serpentine and non-serpentine soil. 120-475m.
Watershield <i>Brasenia schreberi</i>	2B.3	Freshwater marshes and swamps.	Aquatic from water bodies both natural and artificial in California.
Oval-leaved viburnum <i>Viburnum ellipticum</i>	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest.	215-1400 m.
Raiche's manzanita <i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i>	1B.1	Chaparral, lower montane coniferous forest.	Rocky, serpentine sites. Slopes and ridges. 450-1000 m.
Konocti manzanita <i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	1B.3	Chaparral, cismontane woodland, lower montane coniferous forest.	Volcanic soils. 395-1615 m.

Common Name Scientific Name	Status*	General Habitat	Microhabitat
Napa bluecurls <i>Trichostema ruygtii</i>	1B.2	Cismontane woodland, chaparral, valley and foothill grassland, vernal pools, lower montane coniferous forest.	Often in open, sunny areas. Also has been found in vernal pools. 30-590m.
Glandular western flax <i>Hesperolinon adenophyllum</i>	1B.2	Chaparral, cismontane woodland, valley and foothill grassland.	Serpentine soils; generally found in serpentine chaparral. 150-1315 m.
Marsh checkerbloom <i>Sidalcea oregana ssp. hydrophila</i>	1B.2	Meadows and seeps, riparian forest.	Wet soil of streambanks, meadows. 1100-2300 m.
Small groundcone <i>Kopsiopsis hookeri</i>	2B.3	North coast coniferous forest.	Open woods, shrubby places, generally on <i>Gaultheria shallon</i> . 90-885 m.
Brandegee's eriastrum <i>Eriastrum brandegeae</i>	1B.1	Chaparral, cismontane woodland.	On barren volcanic soils; often in open areas. 425-840 m.
Few-flowered navarretia <i>Navarretia leucocephala ssp. pauciflora</i>	FE/CT/1B.1	Vernal pools.	Volcanic ash flow, and volcanic substrate vernal pools. 400-855 m.
Rincon Ridge ceanothus <i>Ceanothus confusus</i>	1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland.	Known from volcanic or serpentine soils, dry shrubby slopes. 75-1065 m.
Bolander's horkelia <i>Horkelia bolanderi</i>	1B.2	Lower montane coniferous forest, chaparral, meadows, valley and foothill grassland.	Grassy margins of vernal pools and meadows. 450-1100 m.
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	CE/1B.2	Marshes and swamps (freshwater), vernal pools.	Clay soils; usually in vernal pools, sometimes on lake margins. 10-2375 m.
Dimorphic snapdragon <i>Antirrhinum subcordatum</i>	4.3	Chaparral, lower montane coniferous forest.	Generally, on serpentine or shale in foothill woodland or chaparral on s- and w-facing slopes. 185-800 m.
Bristly sedge <i>Carex comosa</i>	2B.1	Marshes and swamps.	Lake margins, wet places; site below sea level is on a Delta island. -5-1005m.
Franciscan onion <i>Allium peninsulare var. franciscanum</i>	1B.2	Cismontane woodland, valley and foothill grassland.	Clay soils; often on serpentine. Dry hillsides. 50-300 m.

*Definitions of Status Codes: FE = Federally listed as endangered; FT = Federally listed as threatened; FPE = Federally proposed for listing as endangered; FPT = Federally proposed for listing as threatened; FC = Candidate for Federal listing; MB = Migratory Bird Act; CE = California State listed as endangered; CT = California State listed as threatened; CSSC = California species of special concern; CR = California rare species; CFP = California fully protected species; CNPS (California Native Plant Society) List 1A = Plants presumed extinct in California by CNPS; CNPS List 1B = CNPS designated rare or endangered plants in California and elsewhere; and CNPS List 2 = CNPS designated rare or endangered plants in California, but more common elsewhere. Global Ranking: G1 = Critically Imperiled; G2 = Imperiled; G3 = Vulnerable. State Ranking: S1 = Critically Imperiled; S2 = Imperiled; S3 = Vulnerable.

**Copied verbatim from CNDDb, unless otherwise noted.

4.3.2. Listed Species or Special-status Species Observed During Field Survey

During the field survey, no special-status species were detected within the Project Area or the surrounding Study Area.

4.3.3. Potential for Listed Species or Special-status Species to Occur in the Study Area

The ruderal and disturbed habitats within the Study Area have a low potential for harboring special-status plant species due to the dominance of aggressive non-native grasses and forbs. Human activity discourages wildlife to stay in these areas. Streams and riparian corridors within the Study Area could sustain aquatic special-status species, and in general, attract wildlife to these areas. Several locally-occurring special status species are known to occur in the vicinity in chaparral and forest habitat: Bell's sage sparrow (*Artemisiospiza belli belli*); hoary bat (*Lasiurus cinereus*); and oval-leaved viburnum (*Viburnum ellipticum*).

4.4. POTENTIALLY-JURISDICTIONAL WATER RESOURCES

The USFWS National Wetland Inventory reported one water features within the surrounding Study Area (see Exhibits): freshwater forested/shrub wetlands associated with a watercourse on the northwestern corner of the parcel.

An informal assessment for the presence of potentially-jurisdictional water resources within the Study Area was also conducted during the field survey. For purposes of this biological site assessment, non-wetland waters (i.e., channels) were classified using the California Forest Practice Rules. The California Forest Practice Rules define a Class I watercourse as 1) a watercourse providing habitat for fish always or seasonally, and/or 2) providing a domestic water source; a Class II watercourse is 1) a watercourse capable of supporting non-fish aquatic species, or 2) a watercourse within 1000 feet of a watercourse that seasonally or always has fish present; a Class III watercourse is a watercourse with no aquatic life present and that shows evidence of being capable of transporting sediment to Class I and Class II waters during high water flow conditions.

The field survey determined that the Project Area does not contain any channels or wetlands. One intermittent channel (Class II watercourse) and three ephemeral channels (Class III watercourses) were detected within the larger Study Area during the field survey (see Exhibits). There are no vernal pools or other isolated wetlands in the Study Area.

5. IMPACT ANALYSES AND MITIGATION MEASURES

This section establishes the impact criteria, then analyzes potential Project-related impacts upon the known biological resources within the Study Area, and then suggests mitigation measures to reduce these impacts to a less-than-significant level.

5.1. IMPACT SIGNIFICANCE CRITERIA

The significance of impacts to biological resources depends upon the proximity and quality of vegetation communities and wildlife habitats, the presence or absence of special-status species, and the effectiveness of measures implemented to protect these resources from Project-related impacts. As defined by CEQA, the Project would be considered to have a significant adverse impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a special-status species in local or regional plans, policies, or regulations, or by USFWS or CDFW
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by USFWS or CDFW
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any county or municipal policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved governmental habitat conservation plan.

5.2. IMPACT ANALYSIS

The following discussion evaluates the potential for Project-related activities to adversely affect biological resources. The Project boundaries were digitized and then overlaid on the habitat map using GIS to quantify potential impacts. Historical aerial photos were also analyzed for changes in land use.

5.2.1. Potential Direct / Indirect Adverse Effects Upon Special-status Species

- *Will the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

No direct impacts to listed species or special-status species are expected from implementation of the proposed project. During the field survey, no listed species or special-status species were observed within the Project Area or the surrounding Study Area. State and federal databases do not report any listed species or special-status species. The ruderal and disturbed habitats within the Study Area have a low potential for harboring special-status plant species due to the dominance of aggressive non-native grasses and forbs. Human activity discourages wildlife to stay in these areas. Streams and riparian corridors within the Study Area could sustain aquatic special-status species, and in general, attract wildlife to these areas. However, the Project Areas have been set back from streams and riparian habitat.

Indirect impacts to special-status species could occur from destruction of occupied or suitable habitat. Implementation of the project may require the removal of chaparral and forest habitat. Several locally-

occurring special status species are known to occur in the vicinity in chaparral and forest habitat: Bell's sage sparrow (*Artemisiospiza belli belli*); hoary bat (*Lasiurus cinereus*); and oval-leaved viburnum (*Viburnum ellipticum*).

Special-status bird species were reported in databases (CNDDDB and USFWS) in the vicinity of the Project Area. The Project Area, and adjacent trees and utility poles, contain suitable nesting habitat for various bird species. However, no nests were observed during the field survey. If construction activities are conducted during the nesting season, nesting birds could be directly impacted by tree removal and indirectly impacted by noise, vibration, and other construction-related disturbance. Therefore, Project construction is considered a potentially significant adverse impact to nesting birds.

Recommended Mitigation Measures

Because special-status species that occur in the vicinity could migrate onto the Study Area between the time that the field survey was completed and the start of construction, a pre-construction survey for special-status species should be performed by a qualified biologist to ensure that special-status species are not present. If any listed species are detected, construction should be delayed, and the appropriate wildlife agency (CDFW and/or USFWS) should be consulted and project impacts and mitigation reassessed. With the implementation of this mitigation measure, adverse impacts upon special-status species would be reduced to a less-than-significant level.

If construction activities would occur during the nesting season (typically February 15 through August 31), a pre-construction survey for the presence of special-status bird species or any nesting bird species should be conducted by a qualified biologist within 500 feet of proposed construction areas. If active nests are identified in these areas, CDFW and/or USFWS should be consulted to develop measures to avoid "take" of active nests prior to the initiation of any construction activities. Avoidance measures may include establishment of a buffer zone using construction fencing or the postponement of vegetation removal until after the nesting season, or until after a qualified biologist has determined the young have fledged and are independent of the nest site. With the implementation of this mitigation measure, adverse impacts upon special-status bird species and nesting birds would be reduced to a less-than-significant level.

5.2.2. Potential Direct / Indirect Adverse Effects Upon Special-status Habitats or Natural Communities or Corridors

- *Will the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?*

The Project Area and surrounding Study Area are not within any designated listed species' critical habitat. The Project Area does not contain special-status habitats. The Study Area contains one terrestrial special-status habitat: riparian habitat along the intermittent watercourse; channels themselves can be considered special-status as they are protected by law. Project implementation will require the removal of some chaparral habitat and oak forest habitat, but these are not special-status habitats. The Project has some distance and vegetated buffers from all channels. There is no evidence that project implementation will impact any special-status habitats.

Recommended Mitigation Measures

No mitigation is necessary.

5.2.3. Potential Direct / Indirect Adverse Effects on Jurisdictional Water Resources

- *Will the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

There are no water resources within the Project Area. There are several water resources within the surrounding Study Area: one Class II Watercourse (and riparian habitat), and three Class III Watercourses.

Potential direct impacts to water resources could occur during construction by modification or destruction of stream banks or riparian vegetation or the filling of wetlands or channels. However, the cultivation areas have been designed with setbacks from watercourses. Because of these avoidance measures, no direct impacts to water resources will occur.

Potential indirect impacts to water resources could occur during construction by increased erosion and sedimentation in receiving water bodies due to soil disturbance. If the total area of ground disturbance from installation of the cultivation operation is 1 acre or more, the Cultivator must enroll for coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). Implementation of a stormwater pollution prevention plan, and erosion control plan, along with regular inspections, will ensure that construction activities do not pollute receiving waterbodies.

Potential adverse impacts to water resources could occur during operation of cultivation activities resources by discharge of sediment or other pollutants (fertilizers, pesticides, human waste, etc.) into receiving waterbodies. However, the project proponent must file a Notice of Intent and enroll in Cannabis Cultivation Order WQ 2019-0007-DWQ. Compliance with this Order will ensure that cultivation operations will not significantly impact water resources by using a combination of Best Management Practices (BMPs), buffer zones, sediment and erosion controls, site management plans, inspections and reporting, and regulatory oversight.

Cultivators who enroll in the State Water Board's Waste Discharge Requirements for Cannabis Cultivation Order WQ 2019-0007-DWQ must comply with the Minimum Riparian Setbacks, as summarized in the following table. The Project would be considered to have a significant adverse impact on jurisdictional water resources if it would be non-compliant with these requirements. The minimum riparian setbacks apply to all land disturbance, cannabis cultivation activities, and facilities (e.g., material or vehicle storage, diesel powered pump locations, water storage areas, and chemical toilet placement). The 0.45-acre compound in the northwest corner of the property is approximately 50 feet from a Class II watercourse. Cannabis Cultivation Order WQ 2019-0007-DWQ requires that all cultivation operations be located at least 100 feet away from Class II watercourses. Portions of this existing garden may need to be relocated to comply with this Order.

Minimum Riparian Setbacks

Common Name	Watercourse Class	Distance
Perennial watercourses, waterbodies (e.g. lakes, ponds), or springs	I	150 ft.
Intermittent watercourses or wetlands	II	100 ft.
Ephemeral watercourses	III	50 ft.
Man-made irrigation canals, water supply	IV	Established riparian zone

reservoirs, or hydroelectric canals that support native aquatic species		vegetation
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Recommended Mitigation Measures

No impacts were identified, and therefore no mitigation measures are proposed.

It is recommended that a formal delineation of jurisdictional waters be performed before construction work, or ground disturbance, is performed within 50 feet of any watercourse.

5.2.4. Potential Impacts to Wildlife Movement, Corridors, etc.

- *Will the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

Although no mapped wildlife corridors (such as the California Essential Habitat Connectivity Area layer in CNDDB) exist within or near the Study Area, the open space and the stream corridors in the Study Area facilitate animal movement and migrations. While the Study Area may be used by wildlife for movement or migration, the Project would not have a significant impact on this movement because it would not block movement and the majority of the open space in the Study Area would still be available.

Implementation of the proposed project would necessitate erection of security fences around the cultivation compounds. These fences do not allow animal movement and may act as a local barrier to wildlife movement. However, the fenced cultivation areas are surrounded by open space, allowing wildlife to move around these fenced areas. Thus, implementation of the proposed project is a less than significant impact upon wildlife movement. Implementation of the project will not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Recommended Mitigation Measures

No mitigation is necessary.

5.2.5. Potential Conflicts with Ordinances, Habitat Conservation Plans, etc.

- *Will the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*
- *Will the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

Construction of the project may require the removal of trees protected by Lake County or CALFIRE. This is a potentially significant impact before mitigation.

The project does not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or another approved governmental habitat conservation plan. The Study Area is not within the coverage area of any adopted Habitat Conservation Plan or Natural Community Conservation Plan.

Recommended Mitigation Measures

Lake County requires mitigation for the removal of commercial tree species and native oak species.

If development of the project will result in the removal of commercial tree species, one of the following permits is needed: Less than 3 Acre Conversion Exemption; Christmas Tree; Dead, Dying or Diseased, Fuelwood, or Split Products Exemption; a Public Agency, Public and Private Utility Right of Way Exemption; a Notice of Exemption from Timberland Conversion Permit for Subdivision; or an Application for Timberland Conversion Permit.

6. REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, and T.J. Rosatti, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition, thoroughly revised and expanded. University of California Press, Berkeley, California. 1,600 pp.

Calflora. 2020. Calflora, the on-line gateway to information about native and introduced wild plants in California. Internet database available at <http://calflora.org/>.

California Department of Fish and Wildlife. 2019. List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database. Available on the Internet at: <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities>.

California Department of Fish and Wildlife. 2020a. RareFind, California Natural Diversity Data Base. Biogeographic Data Branch, Sacramento, California. (updated monthly by subscription service)

California Department of Fish and Wildlife, 2020b. California's Plants and Animals. Habitat Conservation Planning Branch, California Department of Fish and Wildlife, Sacramento, California. http://www.dfg.ca.gov/hcpb/species/search_species.shtml.

California Department of Fish and Wildlife. 2020c. California's Wildlife. California Wildlife Habitat Relationships System, Biogeographic Data Branch, California Department of Fish and Wildlife. Internet database available at <http://www.dfg.ca.gov/whdab/html/cawildlife.html>.

California Native Plant Society. 2020. Inventory of Rare and Endangered Plants. Rare Plant Scientific Advisory Committee, David P. Tibor, convening editor. California Native Plant Society. Sacramento, California. Internet database available at <http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>.

Council of Science Editors. 2006. Scientific style and format: the CSE manual for authors, editors, and publishers, 7th edition. Rockefeller University Press, Reston, Virginia. 658 pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station. Vicksburg, Mississippi. 92 pp.

Holland, R. F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency, Nongame Heritage Program, Department of Fish and Wildlife, Sacramento, California. 156 pp.

Lanner, R. M. 2002. Conifers of California. Cachuma Press, Los Olivos, California. 274 pp.

Natural Resources Conservation Service. 2020. Web Soil Survey. National Cooperative Soil Survey, U.S. Department of Agriculture. NRCS Soils Website (Internet database and digital maps) available at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.

NatureServe. 2020. NatureServe Explorer: An online encyclopedia of life. NatureServe, Arlington, Virginia. Internet database available at <http://www.natureserve.org/explorer>.

Pavlik, B. M., P. C. Muick, S. G. Johnson, and M. Popper. 1991. Oaks of California. Cachuma Press and the California Oak Foundation. Los Olivos, California. 184 pp.

Sawyer, J. O., and T. Keeler-Wolf. 1995. A manual of California vegetation. California Native Plant Society, Sacramento, California. Available electronically at <http://davisherb.ucdavis.edu/cnpsActiveServer/index.html>.

Sibley, D. A. 2003. The Sibley Field Guide to Birds of Western North America. Alfred A. Knopf, Inc., New York, New York.

Stuart, J. D., and J. O. Sawyer. 2001. Trees and Shrubs of California. California Natural History Guides. University of California Press, Berkeley, California. 467 pp.

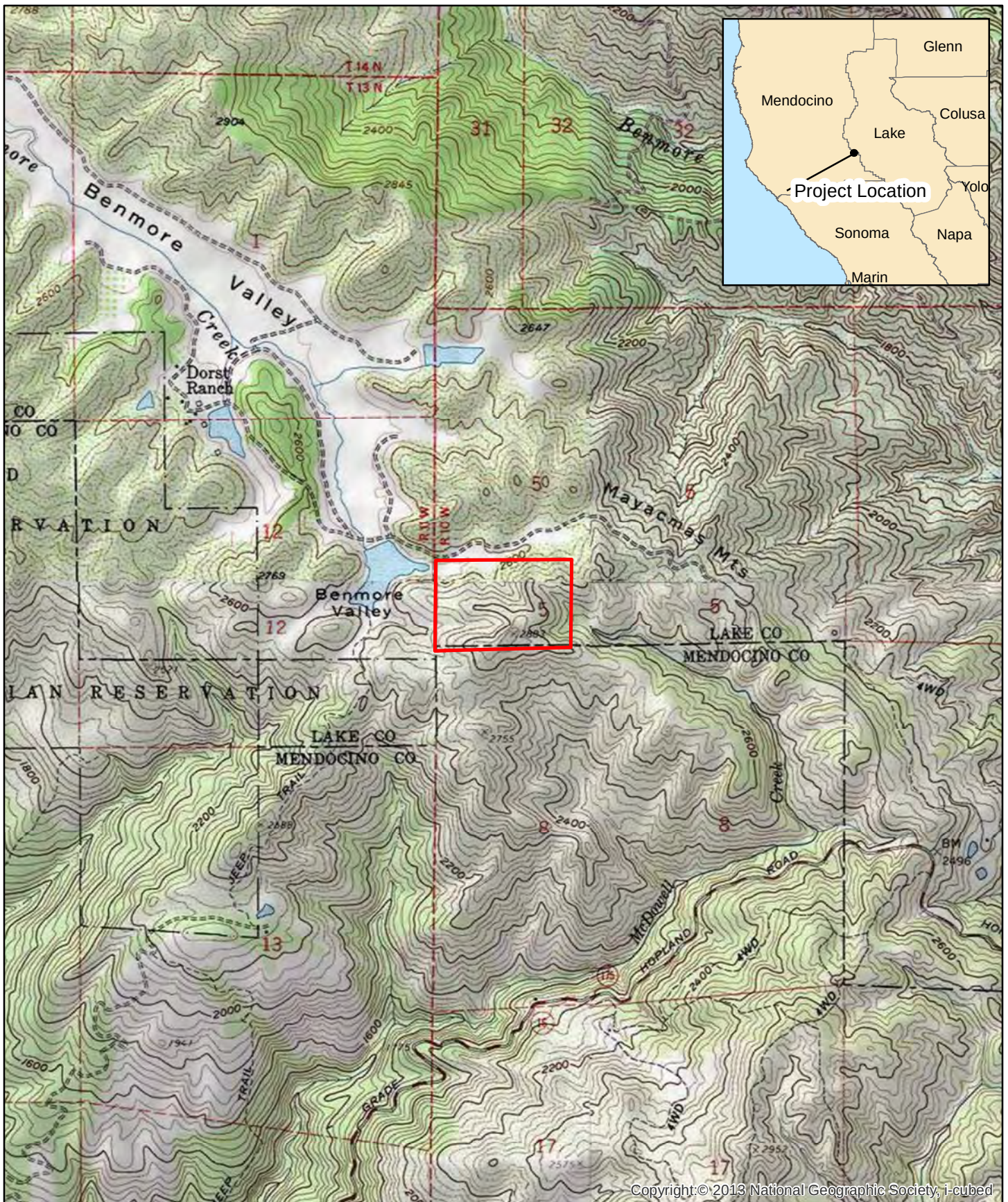
Sunset Western Garden Collection. 2020. Sunset Climate Zones. Sunset Publishing Corporation. Available on the Internet at: <https://www.sunsetwesterngardencollection.com/climate-zones>.

University of California at Berkeley. 2020a. Jepson Online Interchange for California Floristics. Jepson Flora Project, University Herbarium and Jepson Herbarium, University of California at Berkeley. Internet database available at <http://ucjeps.berkeley.edu/interchange.html>.

University of California at Berkeley. 2020b. CalPhotos. Biodiversity Sciences Technology Group, University of California at Berkeley. Internet database available at <http://calphotos.berkeley.edu/>

United States Fish and Wildlife Service. 2020. Wetlands Digital Data. National Wetlands Inventory Center. Digital maps downloaded from the Internet at <https://www.fws.gov/wetlands/>.

EXHIBITS



Parcel Location

0

0.5

1

Kilometers

0

0.5

1

Miles



1:24,000

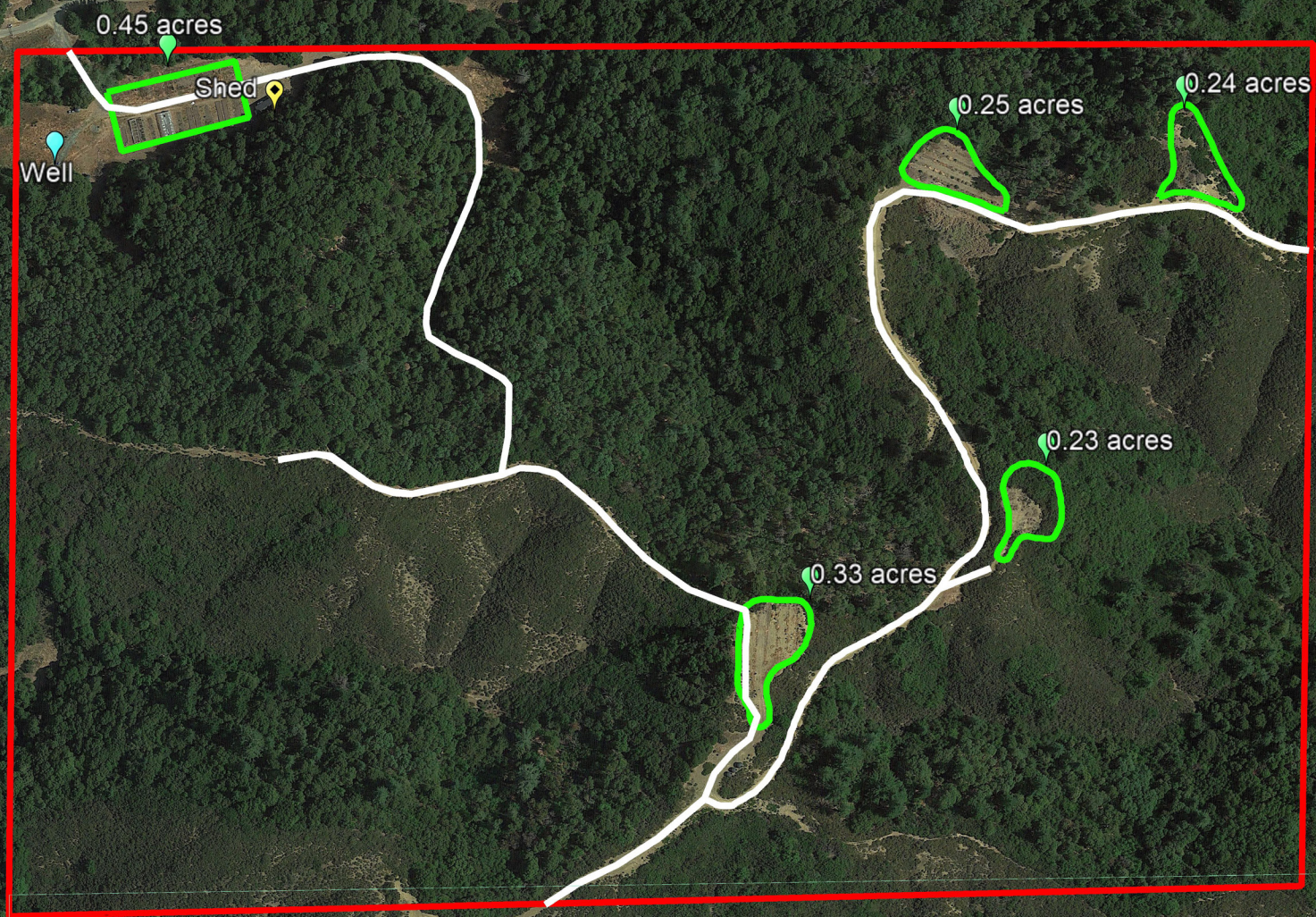
3681 Benmore Valley Rd.
Parcel Location Map



NATURAL
INVESTIGATIONS
COMPANY

Map Date 5/22/2020

Purdys Garden 1958 Quadrangle Photoinspected 1975: Township 13N, Range 10W, Section 5,8
Hopland 1960 Quadrangle Photoinspected 1975: Township 13N, Range 10W, Section 5,8



Project Features

3681 Benmore Valley Road, Lakeport

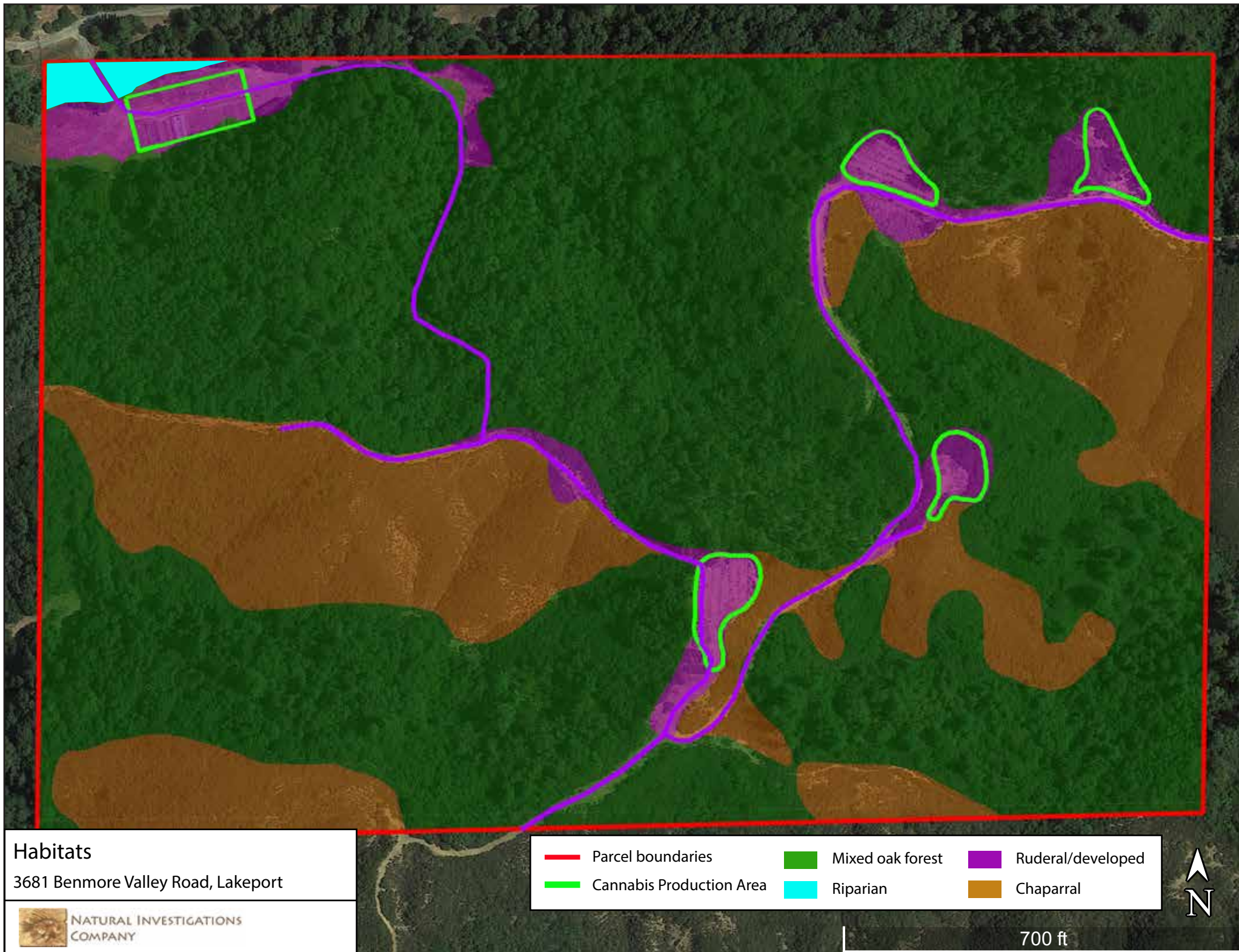


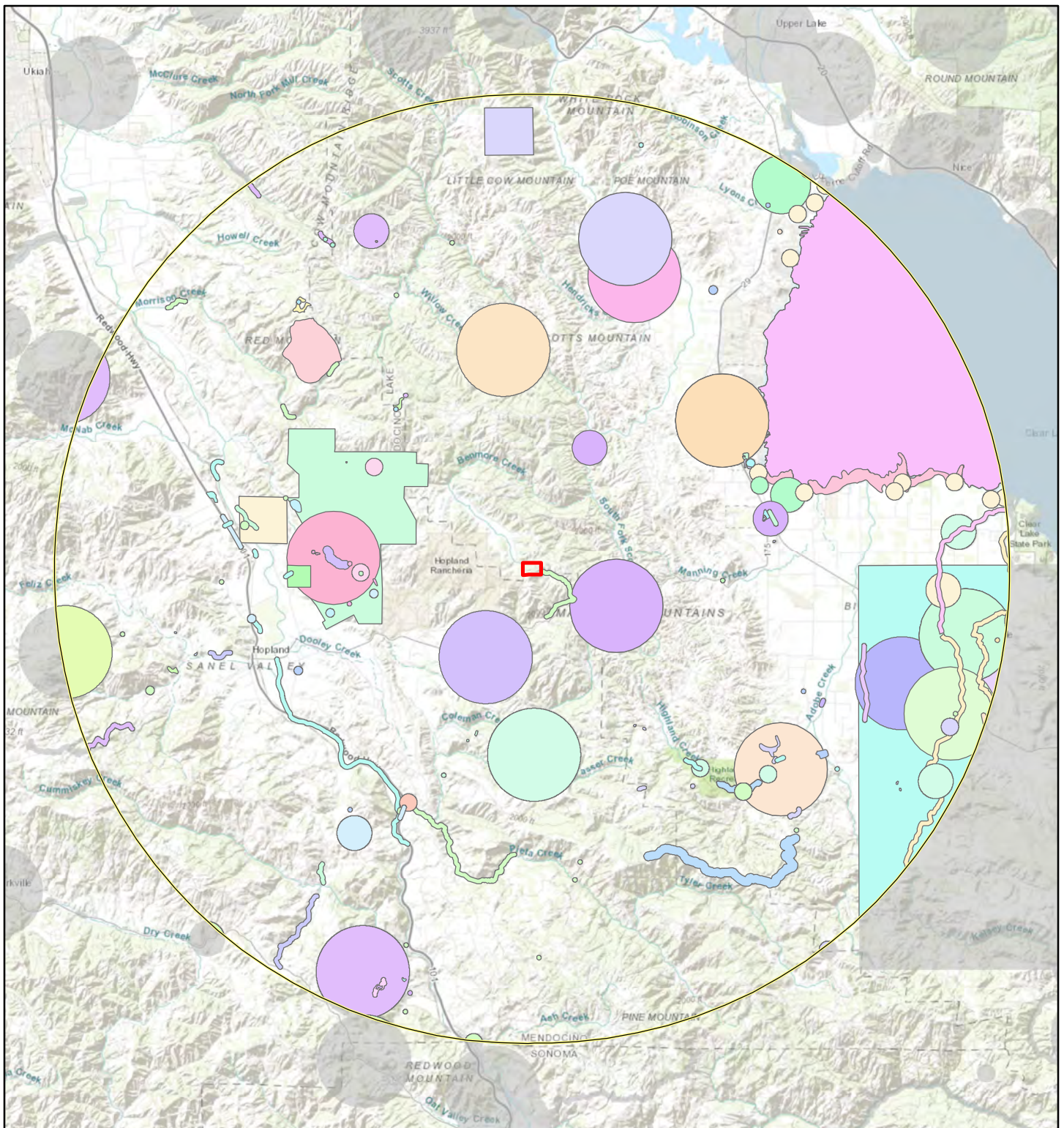
NATURAL INVESTIGATIONS
COMPANY

-  Parcel boundaries
-  Cannabis Production Area
-  Roads



1000 ft





Parcel Location 10 Mile Buffer

1:190,000 1 inch = 3 miles

0 3 6 Miles



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. Natural Investigations Company can not guarantee the accuracy and content of electronic files. The master file is stored by Natural Investigations Company and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission. Data Sources: California Department of Fish and Wildlife. 2020. RareFind 5.x, California Natural Diversity Data Base. Biogeographic Data Branch, Sacramento, California. (updated monthly by subscription service)

Special-Status Species Occurrences Map

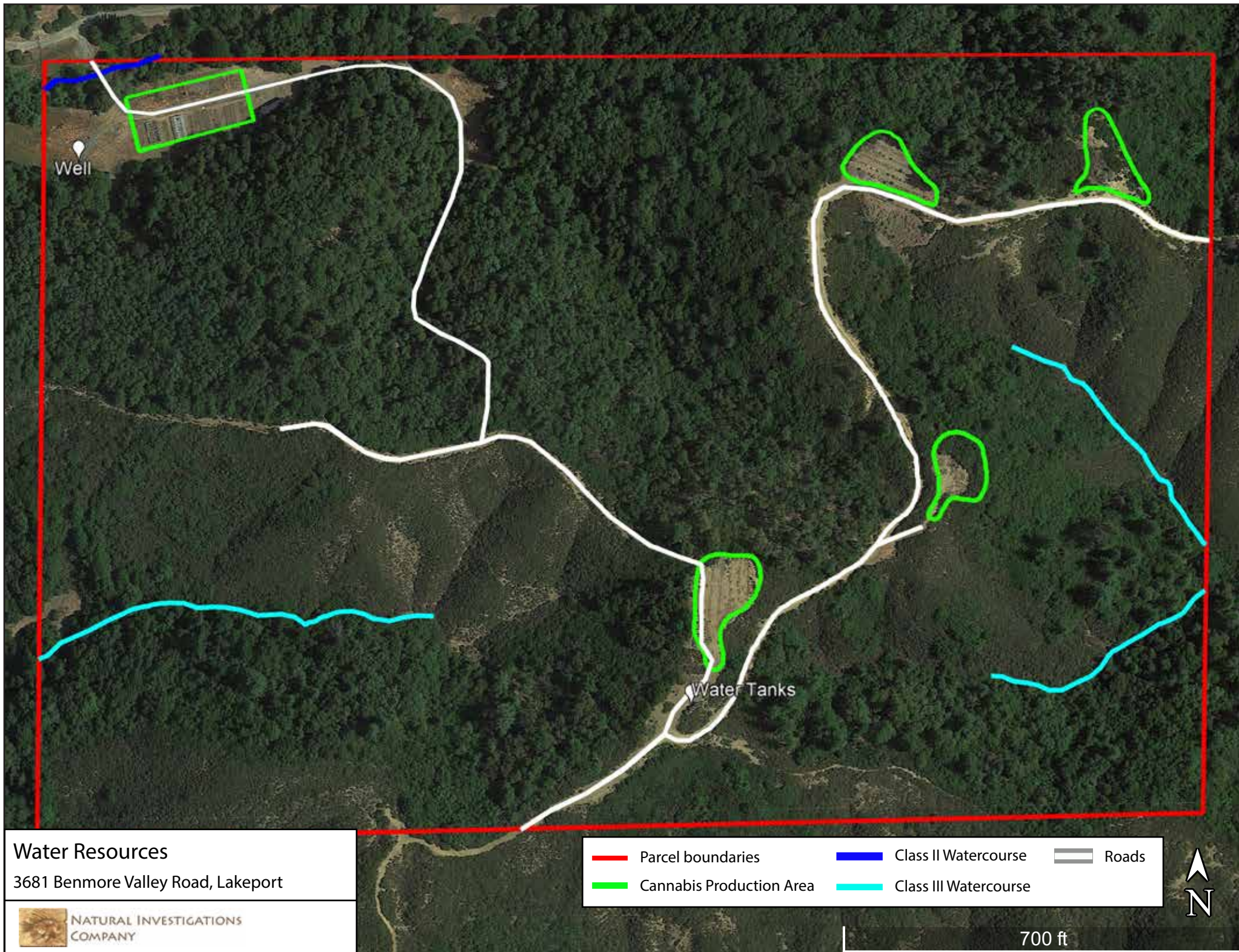
3681 Benmore Valley Road

Purdys Garden 1958 Quadrangle PR 1975: Township 13N, Range 10W, Section 5,8
Hopland 1960 Quadrangle PR 1975: Township 13N, Range 10W, Section 5,8



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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Parcel Location



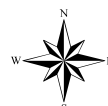
Wetlands and Channels

0

100

200

Meters



0

400

800

Feet

1:4,000

3681 Benmore Valley Rd.
National Wetlands Inventory
Features Map



NATURAL
INVESTIGATIONS
COMPANY

Map Date 5/22/2020

Purdys Garden 1958 Quadrangle Photoinspected 1975: Township 13N, Range 10W, Section 5,8
Hopland 1960 Quadrangle Photoinspected 1975: Township 13N, Range 10W, Section 5,8

APPENDIX 1: USFWS SPECIES LIST



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Arcata Fish And Wildlife Office

1655 Heindon Road

Arcata, CA 95521-4573

Phone: (707) 822-7201 Fax: (707) 822-8411



In Reply Refer To:

May 22, 2020

Consultation Code: 08EACT00-2020-SLI-0218

Event Code: 08EACT00-2020-E-00606

Project Name: 3681 Benmore Valley Road

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arcata Fish And Wildlife Office

1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Sacramento Fish And Wildlife Office

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08EACT00-2020-SLI-0218

Event Code: 08EACT00-2020-E-00606

Project Name: 3681 Benmore Valley Road

Project Type: ** OTHER **

Project Description: Bio Assessment

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.99894991796636N123.00562293124011W>



Counties: Lake, CA | Mendocino, CA

Endangered Species Act Species

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Fisher <i>Pekania pennanti</i> Population: West coast DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3651	Threatened

Birds

NAME	STATUS
Northern Spotted Owl <i>Strix occidentalis caurina</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover <i>Charadrius nivosus nivosus</i> Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Crustaceans

NAME	STATUS
California Freshwater Shrimp <i>Syncaris pacifica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7903	Endangered

Flowering Plants

NAME	STATUS
Burke's Goldfields <i>Lasthenia burkei</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4338	Endangered
Contra Costa Goldfields <i>Lasthenia conjugens</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7058	Endangered
Showy Indian Clover <i>Trifolium amoenum</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6459	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713



In Reply Refer To:

May 22, 2020

Consultation Code: 08ESMF00-2020-SLI-1998

Event Code: 08ESMF00-2020-E-06217

Project Name: 3681 Benmore Valley Road

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Arcata Fish And Wildlife Office

1655 Heindon Road
Arcata, CA 95521-4573
(707) 822-7201

Project Summary

Consultation Code: 08ESMF00-2020-SLI-1998

Event Code: 08ESMF00-2020-E-06217

Project Name: 3681 Benmore Valley Road

Project Type: ** OTHER **

Project Description: Bio Assessment

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/38.99894991796636N123.00562293124011W>



Counties: Lake, CA | Mendocino, CA

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Northern Spotted Owl <i>Strix occidentalis caurina</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1123	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle <i>Chelonia mydas</i> Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Crustaceans

NAME	STATUS
California Freshwater Shrimp <i>Syncaris pacifica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7903	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

APPENDIX 2: CHECKLIST OF PLANTS DETECTED IN THE STUDY AREA

Appendix 2:

Plants Observed at 3681 Benmore Valley Road, Lakeport on June 4, 2020

Common Name	Scientific Name
Foothill deervetch	<i>Acmispon brachycarpus</i>
Chamise	<i>Adenostoma fasciculatum</i>
Spearleaf mountain dandelion	<i>Agoseris retrorsa</i>
Silver hairgrass	<i>Aira caryophyllea</i>
Water plantain	<i>Alisma plantago-aquatica</i>
Madrone	<i>Arbutus menziesii</i>
Hoary manzanita	<i>Arctostaphylos canescens ssp. canescens</i>
Columbia manzanita	<i>Arctostaphylos columbiana</i>
Common manzanita	<i>Arctostaphylos manzanita ssp. manzanita</i>
California mugwort	<i>Artemisia douglasiana</i>
Slender wild oat	<i>Avena barbata</i>
Wild oat	<i>Avena fatua</i>
Coyote brush	<i>Baccharis pilularis</i>
Elegant brodiaea	<i>Brodiaea elegans</i>
California brome	<i>Bromus carinatus</i>
Meadow brome	<i>Bromus commutatus</i>
Ripgut brome	<i>Bromus diandrus</i>
Madrid brome	<i>Bromus madritensis</i>
Western morning glory	<i>Calystegia occidentalis</i>
California milk wort	<i>Cardamine californica</i>
Italian thistle	<i>Carduus pycnocephalus</i>
Clustered field sedge	<i>Carex praegracilis</i>
Field owl's clover	<i>Castilleja campestris</i>
Jim brush	<i>Ceanothus oliganthus var. soledadensis</i>
Yellow star thistle	<i>Centaurea solstitialis</i>
Sticky mouse-eared chickweed	<i>Cerastium glomerata</i>
Narrow-leaved soap plant	<i>Chlorogalum angustifolium</i>
Bull thistle	<i>Cirsium vulgare</i>
Purple clarkia	<i>Clarkia purpurea ssp. quadrivulnera</i>
Narrow-leaved miners lettuce	<i>Claytonia parviflora</i>
Field bindweed	<i>Convolvulus arvensis</i>
Bird's beak	<i>Cordylanthus sp.</i>
Dove weed	<i>Croton setiger</i>
Dogtail grass	<i>Cynosurus echinoides</i>
California oat grass	<i>Danthonia californica</i>
Fork-toothed ookow	<i>Dichelostemma capitatum</i>
Rattan's monkey flower	<i>Diplacus rattanii</i>
Sticky cinquefoil	<i>Drymocallis glandulosa</i>
Medusa-head grass	<i>Elymus caput-medusae</i>
Blue wild rye	<i>Elymus glaucus</i>
Tall willowherb	<i>Epilobium brachycarpum</i>
Little willowherb	<i>Epilobium minutum</i>
Yerba santa	<i>Eriodictyon californicum</i>
Wooly sunflower	<i>Eriophyllum lanatum</i>
Tall fescue	<i>Festuca arundinacea</i>
Brome fescue	<i>Festuca bromoides</i>
Pacific fescue	<i>Festuca microstachys</i>
Rattail sixweeks fescue	<i>Festuca myuros</i>
Italian ryegrass	<i>Festuca perennis</i>

Bedstraw	<i>Galium aparine</i>
California bedstraw	<i>Galium californicum</i> ssp. <i>californicum</i>
Nit grass	<i>Gastridium phleoides</i>
Globe gilia	<i>Gilia capitatum</i>
Velvet grass	<i>Holcus lanatus</i>
Mediterranean barley	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>
Broad leaved lotus	<i>Hosackia crassifolia</i> var. <i>crassifolia</i>
Goldwire	<i>Hypericum concinnum</i>
Soft rush	<i>Juncus effusus</i>
Slender rush	<i>Juncus tenuis</i>
Iris-leaved rush	<i>Juncus xiphioides</i>
Prickly lettuce	<i>Lactuca serriola</i>
Tangier peavine	<i>Lathyrus tingitanus</i>
Pitcher sage	<i>Lepechinia calycina</i>
Shasta daisy	<i>Leucanthemum x superbum</i>
Narrowleaf cottonrose	<i>Logfia gallica</i>
Lace parsnip	<i>Lomatium dasycarpum</i>
Pink honeysuckle	<i>Lonicera hispidula</i>
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Miniature lupine	<i>Lupinus bicolor</i>
Small tarweed	<i>Madia exigua</i>
Slender tarweed	<i>Madia gracilis</i>
Pineapple weed	<i>Matricaria discoidea</i>
White sweet clover	<i>Melilotus albus</i>
Annual yellow sweet clover	<i>Melilotus indicus</i>
Pennyroyal	<i>Mentha pulegium</i>
Skunkbush	<i>Navarretia squarrosa</i>
Indian warrior	<i>Pedicularis densiflorus</i>
Foothill penstemon	<i>Penstemon heterophylla</i>
Harding grass	<i>Phalaris aquatica</i>
Chaparral pea	<i>Pickeringia montana</i>
Knobcone pine	<i>Pinus attenuata</i>
Sugar pine	<i>Pinus lambertiana</i>
Popcorn flower	<i>Plagiobothrys</i> sp.
English plantain	<i>Plantago lanceolata</i>
Cream cups	<i>Platystemon californicus</i>
Howell's bluegrass	<i>Poa howellii</i>
California sword fern	<i>Polystichum minutum</i>
Fremont cottonwood	<i>Populus fremontii</i>
California scrub oak	<i>Quercus berberidifolia</i>
Canyon live oak	<i>Quercus chrysolepis</i>
Leather oak	<i>Quercus durata</i>
Bush interior live oak	<i>Quercus wislizeni</i> var. <i>frutescens</i>
Ground rose	<i>Rosa spithamea</i>
Himalayan blackberry	<i>Rubus armeniacus</i>
Dock	<i>Rumex</i> sp.
Red willow	<i>Salix laevigata</i>
Dusky willow	<i>Salix melanopsis</i>
Blue elderberry	<i>Sambucus nigra</i> ssp. <i>caerulea</i>
Purple sanicle	<i>Sanicula bipinnatifida</i>
Red sandspurry	<i>Spergularia rubra</i>
Tall sock destroyer	<i>Torilis arvensis</i>
California nutmeg	<i>Torreya californica</i>

Poison-oak	<i>Toxicodendron diversilobum</i>
Rose clover	<i>Trifolium hirtum</i>
California bay	<i>Umbellularia californica</i>
Common mullein	<i>Verbascum thapsus</i>
American vetch	<i>Vicia americana ssp. americana</i>
Modesty	<i>Whipplea modesta</i>
Narrow leaf mules ears	<i>Wyethia angustifolia</i>

APPENDIX 3: SITE PHOTOS











**BOTANICAL SURVEY REPORT
FOR THE
CANNABIS CULTIVATION OPERATION AT
3681 BENMORE VALLEY ROAD, LAKEPORT, CALIFORNIA**

Date Prepared: April 4, 2022

Prepared by:

Tim Nosal, MS, and G.O. Graening, PhD,
Natural Investigations Company, Inc.
3104 O Street, #221, Sacramento, CA 95816



NATURAL INVESTIGATIONS CO.

WWW.NATURALINVESTIGATIONS.COM

1. PROJECT LOCATION AND DESCRIPTION

Property / Project Location:

a 63.03-acre parcel (APN 007-002-27) at 3681 Benmore Valley Road, Lakeport, in Lake County, California

Brief project description:

The proposed cannabis cultivation operation consists of five cultivation areas totaling 1.5 acres (see Exhibits):

- a 0.45-acre compound in Benmore Valley in an area previously cleared and containing an existing shed and former cultivation operation;
- 4 compounds (0.33 acre, 0.23 acre, 0.25 acre, and 0.24 acre) on the ridgeline in areas that have been partially cleared of vegetation in the past and are connected by an unpaved road

To establish the full extent of the 4 compounds on the ridgeline, additional vegetation will need to be removed and some minor grading may be necessary. An existing groundwater well in the northwest corner of the property will supply the irrigation water. Three plastic tanks (one 3,000-gallon tank and two 2,500-gallon tanks) are located in the center of the property and be used for water storage.

2. BIOLOGICAL SETTING

Floristic region:

Inner North Coast Range geographic subregion; Northwestern California geographic subdivision; California Floristic Province (Baldwin et al. 2012).

Climate:

The region has a mixture of 2 climate zones:

Climate Zone 7 - California's Gray Pine Belt, defined by hot summers and mild but pronounced winters without severe winter cold or high humidity (Sunset, 2020).

Climate Zone 14 "Northern California's Inland Areas with Some Ocean Influence", with maritime air moderating temperatures that would otherwise be hotter in summer and colder in the winter (Sunset, 2020).

Topography (see topo map in Exhibits):

mountainous, with some steep hillslopes and a ridgeline that divides two watersheds. Drainage on the western portion of the property flows to the northwest, and eventually flows into Benmore Creek.

Elevation Range:

2,550 feet to 2,880 feet above mean sea level

Land used of the Property and immediate vicinity:

Surrounding land uses are an Indian reservation, vineyards, private estates, open space, timberland, and grazing land.

3. SURVEY METHODOLOGY

Survey methodology followed the following protocols:

- California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities.

- U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Sacramento Fish and Wildlife Office, Sacramento, California. 2 pp.
- California Native Plant Society. 2001. CNPS botanical survey guidelines.

3.1. PRELIMINARY DATA GATHERING AND RESEARCH

Prior to conducting the field survey, the following information sources were reviewed:

- Aerial photography of the Project Area (current and historical)
- United States Geologic Service 7.5 degree-minute topographic quadrangles
- USFWS National Wetland Inventory
- USDA Natural Resources Conservation Service soil survey maps
- California Natural Diversity Database (CNDDDB), electronically updated monthly by subscription
- California Native Plant Society's database *Inventory of Rare and Endangered Plants of California* (online edition).

The following reference sites were visited:

Deemed not necessary.

3.2. FIELD SURVEYS

Dates of botanical field surveys (indicating the botanical field surveyor(s) that surveyed each area on each survey date), and total person-hours spent:

- Tim Nosal, MS.; June 4, 2020, majority of day
- Tim Nosal, MS, March 29, 2022, majority of day

Note: The qualifications of the botanical field surveyors and report authors are summarized at the end of this report.

Description of Survey Area:

The survey area was the project area (the cultivation area plus the ancillary facilities), a 1.5-acre area.

Note: A map of the survey area relative to the project area is shown in the Exhibits.

A variable-intensity pedestrian survey was performed, and modified to account for differences in terrain, vegetation density, and visibility. All visible taxa observed were recorded in a field notebook. Survey efforts emphasized the search for any special-status species that had documented occurrences in the CNDDDB within the vicinity of the Project Area and those species on the CNPS or USFWS species lists.

Taxa were identified to the taxonomic level necessary to determine whether or not they are a special status plant. When a specimen could not be identified in the field, a photograph was taken and/or a specimen was pressed and identified in the laboratory using a dissecting scope where necessary. Dr. Graening holds the following scientific collection permits: CDFW Scientific Collecting Permit No. SC-006802; and CDFW Plant Voucher Specimen Permit 09004. Tim Nosal holds CDFW Plant Voucher Specimen Permit 2081(a)-16-102-V. Taxonomic determinations were facilitated by referencing museum specimens or by various texts, including the following: Powell and Hogue (1979); Pavlik (1991); (1993); Brenzel (2012); Stuart and Sawyer (2001); Lanner (2002); Sibley (2003); Baldwin et al. (2012); Calflora (2022); CDFW (2022b,c); NatureServe 2022; and University of California at Berkeley (2022a,b).

3.3. MAPPING AND OTHER ANALYSES

The locations of any special-status species or vegetation communities sighted were marked on aerial photographs and/or georeferenced with a geographic positioning system (GPS) receiver. Vegetation community types occurring in the Survey Area were mapped on aerial photographs, and information on habitat conditions and the suitability of the habitats to support special-status species was also recorded. Locations of any species' occurrences and sensitive natural community boundaries detected within the Project Area were digitized to produce the final maps. Geographic analyses were performed using geographical information system software (ArcGIS 12, ESRI, Inc.). Vegetation communities (assemblages of plant species growing in an area of similar biological and environmental factors), were classified by Vegetation Series (distinctive associations of plants, described by dominant species and particular environmental setting) using the CNPS Vegetation Classification system (Sawyer and Keeler-Wolf, 1995). Species' habitat requirements and life histories were identified using the following sources: Baldwin et al. (2012); CNPS (2022), Calflora (2022); CDFW (2022a,b,c); and University of California at Berkeley (2022a,b).

3.4. Previous Studies

The following previous studies have been performed:

- Natural Investigations Co. 2020. Biological Resources Assessment for the Cannabis Cultivation Operation at 3681 Benmore Valley Road, Lakeport, California.

Natural Investigations Company conducted a botanical survey during the biological resources assessment. No special-status plant species were detected within the Project Area or the surrounding Property.

3.5. List of Sensitive Natural Communities with Potential to Occur in the Region

No critical habitat for any federally-listed plant species occurs within the Project Area or the surrounding Property.

According to the results of a spatial query of the CNDDDB, there are no reported no special-status habitats within the Project Area or surrounding Property boundary.

Within the surrounding region (County-level), the CNDDDB has mapped the following special-status habitats: Serpentine Bunchgrass; Northern Volcanic Ash Vernal Pool; Coastal and Valley Freshwater Marsh; Northern Basalt Flow Vernal Pool; Northern Volcanic Ash Vernal Pool; Northern Interior Cypress Forest; and Northern Vernal Pool.

No special-status habitats were detected within the Project Area. However, the surrounding Property contains the following special-status habitats: riparian and watercourses.

Within the surrounding region, the following California Sensitive Natural Communities occur (listed in higher-order primary life forms: CDFG 2003; CDFW 2019):

- 32.000.00 Coast Scrub
 - 32.xxx.xx scrub with dominant *Artemisia*, *Baccharis*, *Eriogonum*, etc.
- 37.000.00 Chaparral
 - 37.1xx.xx Chamise Chaparral [*Adenostoma fasciculatum*]
 - 37.2xx.xx Chaparral with *Ceanothus* as principal indicator
 - 37.3xx.xx Chaparral with Manzanita [*Arctostaphylos* spp.] as principal indicator

- 37.4xx.xx Chaparral with Oak [*Quercus* spp.] as principal indicator
- 40.000.00 Grass & Herb Dominated Communities
 - 41.xxx.xx Native Grassland
- 42.000.00 Non-native Grassland
 - certain rare associations
- 44.000.00 Vernal pools
 - all associations
- 45.000.00 Meadow and seeps not dominated by grasses
 - 45.11x.xx *Carex* marsh, meadow
 - 45.2xx.xx *Eleocharis* marsh, meadow
- 52.000.00 Marsh
 - all associations
- 60.000.00 Riparian and bottomland habitat
 - all associations
- 71.000.00 Oak Woodlands and Forests
 - 71.100.15 *Quercus agrifolia* – *Quercus garryana* – *Quercus kelloggii*
 - 71.060.xx Coast live oak woodland and forest
 - 71.050.xx Canyon live oak forest and woodland
 - 71.020.xx Blue oak woodland and forest
 - 71.070.xx Engelmann oak woodland and forest
 - 71.040.xx Valley oak woodland and forest
 - 71.080.xx Interior live oak woodland and forest
- 72.000.00 Upland Walnut Woodlands and Forests [*Juglans* spp.]
- 73.000.00 Tanoak Forest and Woodland
- 73.200.00 Pacific Madrone [*Arbutus menziesii*]
- 74.000.00 California bay forest and woodland
- 75.000.00 California Buckeye Woodland [*Aesculus californica*]
- 80.000.00 Coniferous Upland Forest and Woodland
 - various associations of *Calocedrus*, *Pinus*, or *Abies*

No sensitive natural communities were identified that could occur specifically in the Project Area.

Some of these sensitive natural communities occur outside the Project Area on the Property.

3.6. List of Special Status Plants with Potential to Occur in the Region

A list of special-status plant species with potential to occur in the region was compiled based upon the following:

- A spatial query of the CNDDDB using a 9-quadrangle buffer around the Property boundary.
- A 9-quadrangle query of the California Native Plant Society's database *Inventory of Rare and Endangered Plants of California* (online edition).

The databases were queried and any reported occurrences of special-status species were plotted in relation to the Project Area boundary using GIS software (see exhibits).

The CNDDDB reported no special-status species occurrences within the Project Area or the surrounding Property.

Within a 10-mile buffer of the Property boundary, the CNDDDB reported various special-status species occurrences, summarized in the Appendix.

4. RESULTS

4.1. LIST OF PLANT TAXA DETECTED DURING FIELD SURVEY(S)

All plant taxa detected during the botanical field survey are listed in the Appendix.

During the 2 botanical field surveys, no special-status plant taxa were detected within the Project Area.

4.2. LIST OF VEGETATION COMMUNITIES DETECTED DURING FIELD SURVEY(S)

The entire property contains the following terrestrial vegetation communities: ruderal/disturbed; chaparral (chamise); oak-pine forest; and riparian. These vegetation communities are discussed here and are delineated in the Exhibits.

Ruderal/Disturbed. These areas consist of disturbed or converted natural habitat that is now either in ruderal state, graded, or urbanized with gravel roads. Vegetation within this habitat type consists primarily of nonnative weedy or invasive species lacking a consistent community structure. This habitat type provides limited resources for wildlife and is utilized primarily by species tolerant of human activities. The disturbed and altered condition of these lands greatly reduces their habitat value and ability to sustain rare plants or diverse wildlife assemblages.

Chaparral (Chamise): The warm south-facing slopes are vegetated with a dense cover of drought-tolerant shrubs. Typical plants within this habitat include chamise (*Adenostoma fasciculatum*) as the dominant shrub with common manzanita (*Arctostaphylos manzanita* ssp. *manzanita*), Jim brush (*Ceanothus oliganthus* ssp. *sorediatus*), chaparral pea (*Pickeringia montana*), yerba santa (*Eriodictyon californicum*) and pitcher sage (*Lepechinia calycina*). The understory of this habitat is heavily shaded, but species such as purple sanicle (*Sanicula bipinnatifida*) and ground rose (*Rosa spithamea*) are found in openings and along margins of the chaparral. This vegetation type can be classified as the Holland Type “Chamise Chaparral” or as “37.101.19 Chamise Chaparral (CDFW 2019)”.

Oak-Pine Forest: Tree dominated habitats found on the cooler north-facing slopes of the Property are dominated by various species of oak and pine. The composition of the oak forest varies across the Property, depending upon aspect, slope, soil and site history. Dominant canopy species include canyon live oak (*Quercus chrysolepis*), bush interior live oak (*Quercus wislizeni* var. *frutescens*), madrone (*Arbutus menziesii*), knobcone pine (*Pinus attenuata*), sugar pine (*Pinus lambertiana*) and California bay (*Umbellularia californica*). The shrub layer within this habitat is comprised of poison oak (*Toxicodendron diversilobum*) and California scrub oak (*Quercus berberidifolia*). The herbaceous layer is sparse within the forest habitat, although several species were commonly encountered including Indian warrior (*Pedicularis densiflorus*), Pacific starflower (*Lysmachia latifolia*), modesty (*Whipplea modesta*) and bedstraw (*Galium* sp.) This vegetation can be classified as the Holland Type “Oak Forest” or as “*Quercus (agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni)* Mixed Oak Forest” (CDFW 2019).

Riparian: Riparian habitat can be found along the channel of the Class II creek that is found in the northwestern corner of the Property. The riparian vegetation consists of an intermittent canopy of red willow (*Salix laevigata*), dusky willow (*Salix melanopsis*) and Fremont cottonwood (*Populus fremontii*). The riparian understory includes Himalayan blackberry (*Rubus armeniacus*), rush (*Juncus* spp.), pennyroyal (*Mentha pulegium*) and water plantain (*Alisma plantago-aquatica*). The riparian forest can be classified as the Holland Type “Great Valley Mixed Riparian Forest” or as “61.205.01 Red Willow Riparian” (CDFW 2019).

More specifically, the following terrestrial natural communities occur in the Project Area (as categorized by CDFW 2019):

- 42.040.000 California Annual Grassland
- 71.000.00 Oak Woodlands and Forests
- 11.000.000 Disturbed
- 37.000.00 Chaparral
 - 37.1xx.xx Chamise Chaparral [*Adenostoma fasciculatum*]

Sensitive vegetation communities occur outside the Project Area on other portions of the Property:

- 61.205.01 Red Willow Riparian

The 2020 biological field survey determined that the Project Area does not contain any channels or wetlands. One intermittent channel (Class II watercourse) and three ephemeral channels (Class III watercourses) were detected within the larger Property during the field survey (see Exhibits). There are no vernal pools or other isolated wetlands in the Study Area.

4.3. Adequacy of Botanical Field Survey(s)

Potential for a false negative botanical field survey:

Unlikely since multiple surveys were performed, including early and late season..

Did climatic conditions affect the botanical field survey results?

Although January-March of 2022 have been unusually dry, abundant rainfall occurred between October and December. Annual grasses and herbs have germinated well, suggesting that climatic conditions did not affect the survey results.

Site conditions allowed for ready observation of vegetative and flowering plants. The entire project area was surveyed. This has been a third consecutive drought year in Lake County, and it is possible that some species of plants did not germinate this season.

Did the timing of botanical field surveys affect the comprehensiveness of botanical field surveys?

The survey coincided with the early peak flowering season this year. This has been a warm dry winter/spring. Most early season herbaceous species were in flower or identifiable to genus. The previous botanical survey was late season.

Additional special status plant surveys are deemed not necessary.

5. POTENTIAL PROJECT IMPACTS

5.1. Special-status Plant Populations

No special-status plant species were reported by CNDDDB in the Project Area or surrounding Property. No special-status plant species were detected in the Project Area during the early and late season botanical field surveys. Special-status species are more likely to occur in sensitive and rare habitats, which are lacking in the Project Area, but occur elsewhere on the Property, such as in riparian areas near watercourses. Thus, implementation of the proposed project will not directly impact any known special status plant population.

Indirect impacts could occur from the loss of suitable habitat for regionally-occurring special-status species. The Project Area contains the following general habitat types: non-native annual grassland; small patches of oak woodland; chamise chaparral; and urbanized. The Project Area contains no sensitive habitats or aquatic habitats such as wetlands or channels. The surrounding Property contains these habitat types plus the sensitive habitats riparian, open water, chaparral, serpentine soils, and wetlands. The majority of regionally-occurring special-status species occur in these sensitive habitat types, which were avoided in project design of cultivation compound locations.

Some regionally-occurring special-status species can utilize the undeveloped habitat types in the Project Area. Project implementation will result in loss of natural habitat. However, project implementation will have a less-than significant impact upon habitat loss for regionally-occurring special-status species because the ground disturbance will occur on only 3 percent of the Property (1.5 to 2 acres out of 63 acres). This leaves the vast majority of the natural habitats undisturbed on the Property. Finally, the majority of regionally-occurring special-status species require habitat types that will not be disturbed, such as riparian, wetland, and serpentine soil. For these reasons, project implementation will have a less than significant indirect or cumulative impact upon special-status plant species.

5.2. Sensitive Natural Communities

The Project Area does not contain sensitive vegetation communities. Sensitive vegetation communities occur outside the Project Area on other portions of the Property, such as stream channels and 61.205.01 Red Willow Riparian. The majority of sensitive natural communities of the Property were avoided in project design of cultivation compound locations, including aquatic buffers of at least 100 feet.

Chaparral habitat is not regulated by Lake County, but oak woodland habitat is. Mitigation is required for oak tree removal. Although project implementation will disturb some oak woodland communities, the majority of oak woodland communities on the Property will not be disturbed or involved in the project. For these reasons, project implementation will have a less than significant impact (direct, indirect, and cumulative) upon sensitive natural communities.

6. MITIGATION MEASURES / RECOMMENDATIONS

In their biological resources assessment of the proposed project, Natural Investigations Company (2020) recommended a pre-construction biological survey. This survey should include a search for special-status plant species. If special-status plant species are detected, it is recommended that these plants be avoided. Avoidance measures consist of shifting the cultivation compound boundaries to locations outside of the rare plant population boundaries or the creation of preserve islands within the compound boundaries. Populations should be demarcated with exclusion fencing and signage. Where avoidance is not possible, a rare plant mitigation program should be implemented. Project activities shall be delayed

long enough for a qualified biologist to prepare and implement the rare plant mitigation program. An overview of the mitigation program is summarized next.

If the impacted rare plants are annuals (annual life history strategy), the mitigation program shall consist of the following: collection of seeds; sowing of the seeds in the Fall/Winter in all suitable habitats on the Property or in a specified preserve area on the Property; and covering with a weed-free mulch, such as sterile (pasteurized) wheat straw.

If the impacted rare plants are perennials (perennial life history strategy), the mitigation program shall consist of the following: careful excavation of the entire rare plant, including the majority of the root ball; placement in containers and performing health maintenance activities; transplantation in the Fall/Winter to various suitable habitats on the Property or in a specified preserve area on the Property; covering with a weed-free mulch, such as sterile (pasteurized) wheat straw; and supplemental irrigation (as needed) for a minimum of 2 years.

With the implementation of avoidance measures and a rare plant mitigation program, potential impacts to special-status plant species can be reduced to a less than significant level.

Lake County typically requires mitigation for the removal native oak trees and follows the California Oak Woodlands Conservation Act of 2001. Typical mitigation requirements are to create and implement an oak mitigation plan, which includes planting new oak trees at a ratio of 3:1 for each oak tree removed, and to protect these trees in a conservation area. The planting of new oak trees in a preserve area within the Property (or off-site) could reduce the impacts to oak woodland to a less than significant impact.

7. QUALIFICATIONS OF BOTANICAL FIELD SURVEYORS AND REPORT AUTHORS

TIMOTHY R. D. NOSAL, M.S.

Mr. Nosal holds a B.S. and M.S. in Biological Sciences. Mr. Nosal has statewide experience performing sensitive plant and animal surveys in addition to terrestrial vegetation investigations. Mr. Nosal has over 25 years of experience in botanical surveys, environmental assessment, and teaching with employers that include California Department of Fish and Wildlife, State Water Resources Control Board, American River College, MTI College and Pacific Municipal Consultants. Mr. Nosal has intensive experience with the flora of the Pine Hill region includes leading numerous field trips exploring the botany of the region, co-authoring a fuel management plan for Pine Hill, and a Master's thesis on Stebbins's morning glory (*Calystegia stebbinsii*), an endangered plant of this region.

G.O. GRAENING, Ph.D., M.S.E.

Dr. Graening holds a PhD in Biological Sciences and a Master of Science in Biological and Agricultural Engineering. Dr. Graening is an adjunct Professor at California State University at Sacramento, and is an active researcher in the area of conservation biology; his publication list is available online at <http://www.csus.edu/indiv/g/graeningg/pubs.htm>. Dr. Graening is also a Certified Arborist (ISA # WE-6725A). Dr. Graening has 28 years of experience in environmental assessment, including previous employment with The Nature Conservancy, Tetra Tech Inc., and CH2M Hill, Inc.

8. REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, and T.J. Rosatti, editors. 2012. The Jepson Manual: Vascular Plants of California, second edition, thoroughly revised and expanded. University of California Press, Berkeley, California. 1,600 pp.

Calflora. 2022. Calflora, the on-line gateway to information about native and introduced wild plants in California. Internet database available at <http://calflora.org/>.

California Department of Fish and Wildlife. 2018. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. California Natural Resources Agency, Department of Fish and Wildlife, Sacramento, California. 12 pp.

California Department of Fish and Wildlife. 2022. RareFind, California Natural Diversity Data Base. Biogeographic Data Branch, Sacramento, California. (updated monthly by subscription service)

California Department of Fish and Wildlife. 2022. List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database. Available on the Internet at: <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities>.

California Native Plant Society. 2022. Inventory of Rare and Endangered Plants. Rare Plant Scientific Advisory Committee, David P. Tibor, convening editor. California Native Plant Society. Sacramento, California. Internet database available at <http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>.

California Native Plant Society. 2001. CNPS botanical survey guidelines. Pages 38-40 in California Native Plant Society's inventory of rare and endangered vascular plants of California (D.P. Tibor, editor). Sixth edition. Special Publication No. 1, California Native Plant Society, Sacramento, 387 pp.

Lanner, R. M. 2002. Conifers of California. Cachuma Press, Los Olivos, California. 274 pp.

Natural Resources Conservation Service. 2022. Web Soil Survey. National Cooperative Soil Survey, U.S. Department of Agriculture. NRCS Soils Website (Internet database and digital maps) available at: <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.

Pavlik, B. M., P. C. Muick, S. G. Johnson, and M. Popper. 1991. Oaks of California. Cachuma Press and the California Oak Foundation. Los Olivos, California. 184 pp.

Sawyer, J. O., and T. Keeler-Wolf. 1995. A manual of California vegetation. California Native Plant Society, Sacramento, California. Available electronically at <http://davisherb.ucdavis.edu/cnpsActiveServer/index.html>.

Stuart, J. D., and J. O. Sawyer. 2001. Trees and Shrubs of California. California Natural History Guides. University of California Press, Berkeley, California. 467 pp.

Sunset Western Garden Collection. 2022. Sunset Climate Zones. Sunset Publishing Corporation. Available on the Internet at: <https://www.sunsetwesterngardencollection.com/climate-zones>.

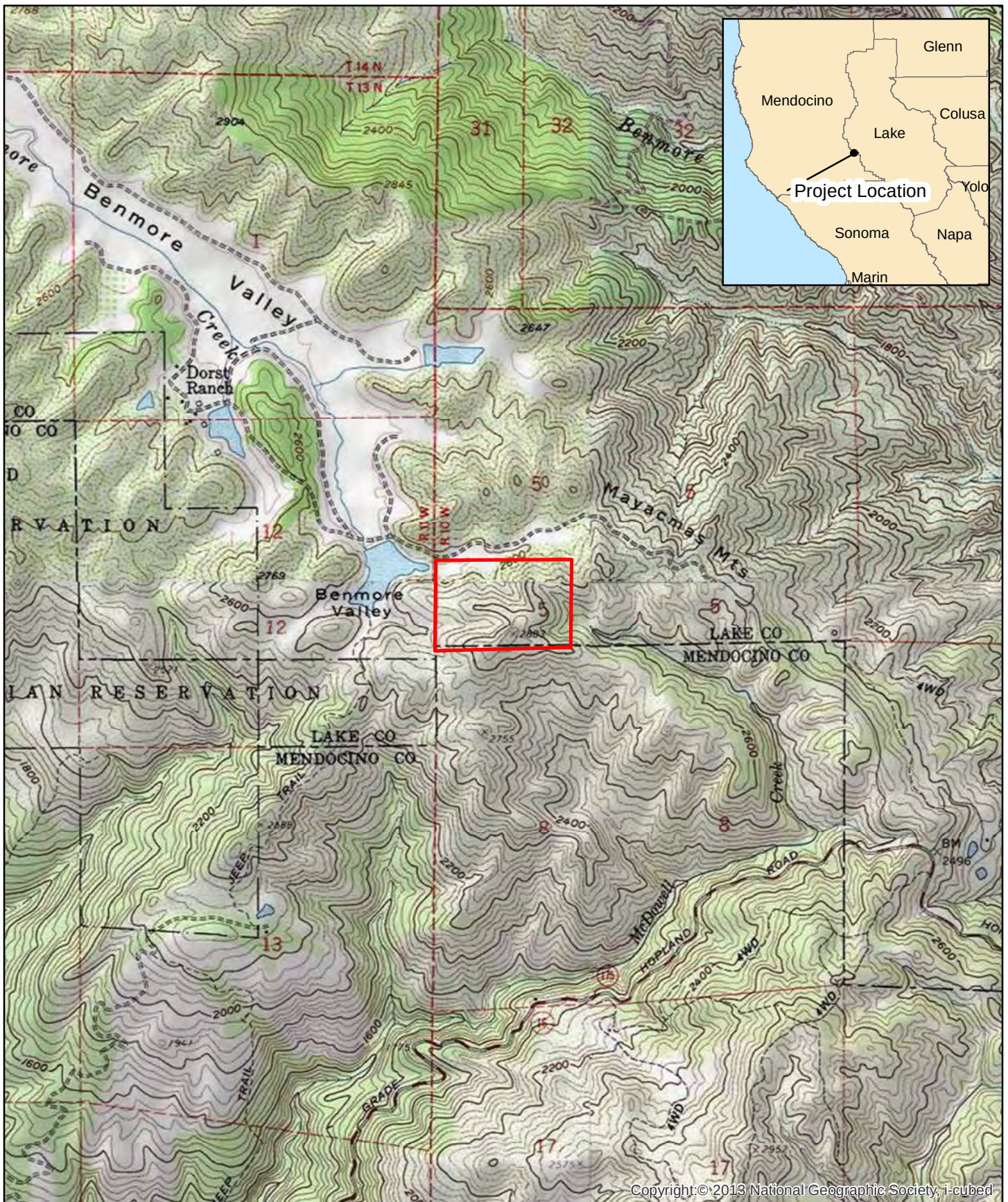
University of California at Berkeley. 2022a. Jepson Online Interchange for California Floristics. Jepson Flora Project, University Herbarium and Jepson Herbarium, University of California at Berkeley. Internet database available at <http://ucjeps.berkeley.edu/interchange.html>.

University of California at Berkeley. 2022b. CalPhotos. Biodiversity Sciences Technology Group, University of California at Berkeley. Internet database available at <http://calphotos.berkeley.edu/>

U.S. Fish and Wildlife Service. 1996. Guidelines for conducting and reporting botanical inventories for federally listed, proposed and candidate plants. Sacramento Fish and Wildlife Office, Sacramento, California. 2 pp.

United States Fish and Wildlife Service. 2022. Wetlands Digital Data. National Wetlands Inventory Center. Digital maps downloaded from the Internet at <https://www.fws.gov/wetlands/>.

EXHIBITS



Parcel Location

0

0.5

1

Kilometers

0

0.5

1

Miles



1:24,000

3681 Benmore Valley Rd.
Parcel Location Map



NATURAL
INVESTIGATIONS
COMPANY

Map Date 5/22/2020

Purdys Garden 1958 Quadrangle Photoinspected 1975: Township 13N, Range 10W, Section 5,8
Hopland 1960 Quadrangle Photoinspected 1975: Township 13N, Range 10W, Section 5,8



NOTES:

1. PROPERTY LINES, EASEMENTS, AND TOPOGRAPHIC INFORMATION IS APPROXIMATE AND OBTAINED FROM PUBLICLY AVAILABLE INFORMATION.
2. THERE ARE NO PUBLIC OR PRIVATE SCHOOLS FOR GRADES 1 THROUGH 12, DEVELOPED PARK CONTAINING PLAYGROUND EQUIPMENT, DRUG OR ALCOHOL REHABILITATION FACILITY, LICENSED CHILD CARE FACILITY OR NURSERY SCHOOL, OR CHURCH OR YOUTH-ORIENTED FACILITY CATERING TO OR PROVIDING SERVICES PRIMARILY INTENDED FOR MINORS WITHIN 1,250 FEET OF THE PROPERTY.
3. FOR PARCEL BOUNDARIES, ADJACENT PARCEL BOUNDARIES, AND LOCATION MAP SEE SHEET 1.0.
4. WATERCOURSE LINETYPE THICKNESS TO DELINEATE THE TOP OF BANK.
5. BASED ON PUBLICLY AVAILABLE DATA THERE ARE NO FAULT ZONES ON THE SUBJECT PROPERTY.
6. ALL ROADWAY SLOPES SHOWN WITHIN THIS PLAN SET ARE LESS THAN 16%. ROADWAY SLOPES EXCEEDING 16% ARE NOT ALLOWED BY GOVERNING JURISDICTION AND ALL FUTURE ROAD IMPROVEMENTS ON-SITE SHALL COMPLY.
7. ALL PROPOSED WATER TANKS INTENDED FOR FIRE SUPPRESSION WATER STORAGE SHALL BE STEEL OR FIBERGLASS. ANY EXISTING WATER TANKS INTENDED FOR FIRE SUPPRESSION WATER STORAGE THAT CONSIST OF MATERIAL OTHER THAN STEEL OR FIBERGLASS SHALL BE REPLACED WITH A STEEL OR FIBERGLASS TANK.
8. STRAW WATLES SHALL BE PLACED AROUND CULTIVATION AREAS TO PREVENT STORMWATER RUNOFF.
9. THE ENTIRE CULTIVATION SITE SHALL BE SEEDED TO STABILIZE THE SOIL.
10. EXISTING ACCESS GATE SHALL BE RELOCATED TO BE AT LEAST 30' FROM THE ROADWAY UNLESS THE CURRENT ACCESS GATE LOCATION IS AT LEAST 30' FROM THE ROADWAY. EXISTING ACCESS GATE SHALL BE REPLACED WITH A NEW GATE THAT HAS A MINIMUM WIDTH OF 14' UNLESS THE EXISTING ACCESS GATE HAS A MINIMUM 14' WIDE UNOBSTRUCTED OPENING.

PROJECT ADDRESS:

3681 BENMORE VALLEY ROAD
LAKEPORT, CA 95453

APN:

007-002-27

CLIENT:

RICARDO DE MELLO

CONSULTANT:

KYLE GEITNER,
PRINCIPAL CONSULTANT

DATE:

5/18/2020

DRAWN:

ANR

JOB #:

20-033

SCALE:

AS SHOWN

REVISION:

CHECKED:

KJG

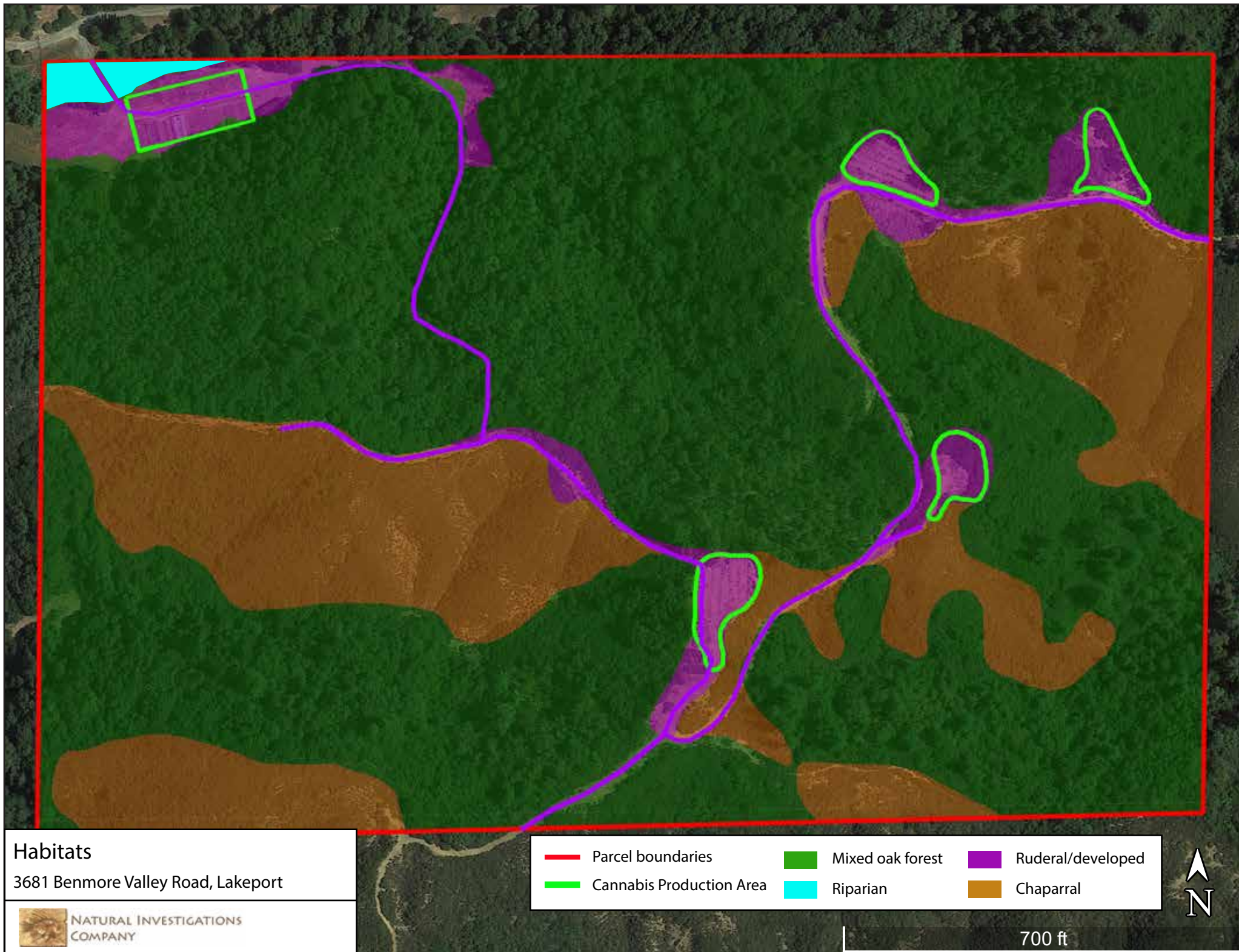
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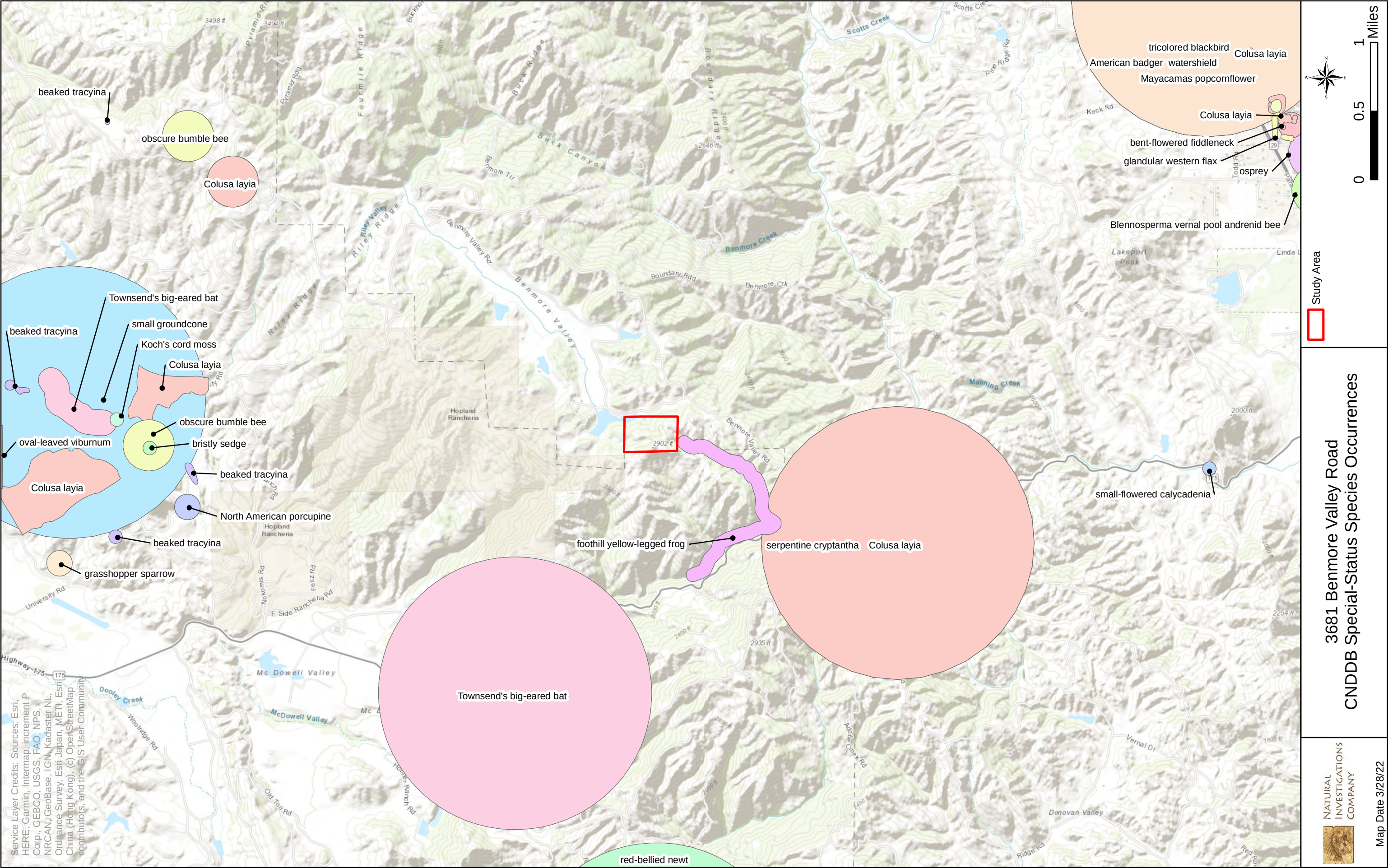
PROPOSED CONDITIONS

SHEET:

4.0

4 OF 9





Data Sources: California Department of Fish and Wildlife. 2021. RareFind 5.x, California Natural Diversity Data Base. Biogeographic Data Branch, Sacramento, California. (updated monthly by subscription service)



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Parcel Location



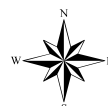
Wetlands and Channels

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100

200

Meters



0

400

800

Feet

1:4,000

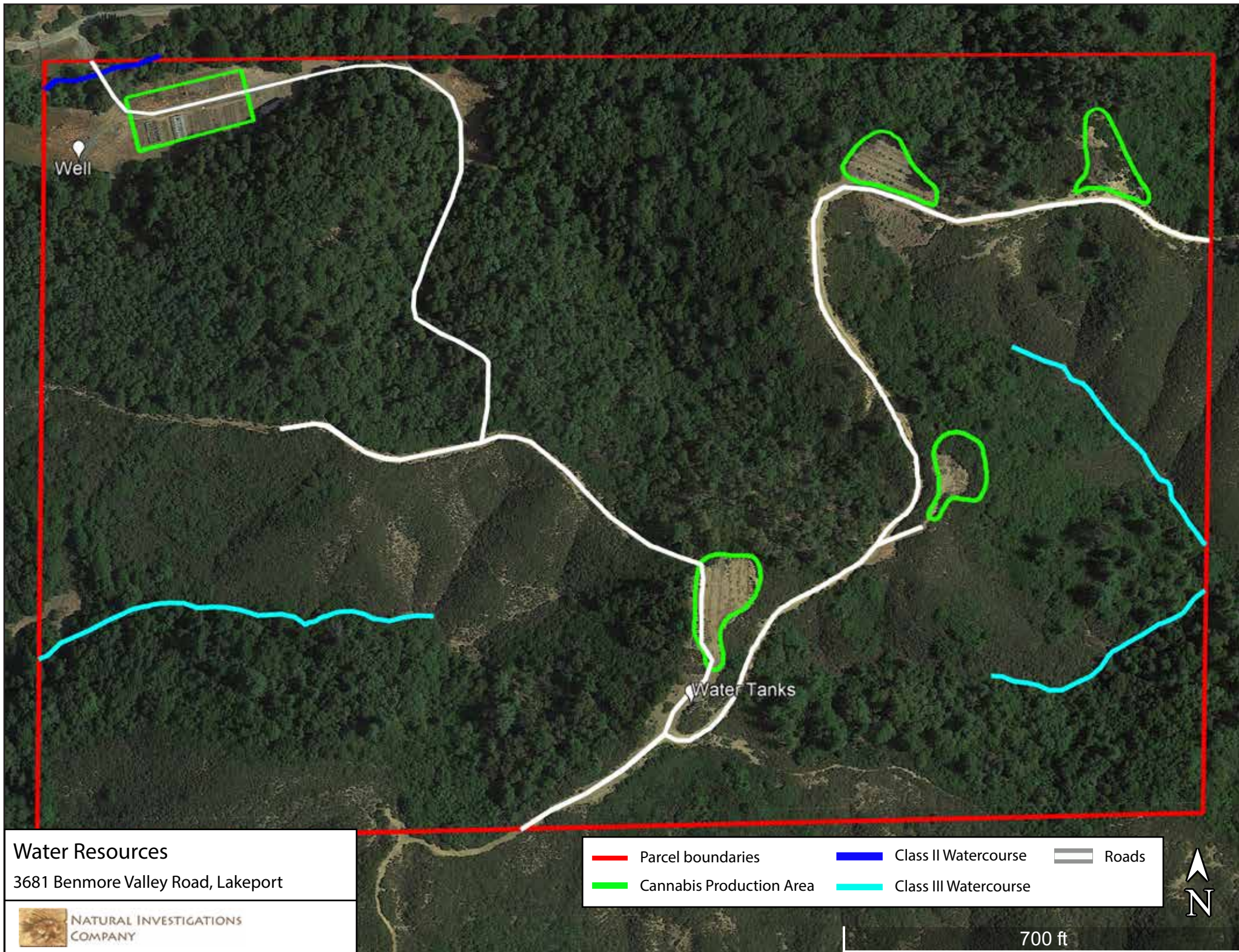
3681 Benmore Valley Rd.
National Wetlands Inventory
Features Map



NATURAL
INVESTIGATIONS
COMPANY

Map Date 5/22/2020

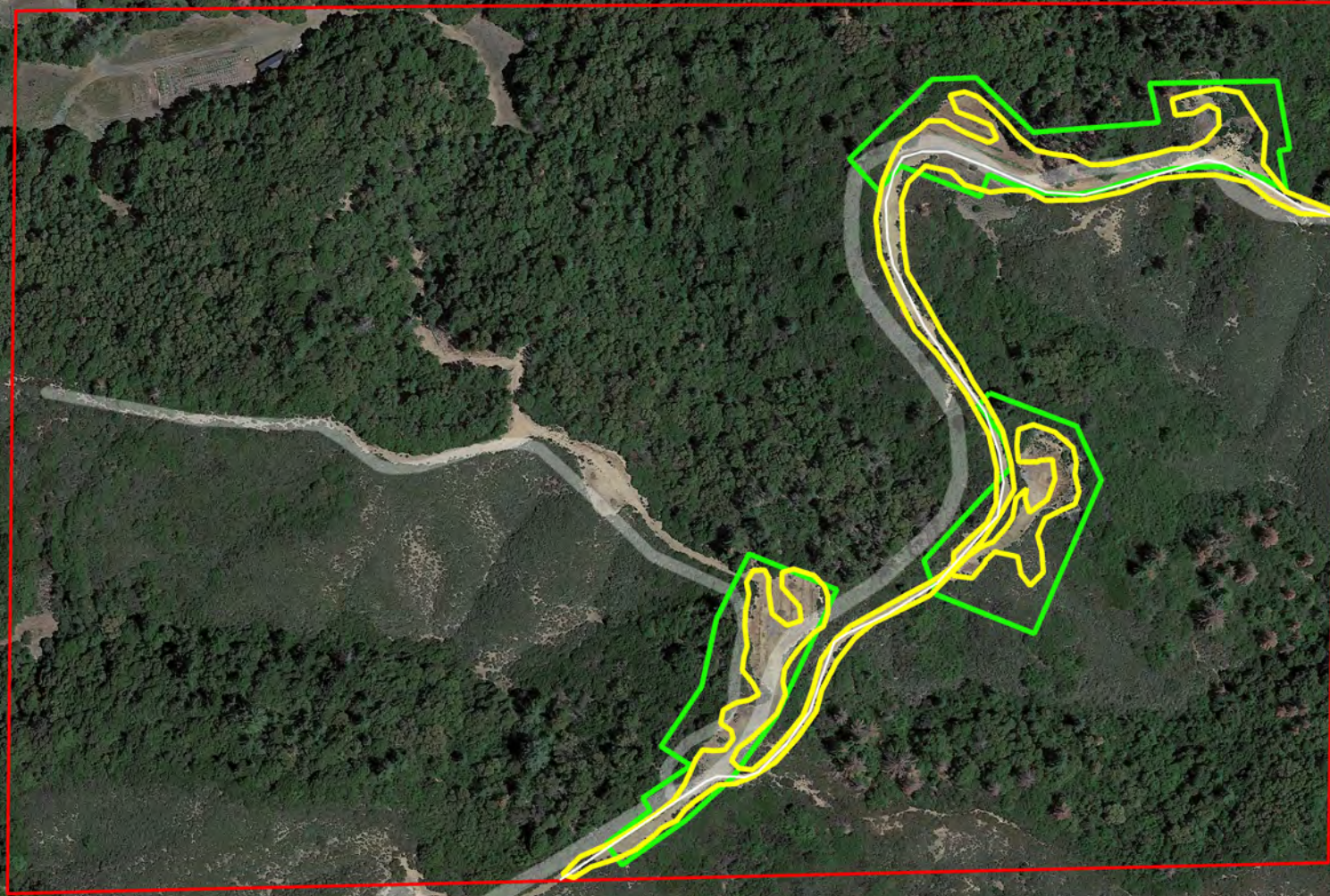
Purdys Garden 1958 Quadrangle Photoinspected 1975: Township 13N, Range 10W, Section 5,8
Hopland 1960 Quadrangle Photoinspected 1975: Township 13N, Range 10W, Section 5,8



Botanical Field Survey Coverage Area

Legend

-  Cultivation Area
-  Road
-  Survey Route 3-29-22



900 ft

APPENDIX: LIST OF PLANT TAXA DETECTED IN THE PROJECT AREA AND IMMEDIATE VICINITY

A list of all plant taxa occurring in the project area, with all taxa identified to the taxonomic level necessary to determine whether or not they are a special status plant;

Plants Observed at 3681 Benmore Valley Road, Lakeport on June 4, 2020

Common Name	Scientific Name
Foothill deervetch	<i>Acmispon brachycarpus</i>
Chamise	<i>Adenostoma fasciculatum</i>
Spearleaf mountain dandelion	<i>Agoseris retrorsa</i>
Silver hairgrass	<i>Aira caryophyllea</i>
Water plantain	<i>Alisma plantago-aquatica</i>
Madrone	<i>Arbutus menziesii</i>
Hoary manzanita	<i>Arctostaphylos canescens ssp. canescens</i>
Columbia manzanita	<i>Arctostaphylos columbiana</i>
Common manzanita	<i>Arctostaphylos manzanita ssp. manzanita</i>
California mugwort	<i>Artemisia douglasiana</i>
Slender wild oat	<i>Avena barbata</i>
Wild oat	<i>Avena fatua</i>
Coyote brush	<i>Baccharis pilularis</i>
Elegant brodiaea	<i>Brodiaea elegans</i>
California brome	<i>Bromus carinatus</i>
Meadow brome	<i>Bromus commutatus</i>
Ripgut brome	<i>Bromus diandrus</i>
Madrid brome	<i>Bromus madritensis</i>
Western morning glory	<i>Calystegia occidentalis</i>
California milk wort	<i>Cardamine californica</i>
Italian thistle	<i>Carduus pycnocephalus</i>
Clustered field sedge	<i>Carex praegracilis</i>
Field owl's clover	<i>Castilleja campestris</i>
Jim brush	<i>Ceanothus oliganthus var. soledadensis</i>
Yellow star thistle	<i>Centaurea solstitialis</i>
Sticky mouse-eared chickweed	<i>Cerastium glomerata</i>
Narrow-leaved soap plant	<i>Chlorogalum angustifolium</i>
Bull thistle	<i>Cirsium vulgare</i>
Purple clarkia	<i>Clarkia purpurea ssp. quadrivulnera</i>
Narrow-leaved miners lettuce	<i>Claytonia parviflora</i>
Field bindweed	<i>Convolvulus arvensis</i>
Bird's beak	<i>Cordylanthus sp.</i>
Dove weed	<i>Croton setiger</i>
Dogtail grass	<i>Cynosurus echinoides</i>
California oat grass	<i>Danthonia californica</i>
Fork-toothed ookow	<i>Dichelostemma capitatum</i>
Rattan's monkey flower	<i>Diplacus rattanii</i>
Sticky cinquefoil	<i>Drymocallis glandulosa</i>
Medusa-head grass	<i>Elymus caput-medusae</i>
Blue wild rye	<i>Elymus glaucus</i>
Tall willowherb	<i>Epilobium brachycarpum</i>
Little willowherb	<i>Epilobium minutum</i>
Yerba santa	<i>Eriodictyon californicum</i>
Woolly sunflower	<i>Eriophyllum lanatum</i>
Tall fescue	<i>Festuca arundinacea</i>
Brome fescue	<i>Festuca bromoides</i>
Pacific fescue	<i>Festuca microstachys</i>
Rattail sixweeks fescue	<i>Festuca myuros</i>
Italian ryegrass	<i>Festuca perennis</i>
Bedstraw	<i>Galium aparine</i>

California bedstraw	<i>Galium californicum ssp. californicum</i>
Nit grass	<i>Gastridium phleoides</i>
Globe gilia	<i>Gilia capitatum</i>
Velvet grass	<i>Holcus lanatus</i>
Mediterranean barley	<i>Hordeum marinum ssp. gussoneanum</i>
Broad leaved lotus	<i>Hosackia crassifolia var. crassifolia</i>
Goldwire	<i>Hypericum concinnum</i>
Soft rush	<i>Juncus effusus</i>
Slender rush	<i>Juncus tenuis</i>
Iris-leaved rush	<i>Juncus xiphioides</i>
Prickly lettuce	<i>Lactuca serriola</i>
Tangier peavine	<i>Lathyrus tingitanus</i>
Pitcher sage	<i>Lepechinia calycina</i>
Shasta daisy	<i>Leucanthemum x superbum</i>
Narrowleaf cottonrose	<i>Logfia gallica</i>
Lace parsnip	<i>Lomatium dasycarpum</i>
Pink honeysuckle	<i>Lonicera hispidula</i>
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Miniature lupine	<i>Lupinus bicolor</i>
Small tarweed	<i>Madia exigua</i>
Slender tarweed	<i>Madia gracilis</i>
Pineapple weed	<i>Matricaria discoidea</i>
White sweet clover	<i>Melilotus albus</i>
Annual yellow sweet clover	<i>Melilotus indicus</i>
Pennyroyal	<i>Mentha pulegium</i>
Skunkbush	<i>Navarretia squarrosa</i>
Indian warrior	<i>Pedicularis densiflorus</i>
Foothill penstemon	<i>Penstemon heterophylla</i>
Harding grass	<i>Phalaris aquatica</i>
Chaparral pea	<i>Pickeringia montana</i>
Knobcone pine	<i>Pinus attenuata</i>
Sugar pine	<i>Pinus lambertiana</i>
Popcorn flower	<i>Plagiobothrys sp.</i>
English plantain	<i>Plantago lanceolata</i>
Cream cups	<i>Platystemon californicus</i>
Howell's bluegrass	<i>Poa howellii</i>
California sword fern	<i>Polystichum minutum</i>
Fremont cottonwood	<i>Populus fremontii</i>
California scrub oak	<i>Quercus berberidifolia</i>
Canyon live oak	<i>Quercus chrysolepis</i>
Leather oak	<i>Quercus durata</i>
Bush interior live oak	<i>Quercus wislizeni var. frutescens</i>
Ground rose	<i>Rosa spithamea</i>
Himalayan blackberry	<i>Rubus armeniacus</i>
Dock	<i>Rumex sp.</i>
Red willow	<i>Salix laevigata</i>
Dusky willow	<i>Salix melanopsis</i>
Blue elderberry	<i>Sambucus nigra ssp. caerulea</i>
Purple sanicle	<i>Sanicula bipinnatifida</i>
Red sandspurry	<i>Spergularia rubra</i>
Tall sock destroyer	<i>Torilis arvensis</i>
California nutmeg	<i>Torreya californica</i>
Poison-oak	<i>Toxicodendron diversilobum</i>

Rose clover	<i>Trifolium hirtum</i>
California bay	<i>Umbellularia californica</i>
Common mullein	<i>Verbascum thapsus</i>
American vetch	<i>Vicia americana ssp. americana</i>
Modesty	<i>Whipplea modesta</i>
Narrow leaf mules ears	<i>Wyethia angustifolia</i>

Plants Observed at 3681 Benmore Valley Road, Lakeport on March 29, 2022

Common Name	Scientific Name
Short-podded lotus	<i>Acmispon brachycarpus</i>
Hill lotus	<i>Acmispon parviflorus</i>
Chamise	<i>Adenostoma fasciculatum</i>
Mountain dandelion	<i>Agoseris sp.</i>
Madrone	<i>Arbutus menziesii</i>
Hoary manzanita	<i>Arctostaphylos canescens ssp. canescens</i>
Common manzanita	<i>Arctostaphylos manzanita ssp. manzanita</i>
Stanford manzanita	<i>Arctostaphylos stanfordiana ssp. stanfordiana</i>
Coyote brush	<i>Baccharis pilularis</i>
Ripgut brome	<i>Bromus diandrus</i>
Red brome	<i>Bromus rubens</i>
Italian thistle	<i>Carduus pycnocephalus</i>
Wedge leaf ceanothus	<i>Ceanothus cuneatus</i>
Wavy leaved ceanothus	<i>Ceanothus foliosus</i>
Yellow star thistle	<i>Centaurea solstitialis</i>
Wavy leaf soap plant	<i>Chlorogalum pomeridianum</i>
Stinkwort	<i>Dittrichia graveolens</i>
Medusa-head grass	<i>Elymus caput-medusae</i>
Blue wildrye	<i>Elymus glaucus</i>
Goldenfleece	<i>Ericameria arborescens</i>
Yerba santa	<i>Eriodictyon californicum</i>
Wooly sunflower	<i>Eriophyllum lanatum</i>
Rattail sixweeks grass	<i>Festuca myuros</i>
Climbing bedstraw	<i>Galium porrigens</i>
Toyon	<i>Heteromeles arbutifolia</i>
Broad leaved lotus	<i>Hosackia crassifolia</i>
Goldwire	<i>Hypericum concinnum</i>
Pitcher sage	<i>Lepechinia calycina</i>
Pink honeysuckle	<i>Lonicera hispidula</i>
Chaparral honeysuckle	<i>Lonicera interrupta</i>
Pacific starflower	<i>Lysimachia latifolia</i>
Tarplant	<i>Madia sp.</i>
Sweetclover	<i>Melilotus sp.</i>
Navarretia (upland)	<i>Navarretia sp.</i>
Goldback fern	<i>Pentagramma triangularis</i>
Chaparral pea	<i>Pickeringia montana</i>
Knobcone pine	<i>Pinus attenuata</i>
Sugar pine	<i>Pinus lambertiana</i>
California milkwort	<i>Polygala californica</i>

Common Name	Scientific Name
California scrub oak	<i>Quercus berberidifolia</i>
Canyon live oak	<i>Quercus chrysolepis</i>
Leather oak	<i>Quercus durata</i>
Bush interior live oak	<i>Quercus wislizeni</i> var. <i>frutescens</i>
Oracle oak	<i>Quercus x morehus</i>
Sonoma rose	<i>Rosa spithamea</i>
Purple nightshade	<i>Solanum xantii</i>
Tall sock-destroyer	<i>Torilis arvensis</i>
California nutmeg	<i>Torreya californica</i>
Poison-oak	<i>Toxicodendron diversilobum</i>
California bay	<i>Umbellularia californica</i>
Winter vetch	<i>Vicia villosa</i>
Modesty	<i>Whipplea modesta</i>

APPENDIX: SITE PHOTOS













APPENDIX: CNDDB AND CNPS SPECIES LISTS

Table of regionally-occurring special-status plant species (from CNDDDB and CNPS database queries), with their blooming periods and habitat requirements

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
Adoxaceae				
Oval-leaved viburnum <i>Viburnum ellipticum</i>	2B.3	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest	
Agavaceae				
Dwarf soaproot <i>Chlorogalum pomeridianum</i> var. <i>minus</i>	1B.2	May-Aug	Chaparral	
Alliaceae				
Purdy's onion <i>Allium fimbriatum</i> var. <i>purdyi</i>	4.3	Apr-Jun	Chaparral, Cismontane woodland	Clay, Serpentine
Apiaceae				
Loch Lomond button-celery <i>Eryngium constancei</i>	1B.1/CE/FE	Apr-Jun	Vernal pools	
Hoover's lomatium <i>Lomatium hooveri</i>	4.3	Apr-Jul	Chaparral, Cismontane woodland	Serpentine, Volcanic (rarely)
Napa lomatium <i>Lomatium repostum</i>	1B.2	Mar-Jun	Chaparral, Cismontane woodland	Serpentine
Apocynaceae				
Serpentine milkweed <i>Asclepias solanoana</i>	4.2	May-Jul(Aug)	Chaparral, Cismontane woodland, Lower montane coniferous forest	Serpentine
Asteraceae				
Scabrid alpine tarplant <i>Anisocarpus scabridus</i>	1B.3	Jul-Aug(Sep)	Upper montane coniferous forest	
Big-scale balsamroot <i>Balsamorhiza macrolepis</i>	1B.2	Mar-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	Serpentine (sometimes)
Small-flowered calycadenia <i>Calycadenia micrantha</i>	1B.2	Jun-Sep	Chaparral, Meadows and seeps, Valley and foothill grassland	Roadsides, Rocky, Scree, Serpentine (sometimes), Talus
Pappose tarplant <i>Centromadia parryi</i> ssp. <i>parryi</i>	1B.2	May-Nov	Chaparral, Coastal prairie, Marshes and swamps, Meadows and seeps, Valley and foothill grassland	Alkaline (often)

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
Parry's rough tarplant <i>Centromadia parryi</i> ssp. <i>rudis</i>	4.2	May-Oct	Valley and foothill grassland, Vernal pools	Alkaline, Roadsides (sometimes), Seeps, Vernal Mesic
Greene's narrow-leaved daisy <i>Erigeron greenei</i>	1B.2	May-Sep	Chaparral	
Hall's harmonia <i>Harmonia hallii</i>	1B.2	(Mar)Apr-Jun	Chaparral	
Nodding harmonia <i>Harmonia nutans</i>	4.3	Mar-May	Chaparral, Cismontane woodland	Gravelly (sometimes), Rocky (sometimes), Volcanic
Stebbins' harmonia <i>Harmonia stebbinsii</i>	1B.2	May-Jun	Chaparral, Lower montane coniferous forest	Serpentine
Serpentine sunflower <i>Helianthus exilis</i>	4.2	Jun-Nov	Chaparral, Cismontane woodland	Seeps, Serpentine
Mendocino tarplant <i>Hemizonia congesta</i> ssp. <i>calyculata</i>	4.3	Jul-Nov	Cismontane woodland, Valley and foothill grassland	Serpentine (sometimes)
Congested-headed hayfield tarplant <i>Hemizonia congesta</i> ssp. <i>congesta</i>	1B.2	Apr-Nov	Valley and foothill grassland	Roadsides (sometimes)
Burke's goldfields <i>Lasthenia burkei</i>	1B.1/CE/FE	Apr-Jun	Meadows and seeps, Vernal pools	
Colusa layia <i>Layia septentrionalis</i>	1B.2	Apr-May	Chaparral, Cismontane woodland, Valley and foothill grassland	Sandy, Serpentine
Mt. Diablo cottonweed <i>Micropus amphibolus</i>	3.2	Mar-May	Broadleaved upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland	Rocky
Cleveland's ragwort <i>Senecio clevelandii</i> var. <i>clevelandii</i>	4.3	Jun-Jul	Chaparral	
Beaked tracyina <i>Tracyina rostrata</i>	1B.2	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	
Azollaceae				
Mexican mosquito fern <i>Azolla microphylla</i>	4.2	Aug	Marshes and swamps	
Boraginaceae				
Bent-flowered fiddleneck <i>Amsinckia lunaris</i>	1B.2	Mar-Jun	Cismontane woodland, Coastal bluff scrub, Valley and foothill grassland	

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
Serpentine cryptantha <i>Cryptantha dissita</i>	1B.2	Apr-Jun	Chaparral	
Amethyst stickseed <i>Hackelia amethystina</i>	4.3	Jun-Jul(Aug)	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	Disturbed areas, Openings
Mayacamas popcornflower <i>Plagiobothrys lithocaryus</i>	1A	Apr-May	Chaparral, Cismontane woodland, Valley and foothill grassland	
Brassicaceae				
Modest rockcress <i>Arabis modesta</i>	4.3	Mar-Jul	Chaparral, Lower montane coniferous forest	
Snow Mountain rockcress <i>Boechea ultraalsa</i>	1B.1	Jun-Jul	Upper montane coniferous forest	
Bearded jewelflower <i>Streptanthus barbiger</i>	4.2	May-Jul	Chaparral	
Socrates Mine jewelflower <i>Streptanthus brachiatus</i> ssp. <i>brachiatus</i>	1B.2	May-Jun	Chaparral, Closed-cone coniferous forest	
Freed's jewelflower <i>Streptanthus brachiatus</i> ssp. <i>hoffmanii</i>	1B.2	May-Jul	Chaparral, Cismontane woodland	
Hoffman's bristly jewelflower <i>Streptanthus glandulosus</i> ssp. <i>hoffmanii</i>	1B.3	Mar-Jul	Chaparral, Cismontane woodland, Valley and foothill grassland	
Green jewelflower <i>Streptanthus hesperidis</i>	1B.2	May-Jul	Chaparral, Cismontane woodland	
Three Peaks jewelflower <i>Streptanthus morrisonii</i> ssp. <i>elatus</i>	1B.2	Jun-Sep	Chaparral	
Kruckeberg's jewelflower <i>Streptanthus morrisonii</i> ssp. <i>kruckebergii</i>	1B.2	Apr-Jul	Cismontane woodland	
Early jewelflower <i>Streptanthus vernalis</i>	1B.2	Mar-May	Chaparral, Closed-cone coniferous forest	
Bryaceae				
Wine-colored tufa moss <i>Plagiobryoides vinosula</i>	4.2		Cismontane woodland, Meadows and seeps, Mojavean desert scrub, Pinyon and juniper woodland, Riparian woodland	
Cabombaceae				
Watershield	2B.3	Jun-Sep	Marshes and swamps	

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
<i>Brasenia schreberi</i>				
Campanulaceae				
Cascade downingia <i>Downingia willamettensis</i>	2B.2	Jun-Jul(Sep)	Cismontane woodland, Valley and foothill grassland, Vernal pools	
Legenere <i>Legenere limosa</i>	1B.1	Apr-Jun	Vernal pools	
Caryophyllaceae				
Bolander's catchfly <i>Silene bolanderi</i>	1B.2	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	Openings (usually), Roadsides (sometimes), Rocky (sometimes), Serpentine (sometimes)
Convolvulaceae				
Mt. Saint Helena morning-glory <i>Calystegia collina</i> ssp. <i>oxyphylla</i>	4.2	Apr-Jun	Chaparral, Lower montane coniferous forest, Valley and foothill grassland	Serpentine
Three-fingered morning-glory <i>Calystegia collina</i> ssp. <i>tridactylosa</i>	1B.2	Apr-Jun	Chaparral, Cismontane woodland	Gravelly, Openings, Rocky, Serpentine
South Coast Range morning-glory <i>Calystegia collina</i> ssp. <i>venusta</i>	4.3	Apr-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	Serpentine (sometimes)
Jepson's dodder <i>Cuscuta jepsonii</i>	1B.2	Jul-Sep	North Coast coniferous forest	Streambanks
Crassulaceae				
Lake County stonecrop <i>Sedella leiocarpa</i>	1B.1/CE/FE	Apr-May	Cismontane woodland, Valley and foothill grassland, Vernal pools	
Sanhedrin Mountain stonecrop <i>Sedum sanhedrinum</i>	1B.2	May-Jul	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest	Gabbroic, Metamorphic, Openings, Rock crevices, Rocky, Serpentine, Talus
Cyperaceae				
Bristly sedge <i>Carex comosa</i>	2B.1	May-Sep	Coastal prairie, Marshes and swamps, Valley and foothill grassland	
Porcupine sedge <i>Carex hystericina</i>	2B.1	May-Jun	Marshes and swamps	
Klamath sedge <i>Carex klamathensis</i>	1B.2		Chaparral, Cismontane woodland, Meadows and seeps	Serpentine
Northern meadow sedge <i>Carex praticola</i>	2B.2	May-Jul	Meadows and seeps	

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
Ditrichaceae				
Cylindrical trichodon <i>Trichodon cylindricus</i>	2B.2		Broadleafed upland forest, Meadows and seeps, Upper montane coniferous forest	
Ericaceae				
Raiche's manzanita <i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i>	1B.1	Feb-Apr	Chaparral, Lower montane coniferous forest	Rocky, Serpentine (often)
Konocti manzanita <i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	1B.3	(Jan)Mar-May(Jul)	Chaparral, Cismontane woodland, Lower montane coniferous forest	Volcanic
Fabaceae				
Napa false indigo <i>Amorpha californica</i> var. <i>napensis</i>	1B.2	Apr-Jul	Broadleafed upland forest, Chaparral, Cismontane woodland	
Brewer's milk-vetch <i>Astragalus breweri</i>	4.2	Apr-Jun	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland	Serpentine (often), Volcanic
Cleveland's milk-vetch <i>Astragalus clevelandii</i>	4.3	Jun-Sep	Chaparral, Cismontane woodland, Riparian forest	
Jepson's milk-vetch <i>Astragalus rattanii</i> var. <i>jepsonianus</i>	1B.2	Mar-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	Serpentine (often)
Anthony Peak lupine <i>Lupinus antoninus</i>	1B.2	May-Jul	Lower montane coniferous forest, Upper montane coniferous forest	Rocky
Cobb Mountain lupine <i>Lupinus sericatus</i>	1B.2	Mar-Jun	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest	
Saline clover <i>Trifolium hydrophilum</i>	1B.2	Apr-Jun	Marshes and swamps, Valley and foothill grassland, Vernal pools	
Grimmiaceae				
Toren's grimmia <i>Grimmia torenii</i>	1B.3		Chaparral, Cismontane woodland, Lower montane coniferous forest	Carbonate, Openings, Rocky, Volcanic
Lamiaceae				
Green monardella <i>Monardella viridis</i>	4.3	Jun-Sep	Broadleafed upland forest, Chaparral, Cismontane woodland	
Napa bluecurls <i>Trichostema ruygtii</i>	1B.2	Jun-Oct	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley & foothill grassland, Vernal pools	
Liliaceae				

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
Pink star-tulip <i>Calochortus uniflorus</i>	4.2	Apr-Jun	Coastal prairie, Coastal scrub, Meadows and seeps, North Coast coniferous forest	
St. Helena fawn lily <i>Erythronium helenae</i>	4.2	Mar-May	Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland	Serpentine (sometimes), Volcanic (sometimes)
Siskiyou fritillaria <i>Fritillaria glauca</i>	4.2	(Apr- May)Jun-Jul	Alpine boulder and rock field, Subalpine coniferous forest, Upper montane coniferous forest	Serpentine, Slopes, Talus
Adobe-lily <i>Fritillaria pluriflora</i>	1B.2	Feb-Apr	Chaparral, Cismontane woodland, Valley and foothill grassland	Adobe (often)
Purdy's fritillary <i>Fritillaria purdyi</i>	4.3	Mar-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest	Serpentine (usually)
Limnanthaceae				
Woolly meadowfoam <i>Limnanthes floccosa</i> ssp. <i>floccosa</i>	4.2	Mar- May(Jun)	Chaparral, Cismontane woodland, Valley and foothill grassland, Vernal pools	Vernally Mesic
Glandular western flax <i>Hesperolinon adenophyllum</i>	1B.2	May-Aug	Chaparral, Cismontane woodland, Valley and foothill grassland	Serpentine (usually)
Linaceae				
Two-carpellate western flax <i>Hesperolinon bicarpellatum</i>	1B.2	(Apr)May-Jul	Chaparral	
Lake County western flax <i>Hesperolinon didymocarpum</i>	1B.2/CE	May-Jul	Chaparral, Cismontane woodland, Valley and foothill grassland	Serpentine
Drymaria-like western flax <i>Hesperolinon drymarioides</i>	1B.2	May-Aug	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Valley and foothill grassland	Serpentine
Sharsmith's western flax <i>Hesperolinon sharsmithiae</i>	1B.2	May-Jul	Chaparral	Serpentine
Malvaceae				
Baker's globe mallow <i>Ilamna bakeri</i>	4.2	Jun-Sep	Chaparral, Great Basin scrub, Lower montane coniferous forest, Pinyon and juniper woodland	Burned areas (often), Volcanic
Heller's bush-mallow <i>Malacothamnus helleri</i>	3.3	May-Jul	Chaparral, Riparian woodland	
Lake Pillsbury checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>pillsburiensis</i>	1B.2	Jul-Aug	Chaparral	

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
Keck's checkerbloom <i>Sidalcea keckii</i>	1B.1/FE	Apr- May(Jun)	Cismontane woodland, Valley and foothill grassland	
Marsh checkerbloom <i>Sidalcea oregana ssp. hydrophila</i>	1B.2	(Jun)Jul-Aug	Meadows and seeps, Riparian forest	
Melanthiaceae				
Marsh zigadenus <i>Toxicoscordion fontanum</i>	4.2	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest, Marshes & swamps, Meadows & seeps	
Mielichhoferiaceae				
Elongate copper moss <i>Mielichhoferia elongata</i>	4.3		Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Subalpine coniferous forest	Acidic (usually), Carbonate (sometimes), Metamorphic, Roadsides (often), Vernal Mesic (usually)
Montiaceae				
Four-petaled pussypaws <i>Calyptidium quadripetalum</i>	4.3	Apr-Jun	Chaparral, Lower montane coniferous forest	Gravelly (sometimes), Sandy (sometimes), Serpentinite (usually)
Rydberg's spring beauty <i>Claytonia obovata</i>	4.3	(Mar- Apr)May- Jun(Jul)	Subalpine coniferous forest	Openings (usually), Rocky, Talus
Stebbins' lewisia <i>Lewisia stebbinsii</i>	1B.2	May-Jul	Lower montane coniferous forest, Upper montane coniferous forest	Gravelly, Serpentinite (sometimes)
Onagraceae				
Tracy's clarkia <i>Clarkia gracilis ssp. tracyi</i>	4.2	Apr-Jul	Chaparral	
Snow Mountain willowherb <i>Epilobium nivium</i>	1B.2	Jun-Oct	Chaparral, Upper montane coniferous forest	Rocky
Ophioglossaceae				
Northern adder's-tongue <i>Ophioglossum pusillum</i>	2B.2	Jul	Marshes and swamps, Meadows and seeps	
Orchidaceae				
Narrow-petaled rein orchid <i>Piperia leptopetala</i>	4.3	May-Jul	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	
Michael's rein orchid <i>Piperia michaelii</i>	4.2	Apr-Aug	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal scrub, Lower montane coniferous forest	

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
Orobanchaceae				
Pink creamsacs <i>Castilleja rubicundula</i> var. <i>rubicundula</i>	1B.2	Apr-Jun	Chaparral, Cismontane woodland, Meadows and seeps, Valley and foothill grassland	Serpentine
Serpentine bird's-beak <i>Cordylanthus tenuis</i> ssp. <i>brunneus</i>	4.3	Jul-Aug	Chaparral, Cismontane woodland, Closed-cone coniferous forest	Serpentine (usually)
Howell's broomrape <i>Orobanche valida</i> ssp. <i>howellii</i>	4.3	Jun-Sep	Chaparral	
Phrymaceae				
Bare monkeyflower <i>Erythranthe nudata</i>	4.3	May-Jun	Chaparral, Cismontane woodland	Seeps, Serpentine
Plantaginaceae				
Dimorphic snapdragon <i>Antirrhinum subcordatum</i>	4.3	Apr-Jul	Chaparral, Lower montane coniferous forest	Serpentine (sometimes)
Twig-like snapdragon <i>Antirrhinum virga</i>	4.3	Jun-Jul	Chaparral, Lower montane coniferous forest	Openings, Rocky, Serpentine (often)
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	1B.2/CE	Apr-Aug	Marshes and swamps, Vernal pools	Clay
Sonoma beardtongue <i>Penstemon newberryi</i> var. <i>sonomensis</i>	1B.3	Apr-Aug	Chaparral	
Polygonaceae				
Snow Mountain buckwheat <i>Eriogonum nervulosum</i>	1B.2	Jun-Sep	Chaparral	
Tripod buckwheat <i>Eriogonum tripodum</i>	4.2	May-Jul	Chaparral, Cismontane woodland	Serpentine (often)
Poaceae				
Serpentine reed grass <i>Calamagrostis ophitidis</i>	4.3	Apr-Jul	Chaparral, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland	Rocky, Serpentine
California satintail <i>Imperata brevifolia</i>	2B.1	Sep-May	Chaparral, Coastal scrub, Meadows and seeps, Mojavean desert scrub, Riparian scrub	Mesic
Slender Orcutt grass <i>Orcuttia tenuis</i>	1B.1/CE/FT	May-Sep(Oct)	Vernal pools	

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
Geysers panicum <i>Panicum acuminatum</i> var. <i>thermale</i>	1B.2/CE	Jun-Aug	Closed-cone coniferous forest, Riparian forest, Valley and foothill grassland	
California alkali grass <i>Puccinellia simplex</i>	1B.2	Mar-May	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools	
Pubescent needle grass <i>Stipa lemmonii</i> var. <i>pubescens</i>	3.2	May-Jul	Chaparral, Lower montane coniferous forest	
Polemoniaceae				
Serpentine collomia <i>Collomia diversifolia</i>	4.3	May-Jun	Chaparral, Cismontane woodland	Gravelly (sometimes), Rocky (sometimes), Serpentinite (sometimes)
Brandegee's eriastrum <i>Eriastrum brandegeeeae</i>	1B.1	Apr-Aug	Chaparral, Cismontane woodland	Sandy, Volcanic
Tracy's eriastrum <i>Eriastrum tracyi</i>	3.2/CR	May-Jul	Chaparral, Cismontane woodland, Valley and foothill grassland	
Bristly leptosiphon <i>Leptosiphon acicularis</i>	4.2	Apr-Jul	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland	
Large-flowered leptosiphon <i>Leptosiphon grandiflorus</i>	4.2	Apr-Aug	Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Valley and foothill grassland	Sandy (usually)
Jepson's leptosiphon <i>Leptosiphon jepsonii</i>	1B.2	Mar-May	Chaparral, Cismontane woodland, Valley and foothill grassland	Volcanic (usually)
Broad-lobed leptosiphon <i>Leptosiphon latisectus</i>	4.3	Apr-Jun	Broadleafed upland forest, Cismontane woodland	
Rattan's leptosiphon <i>Leptosiphon rattanii</i>	4.3	May-Jul	Cismontane woodland, Lower montane coniferous forest	Gravelly (sometimes), Rocky (sometimes)
Cotula navarretia <i>Navarretia cotulifolia</i>	4.2	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	Adobe
Jepson's navarretia <i>Navarretia jepsonii</i>	4.3	Apr-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	Serpentinite
Baker's navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	1B.1	Apr-Jul	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools	Mesic
Few-flowered navarretia <i>Navarretia leucocephala</i> ssp. <i>pauciflora</i>	1B.1/CT/FE	May-Jun	Vernal pools	
Many-flowered navarretia <i>Navarretia leucocephala</i> ssp. <i>plieantha</i>	1B.2/CE/FE	May-Jun	Vernal pools	

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Pinnate-leaved navarretia <i>Navarretia linearifolia</i> ssp. <i>pinnatisecta</i>	4.3	Jun-Aug	Chaparral, Lower montane coniferous forest	Serpentine, Volcanic
Small pincushion navarretia <i>Navarretia myersii</i> ssp. <i>deminuta</i>	1B.1	Apr-May	Vernal pools	
Porter's navarretia <i>Navarretia paradoxinota</i>	1B.3	May-Jun(Jul)	Meadows and seeps	
Potamogetonaceae				
Eel-grass pondweed <i>Potamogeton zosteriformis</i>	2B.2	Jun-Jul	Marshes and swamps	
Pottiaceae				
California beard-moss <i>Didymodon californicus</i>	4.2		Lower montane coniferous forest	Rocky, Streambanks
Alpine crisp-moss <i>Tortella alpicola</i>	2B.3		Cismontane woodland	
Ranunculaceae				
Swamp larkspur <i>Delphinium uliginosum</i>	4.2	May-Jun	Chaparral, Valley and foothill grassland	Seeps, Serpentine
Little mousetail <i>Myosurus minimus</i> ssp. <i>apus</i>	3.1	Mar-Jun	Valley and foothill grassland, Vernal pools	
Lobb's aquatic buttercup <i>Ranunculus lobbii</i>	4.2	Feb-May	Cismontane woodland, North Coast coniferous forest, Valley and foothill grassland, Vernal pools	
Rhamnaceae				
Rincon Ridge ceanothus <i>Ceanothus confusus</i>	1B.1	Feb-Jun	Chaparral, Cismontane woodland, Closed-cone coniferous forest	Serpentine (sometimes), Volcanic (sometimes)
Calistoga ceanothus <i>Ceanothus divergens</i>	1B.2	Feb-Apr	Chaparral	
Sonoma ceanothus <i>Ceanothus sonomensis</i>	1B.2	Feb-Apr	Chaparral	
Rosaceae				
Bolander's horkelia <i>Horkelia bolanderi</i>	1B.2	(May)Jun-Aug	Chaparral, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland	Edges, Vernal Mesic
Themidaceae				

Common name <i>Scientific name</i>	Status	Blooming Period	Habitat	Micro-habitat
Narrow-anthered brodiaea <i>Brodiaea leptandra</i>	1B.2	May-Jul	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland	Volcanic
Indian Valley brodiaea <i>Brodiaea rosea</i>	3.1/CE	May-Jun	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Valley and foothill grassland	Serpentine