
**BIOLOGICAL RESOURCES ASSESSMENT FOR THE
CANNABIS CULTIVATION OPERATION
AT 22066 JERUSALEM GRADE, LOWER LAKE, 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 at 22066 Jerusalem Grade Road, Lower Lake, in Lake County, California. For this assessment, the entire 27.6-acre parcel (APN 013-013-39) was the Study Area. The property is accessed by private graveled roads on Jerusalem Grade and Daly Place (see exhibits).

The proposed project is Cannabis cultivation with an operational footprint of approximately 1.5 acres (the Project Area). The site is minimally developed. The project area is flat and will not require grading or terracing. Vegetation clearing will be limited to mowing of non-native annual grassland that has been severely grazed (see exhibits). No new buildings or roads are planned at this time. Mature plants will be grown outside in a fenced garden compound 1 acre in size. Cultivation will occur in full sun in native soil. The irrigation system for the cultivation operation uses water supplied by a well and a pump located in the western portion of the parcel. The water will be pumped via underground PVC piping to four 2,500-gallon storage tanks adjacent to the garden. Irrigation will be provided via black poly tubing and emitters (drip irrigation). A mixing tank may be used to add liquid fertilizers and other amendments to the irrigation water. A soil stockpile and compost pile will be established within the garden enclosure. A hoop house may be erected to serve as a nursery. No lighting or electricity will be used in the hoop house.

An existing building/shed will be used for Cannabis processing, and will have an employee break room. The existing home will house up to two employees. The flush toilets within the home will be available to employees. Portable toilets will be rented as needed to support additional workers during peak work periods. Electricity for the home and shed is provided by the local electric utility. Diesel generators will provide back-up electricity. A propane tank (approximately 200 gallons) may be installed to provide fuel for heating the building/shed. Up to two shipping storage containers may be brought in if additional storage space is needed. Employees will use the existing driveway for parking and staging. Dirt access roads connect the cultivation operational areas. Existing facilities that will not be used for this operation include a greenhouse, barn as well as several outbuildings.

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 2019-0001-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 2019-0001-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 Sunset Climate Zone 7, California's Gray Pine Belt, with hot summers and mild but pronounced winters without severe winter cold or high humidity (Brenzel, 2012). The topography of the parcel is undulating, with low ridges and moderate slopes on the western edge, flattening out to the center and east. The elevation ranges from approximately 930 feet to 1,040 feet above mean sea level. Drainage flows south and east, exiting the property and eventually entering Soda Creek. Soda Creek is tributary to Putah Creek. The parcel has operated as a small ranch and is currently grazed. The surrounding land use is largely open space, with a few rural residences, equestrian estates, and Cannabis gardens on nearby parcels.

The Natural Resources Conservation Service (NRCS) has identified several soil types within the Study Area. The geology that underlays the site includes soils derived from serpentine and alluvium. No soils derived from volcanic materials are mapped within or adjacent to this parcel. (NRCS 2019).

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
- United States Geologic Service (USGS) 7.5 degree-minute topographic quadrangles of the Study Area and vicinity
- Aerial photography of the Study Area
- 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 December 9, 2019. Weather conditions were cool and clear with a light breeze. A complete coverage, 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. Mr. 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 (2019); CDFW (2019b,c); NatureServe 2019; and University of California at Berkeley (2019a,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). Wetlands and other aquatic habitats were classified using USFWS National Wetlands Inventory Classification System for Wetland and Deepwater Habitats, or "Cowardin class" (Cowardin et al., 1979; USFWS 2007). 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, 2019c). Species' habitat requirements and life histories were identified using the following sources: Baldwin et al. (2012); CNPS (2019), Calflora (2019); CDFW (2019a,b,c); and University of California at Berkeley (2019a,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: black-tailed jackrabbit (*Lepus californicus*); cattle (*Bos taurus*); goat (*Capra aegagrus hircus*); horse (*Equus caballus*); pig (domestic) (*Sus scrota domesticus*); acorn woodpecker (*Melanerpes formicivorus*); American crow (*Corvus brachyrhynchos*); American robin (*Turdus migratorius*); Brewer's blackbird (*Euphagus cyanocephalus*); California scrub jay (*Aphelocoma californica*); common raven (*Corvus corax*); Eurasian collared-dove (*Streptopelia decaocto*); killdeer (*Charadrius vociferus*); mourning dove (*Zenaidura macroura*); sparrow (Emberizidae); red-winged blackbird (*Agelaius phoeniceus*); western bluebird (*Sialia mexicana*); western meadowlark (*Sturnella neglecta*); 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/urbanized, annual grassland, oak-pine woodland, and riparian. These vegetation communities are discussed here and are delineated in the Exhibits. Aquatic vegetation communities are discussed in the section on jurisdictional waters.

Ruderal/Disturbed. These areas consist of disturbed or converted natural habitat that is now either in ruderal state, planted with cannabis, graded, or urbanized with gravel roads. Vegetation within this habitat type consists primarily of nonnative weedy or invasive species or ornamental plants 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.

Annual Grassland: The flatter topography of the parcel consists largely of heavily grazed annual grassland habitat. This vegetation is comprised largely of non-native grasses and native and non-native herbs including Medusa-head (*Elymus caput-medusae*), yellow star-thistle (*Centaurea solstitialis*), wand tarplant (*Holocarpha virgata*), and hayfield tarplant (*Hemizonia congesta* ssp. *Juzulifolia*). This vegetation can be classified as the Holland Type "Non-native Grassland," and "Annual grassland" habitat type by CDFW's WHR.

Oak-Pine woodland. Found along the hills and slopes in the western portion of the Study Area is habitat dominated by oak and pine. The mixed oak/pine woodland consists of an open canopy of blue oak (*Quercus douglasii*) and gray pine (*Pinus sabiniana*) with a heavily grazed understory of shrubs (*Arctostaphylos*, *Ceanothus* and *Heteromeles*) and annual grasses (*Elymus*, *Bromus*, *Avena*, et al). This vegetation can be classified as "*Quercus douglasii* woodland alliance (Sawyer 2009)" or as the Holland Type "Blue Oak - Foothill Pine".

Riparian: Riparian habitat can be found along the channel of Soda Creek, following the eastern edge of the Study Area. The riparian vegetation consists of a narrow canopy of Fremont cottonwood (*Populus fremontii*), red willow (*Salix laevigata*) and valley oak (*Quercus lobata*), and a shrub layer of mule fat (*Baccharis salicifolia*), California bristlebush (*Brickellia californica*) and California rose (*Rosa californica*) with an understory of grasses and other herbs. The riparian forest can be classified as the Holland Type "Great Valley Mixed Riparian Forest" or as "*Populus fremontii* Forest Alliance" (Sawyer 2009).

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: "Urban" or "Barren", "Annual Grassland", "Blue Oak - Foothill Pine" and "Valley Foothill Riparian".

4.2.3. Critical Habitat and Special-status Habitat

No critical habitat for any federally-listed species occurs within the Study Area. One special-status habitat was detected within the Study Area: riparian. The CNDDDB reported no special-status habitats within the Study Area. The CNDDDB reported four special-status habitats within a 10-mile radius outside of the Study Area: Serpentine Bunchgrass, Wildflower Field, Northern Basalt Flow Vernal Pool, Northern Interior Cypress Forest.

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 designated wildlife corridors exist within or near the Study Area. Soda Creek may function as a wildlife corridor and fishery within the Study Area; however, this project will not directly or indirectly impact Soda Creek. 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 a special-status species occurrence (Prairie falcon) within the Study Area, but this is an artifact of the mapping process; the actual occurrence is located in the McLaughlin Natural Reserve, approximately 5 miles northeast of the Study Area. Within a 10-mile buffer of the Study Area boundary, the CNDDDB reported numerous

special-status species occurrences, summarized in the following table. A federal species list was also generated from the USFWS website (Appendix 1).

A USFWS species list was generated online using the USFWS' IPaC Trust Resource Report System (see Appendix 1). The following listed species should be considered in the impact assessment:

- Birds
 - o Northern Spotted Owl (*Strix occidentalis caurina*) Threatened
- Amphibians
 - o California Red-legged Frog (*Rana draytonii*) Threatened
- Fishes
 - o Delta Smelt (*Hypomesus transpacificus*) Threatened
- Flowering Plants
 - o Burke's Goldfields (*Lasthenia burkei*) Endangered
 - o Few-flowered Navarretia (*Navarretia leucocephala* ssp. *pauciflora* = *N. pauciflora*) Endangered
 - o Slender Orcutt Grass (*Orcuttia tenuis*) Threatened
- Migratory Birds

Table 1. 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 boylii</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.
Bald eagle <i>Haliaeetus leucocephalus</i>	FD/CE/CFP	Ocean shore, lake margins, & rivers for both nesting & wintering. Most nests within 1 mi of water.	Nests in large, old-growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter
Golden eagle <i>Aquila chrysaetos</i>	CFP	Rolling foothills, mountain areas, sage-juniper flats, & desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.
American peregrine falcon <i>Falco peregrinus anatum</i>	FD/CD/CFP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures.	Nest consists of a scrape or a depression or ledge in an open site.
Prairie falcon <i>Falco mexicanus</i>	CSSC	Inhabits dry, open terrain, either level or hilly.	Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.
Purple martin <i>Progne subis</i>	CSSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine, & Monterey pine.	Nests in old woodpecker cavities mostly, also in human-made structures. Nest often located in tall, isolated tree/snaq.
Tricolored blackbird <i>Agelaius tricolor</i>	CCE/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.
Silver-haired bat <i>Lasionycteris noctivagans</i>	CSSC	Primarily a coastal & montane forest dweller feeding over streams, ponds & open brushy areas.	Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes & rarely under rocks. Needs drinking water.
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.
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.
Ricksecker's water scavenger beetle	CSSC	Aquatic.	

Common name Scientific name	Status	General Habitat	Microhabitat
Hydrochara rickseckeri			
Serpentine cypress long-horned beetle Vandykea tubercu/ata	CSSC	Breeds in shaded-out lower branches of Sargent cypress and perhaps McNab cypress in serpentine soil/cypress habitats.	
Wilbur Springs shorebug Sa/du/a usingeri	CSSC	Requires springs/creeks with high concentrations of Na, Cl, & Li.	Found only on wet substrate of spring outflows.
Toren's grimmia Grimmia torenii	18.3	Cismontane woodland, lower montane coniferous forest, chaparral.	Openings, rocky, boulder and rock walls, carbonate, volcanic. 325-1160 m.
Loch Lomond button-celery Eryngium constancei	FE/CE/1 B.1	Vernal pools.	Volcanic ash flow vernal pools. 460-855 m.
Big-scale balsamroot Ba/samorhiza macrolepis	18.2	Chaparral, valley and foothill grassland, cismontane woodland.	Sometimes on serpentine. 90-1555 m.
Greene's narrow- leaved daisy Erigeron greenei	18.2	Chaparral.	Serpentine and volcanic substrates, generally in shrubby vegetation. 80-1005 m.
Congested-headed hayfield tarplant Hemizonia congesta ssp. congesta	18.2	Valley and foothill grassland.	Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 20-560 m.
Burke's goldfields Lasthenia burkei	FE/CE/1B.1	Vernal pools, meadows and seeps.	Most often in vernal pools and swales. 15- 600m.
Colusa layia Layia septentrionalis	18.2	Chaparral, cismontane woodland, valley and foothill grassland.	Scattered colonies in fields and grassy slopes in sandy or serpentine soil. 145- 1095m.
Hall's harmonia Harmonia ha/Tii	18.2	Chaparral.	Serpentine hills and ridges. Open, rocky areas within chaparral. 500-900 m.
Bent-flowered fiddleneck Amsinckia lunaris	18.2	Cismontane woodland, valley and foothill grassland.	50-500m.
Serpentine cryptantha Cryptantha dissita	18.2	Chaparral.	Serpentine outcrops. 330-730m.
Freed's jewelflower Streptanthus brachiatus ssp. hoffmanii	18.2	Chaparral, cismontane woodland.	Serpentine rock outcrops, primarily in geothermal development areas. 490-1220 m.
Three Peaks jewelflower Streptanthus morrisonii ssp. elatus	18.2	Chaparral.	Serpentine barrens, outcrops, and talus; 80- 815 m.
Kruckeberg's jewelflower	18.2	Cismontane woodland.	Scattered serpentine outcrops near the Lake/Napa county line. 215-1035 m.

Common name Scientific name	Status	General Habitat	Microhabitat
<i>Streptanthus morrisonii</i> ssp. <i>kruckebergii</i>			
Early jewelflower <i>Streptanthus vernalis</i>	18.2	Chaparral, closed-cone coniferous forest.	On serpentine. 610m.
Green jewelflower <i>Streptanthus hesperidis</i>	18.2	Chaparral, cismontane woodland.	Openings in chaparral or woodland; serpentine, rocky sites. 130-760m.
Cascade downingia <i>Downingia willamettensis</i>	28.2	Cismontane woodland, valley and foothill grasslands.	Lake margins and vernal pools.
Legenere <i>Legenere limosa</i>	18.1	Vernal pools.	In beds of vernal pools. 1-880 m.
Mt. Saint Helena morning-glory <i>Calystegia col/ina</i> ssp. <i>oxyphylla</i>	4.2	Chaparral, lower montane coniferous forest, valley and foothill grassland.	On serpentine barrens, slopes, and hillsides. 280-1010 m.
Lake County stonecrop <i>Sedella /eiocarpa</i>	FE/CE/18.1	Valley and foothill grassland, vernal pools, cismontane woodland.	Level areas that are seasonally wet and dry out in late spring; substrate usually of volcanic origin. 365-790 m.
Konocti manzanita <i>Arctostaphylos manzanita</i> ssp. <i>e/egans</i>	18.3	Chaparral, cismontane woodland, lower montane coniferous forest.	Volcanic soils. 395-1615 m.
Napa false indigo <i>Amorpha californica</i> var. <i>napensis</i>	18.2	Broadleaved upland forest, chaparral, cismontane woodland.	Openings in forest or woodland or in chaparral. 120-2000 m
Jepson's milk-vetch <i>Astragalus rattanii</i> var. <i>jepsonianus</i>	18.2	Cismontane woodland, valley and foothill grassland, chaparral.	Commonly on serpentine in grassland or openings in chaparral. 180-1000 m.
Cobb Mountain lupine <i>Lupinus sericatus</i>	18.2	Chaparral, cismontane woodland, lower montane coniferous forest, broadleaved upland forest.	In stands of knobcone pine-oak woodland, on open wooded slopes in gravelly soils; sometimes on serpentine. 275-1525 m.
Saline clover <i>Trifolium hydrophilum</i>	18.2	Marshes and swamps, valley and foothill grassland, vernal pools.	Mesic, alkaline sites. 0-300 m.
Northern California black walnut <i>JuQ/ans hindsii</i>	CSR	Riparian forest, riparian woodland. Few extant native stands remain; widely naturalized.	Deep alluvial soil associated with a creek or stream. 0-440 m.
Napa bluecurls <i>Trichostema ruygtii</i>	18.2	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.
Two-carpellate western flax <i>Hesperolinon bicarpel/atum</i>	18.2	Serpentine chaparral.	Serpentine barrens at edge of chaparral. 60-1005 m.

Common name <i>Scientific name</i>	Status	General Habitat	Microhabitat
Lake County western flax <i>Hesperolinon didymocarpum</i>	CE/1B.2	Chaparral, cismontane woodland, valley and foothill grassland.	Serpentine soil in open grassland and near chaparral. 330-365m.
Drymaria-like western flax <i>Hespero/inon drvmarioides</i>	1B.2	Closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland.	Serpentine soils, mostly within chaparral. 390-1000m.
Sharsmith's western flax <i>Hesperolinon sharsmithiae</i>	1B.2	Chaparral.	Serpentine substrates. 270-300 m.
Keck's checkerbloom <i>Sida/cea keckii</i>	FE/1B.1	Cismontane woodland, valley and foothill grassland	Grassy slopes in blue oak woodland. 75-650 m.
Snow Mountain buckwheat <i>Eriogonum nervulosum</i>	1B.2	Chaparral.	Dry serpentine outcrops, balds, and barrens. 300-2100 m.
Jepson's leptosiphon <i>Leptosiphon jepsonii</i>	1B.2	Chaparral, cismontane woodland.	Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. 100-500m.
Baker's navarretia <i>Navarretia /eucocephala ssp. bakeri</i>	1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest.	Vernal pools and swales; adobe or alkaline soils. 5-1740 m.
Few-flowered navarretia <i>Navarretia /eucocephala ssp. pauciflora</i>	FE/CT/1 B.1	Vernal pools.	Volcanic ash flow, and volcanic substrate vernal pools. 400-855 m.
Many-flowered navarretia <i>Navarretia /eucocephala ssp. p/ieantha</i>	FE/CE/1B.2	Vernal pools.	Volcanic ash flow vernal pools. 30-950 m.
Small pincushion navarretia <i>Navarretia myersii ssp. diminuta</i>	1B.1	Vernal pools.	Known from only one site in lake county in vernal pool habitat on clay-loam soil; also in roadside depressions. 355 m.
Marin County navarretia <i>Navarretia rosu/ata</i>	1B.2	Closed-cone coniferous forest, chaparral.	Dry, open rocky places; can occur on serpentine. 200-635m.
Porter's navarretia <i>Navarretia paradoxinota</i>	1B.3	Meadows and seeps.	Serpentine, openings, vernal mesic, often drainages.
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.

Common name <i>Scientific name</i>	Status	General Habitat	Microhabitat
Sonoma ceanothus <i>Ceanothus sonomensis</i>	18.2	Chaparral.	Sandy, serpentine or volcanic soils. 210-800 m.
Bolander's horkelia <i>Horkelia bolanderi</i>	18.2	Lower montane coniferous forest, chaparral, meadows, valley and foothill grassland.	Grassy margins of vernal pools and meadows. 450-1100 m.
Pink creamsacs <i>Castilleja rubicunda</i> /a var. <i>rubicunda</i> /a	18.2	Chaparral, meadows and seeps, valley and foothill grassland.	Openings in chaparral or grasslands. On serpentine. 20-900 m.
Boggs Lake hedge-hyssop <i>Gratia</i> /a <i>heterosepala</i>	CE/18.2	Marshes and swamps (freshwater), vernal pools.	Clay soils; usually in vernal pools, sometimes on lake margins. 10-2375 m.
Northern meadow sedge <i>Carex praticola</i>	28.2	Meadows and seeps.	Moist to wet meadows. 0-3200 m.
Dwarf soaproot <i>Chlorogalum pomeridianum</i> var. <i>minus</i>	18.2	Chaparral, valley and foothill grassland.	Serpentine. 240-970 m.
Adobe-lily <i>Fritillaria pluriflora</i>	18.2	Chaparral, cismontane woodland, foothill grassland.	Usually on clay soils; sometimes serpentine. 60-705 m.
California satintail <i>Imperata brevifolia</i>	28.1	Coastal scrub, chaparral, riparian scrub, mojavean scrub, meadows and seeps (alkali), riparian scrub.	Mesic sites, alkali seeps, riparian areas. 0-1215 m.
Slender Orcutt grass <i>Orcuttia tenuis</i>	FT/CE/18.1	Vernal pools.	Often in gravelly pools. 35-1760 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; CR = California rare species; CCE= California candidate for listing as Endangered; CCT= California candidate for listing as Threatened; CSSC = California species of special concern; CWL= California Watch List; CFP = California fully protected species; CBR = Considered but Rejected; 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; CNPS List 2 = CNPS designated rare or endangered plants in California, but more common elsewhere; and CNPS List 4 = CNPS Watch List: Plants of limited distribution.

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 Study Area.

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

The non-native grasslands and pasture 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. The river corridor of Soda Creek could sustain aquatic special-status species.

4.4. POTENTIALLY-JURISDICTIONAL WATER RESOURCES

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 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 USFWS National Wetland Inventory (see Appendix 1) reported 1 water feature within the Study Area: riverine wetlands (associated with Soda Creek).

There are no channels or wetlands in the Project Area. The following water features were detected within the Study Area during the field survey (see Exhibits):

- Soda Creek and its associated riparian habitat and in-channel wetlands
- an unnamed intermittent (Class II watercourse)
- an unnamed ephemeral (Class III watercourse).

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.

Additionally, cultivators who enroll in the State Water Board's Waste Discharge Requirements for Cannabis Cultivation Order WQ 2019-0001-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 biological resources if it would be non-compliant with these requirements. Cannabis cultivators shall comply with the minimum riparian setbacks described below for 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 riparian setbacks shall be measured from the waterbody's bankfull stage (high flow water levels that occur every 1.5 to 2 years) or from the top edge of the waterbody bank in incised channels, whichever is more conservative. Riparian setbacks for springheads shall be measured from the springhead in all directions (circular buffer). Riparian setbacks for wetlands shall be measured from the edge of the bankfull water level. The cannabis cultivator shall increase riparian setbacks as needed or implement additional Requirements to meet the performance Requirement of protecting surface water from discharges that threaten water quality. If the cannabis cultivation Site cannot be managed to protect water quality, the Executive Officer of the applicable Regional Water Board may revoke authorization for cannabis cultivation activities at the cannabis cultivation site.

Minimum Riparian Setbacks

Common Name	Watercourse Class	Distance (Low Risk)	Distance (Mod Risk)	Variance
Perennial watercourses, springs, or seeps	I	150 ft.	200 ft.	Compliance Schedule
Intermittent watercourses	II	100 ft.	150 ft.	Compliance Schedule
Ephemeral watercourses	III	50 ft.	100 ft.	Compliance Schedule
Other waterbodies (lakes, etc.) and wetlands	150 ft.	200 ft.	Compliance Schedule	Other waterbodies (lakes, etc.) and wetlands

Notes:

- Riparian setbacks do not apply to man-made irrigation canals, water supply reservoirs, and hydroelectric canals (Watercourse Class IV) that do not support native aquatic species, however cannabis cultivators shall ensure land disturbance, cannabis cultivation activities, and facilities are not located in or disturb the existing riparian and wetland riparian vegetation associated with these Watercourse Class IV waterbodies.
- Risk is defined in Table 1 of this Policy and is based on the natural (prior to land disturbance activities) surface topography.
- Variance to riparian setbacks is only allowed if consistent with this Policy and a work plan and compliance schedule approved by the Regional Water Board Executive Officer.

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?*

One special-status plant species was detected within the Study Area (in the area marked, see Exhibits). The watercourses and riparian habitats within the Study Area that can sustain aquatic special-status species. There are several areas that might contain vernal pools. Vernal pools provide habitat for various special-status plant and animal species. However, the cannabis cultivation / operation area is 700 feet away from the nearest watercourse and over 1,000 feet away from the vernal pool area. No impacts to special-status species were identified from project implementation. Therefore, no mitigation is required. If land clearing is performed in the future, a pre-construction special-status species survey is recommended.

The non-native grasslands and pasture 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. The river corridor of Soda Creek could sustain aquatic special-status species. There are no special-status species in the Project Area. No special-status species were observed on the parcel during the site survey by Natural Investigations Company. Because the operational areas are situated on areas that are disturbed or lack sensitive habitats and setback well away from channels, no impacts to special-status species should occur from project implementation.

The Study Area contains suitable nesting habitat for various bird species because of the presence of trees and poles. However, no nests or nesting activity was observed in the project area during the field survey. Trees must be inspected for the presence of active bird nests before tree felling or ground clearing. If active nests are present in the project area during construction of the project, CDFW 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.

Recommended Mitigation Measures

No mitigation is necessary.

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 Study Area is not within any designated listed species' critical habitat. The Study Area contains one terrestrial special-status habitat: riparian habitat along Soda Creek. The Project Area is set back more than 200 feet from Soda Creek. There is no evidence that project implementation will impact any special-status habitats. Therefore, no mitigation is required.

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 in the Project Area. There are several water resources within the Study Area: Soda Creek; a Class II watercourse, and a Class III watercourse. The Project Area is set back more than 200 feet from Soda Creek, and more than 100 feet from the Class II and Class III watercourses. Therefore, no direct impacts to water resources will occur from project implementation.

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 less than 1 acre, the Cultivator will need to enroll for coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ). The proposed project is compliant with the setback requirements of Cannabis Cultivation Order WQ 2019-0001-DWQ.

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 2019-0001-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. Therefore, no mitigation is required.

It is recommended that a formal delineation of jurisdictional waters be performed before construction work, or ground disturbance, is performed near any wetland or drainage.

Recommended Mitigation Measures

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

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. Although 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 it and the majority of the Study Area would still be available. 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 does not require the removal of trees. The Study Area is not within the coverage area of any adopted Habitat Conservation Plan or Natural Community Conservation Plan. 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.

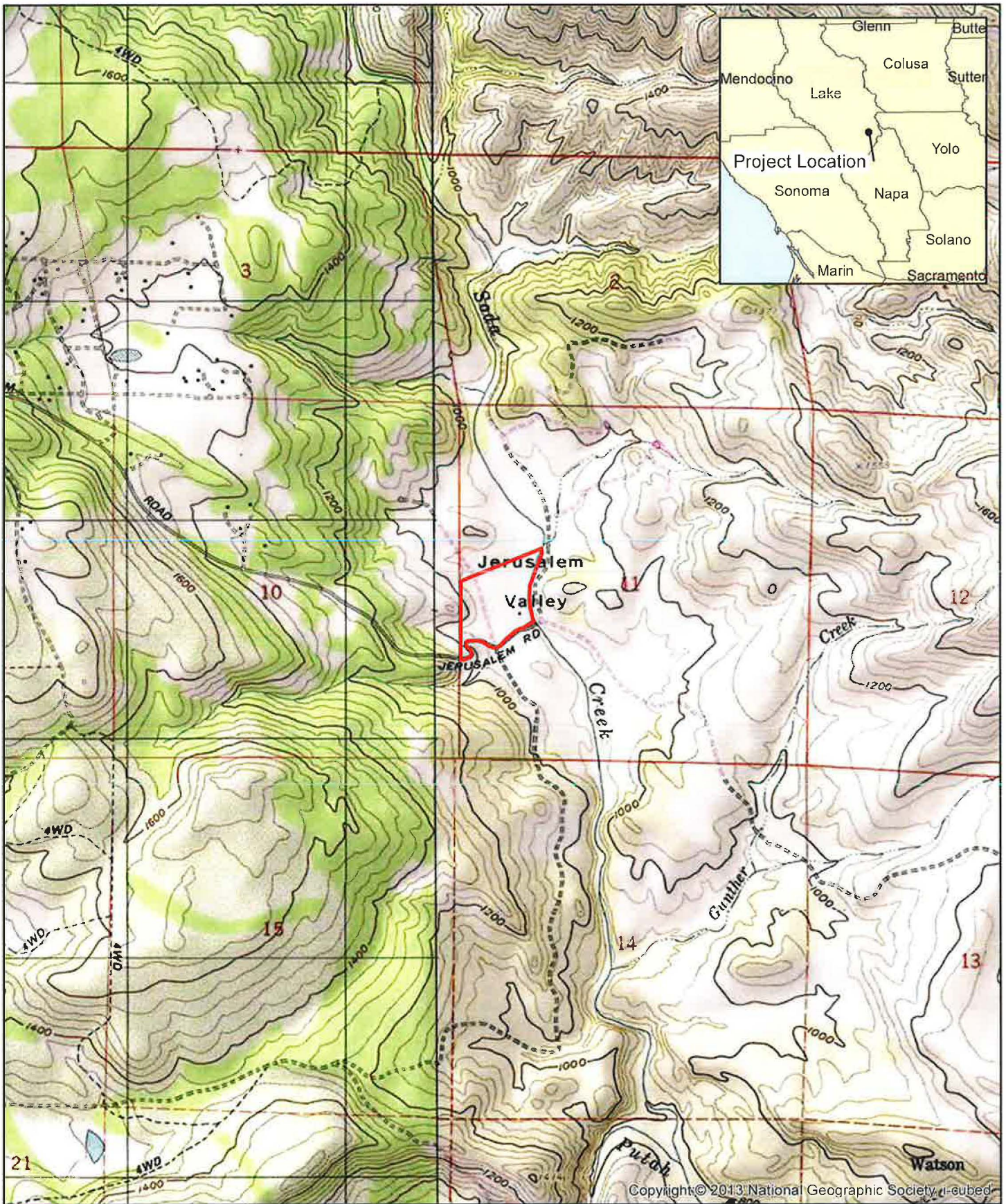
Recommended Mitigation Measures

No mitigation is necessary.

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EXHIBITS



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Parcel location

0 0.5 1 Kilometers

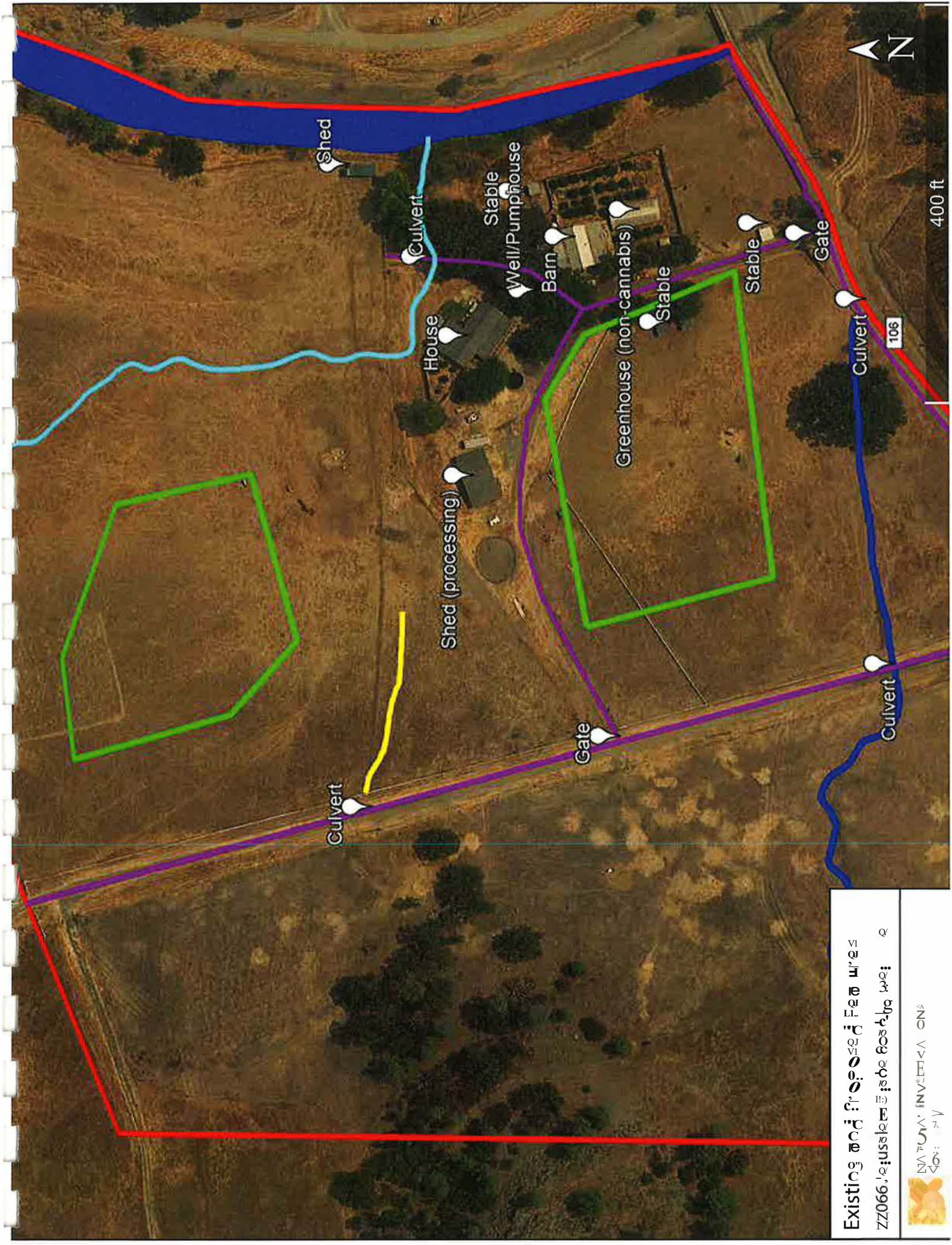
0 0.5 1 Miles

4 2866 Jerusalem Grade Rd

Location Map

NATURAL INVESTIGATIONS COMPANY

1:24,000



Existing map of the property

ZZ066 is a map of the property

NA 7000 INVESTMENT ON

GO: 7000

Parcel boundaries

Cannabis Production Area

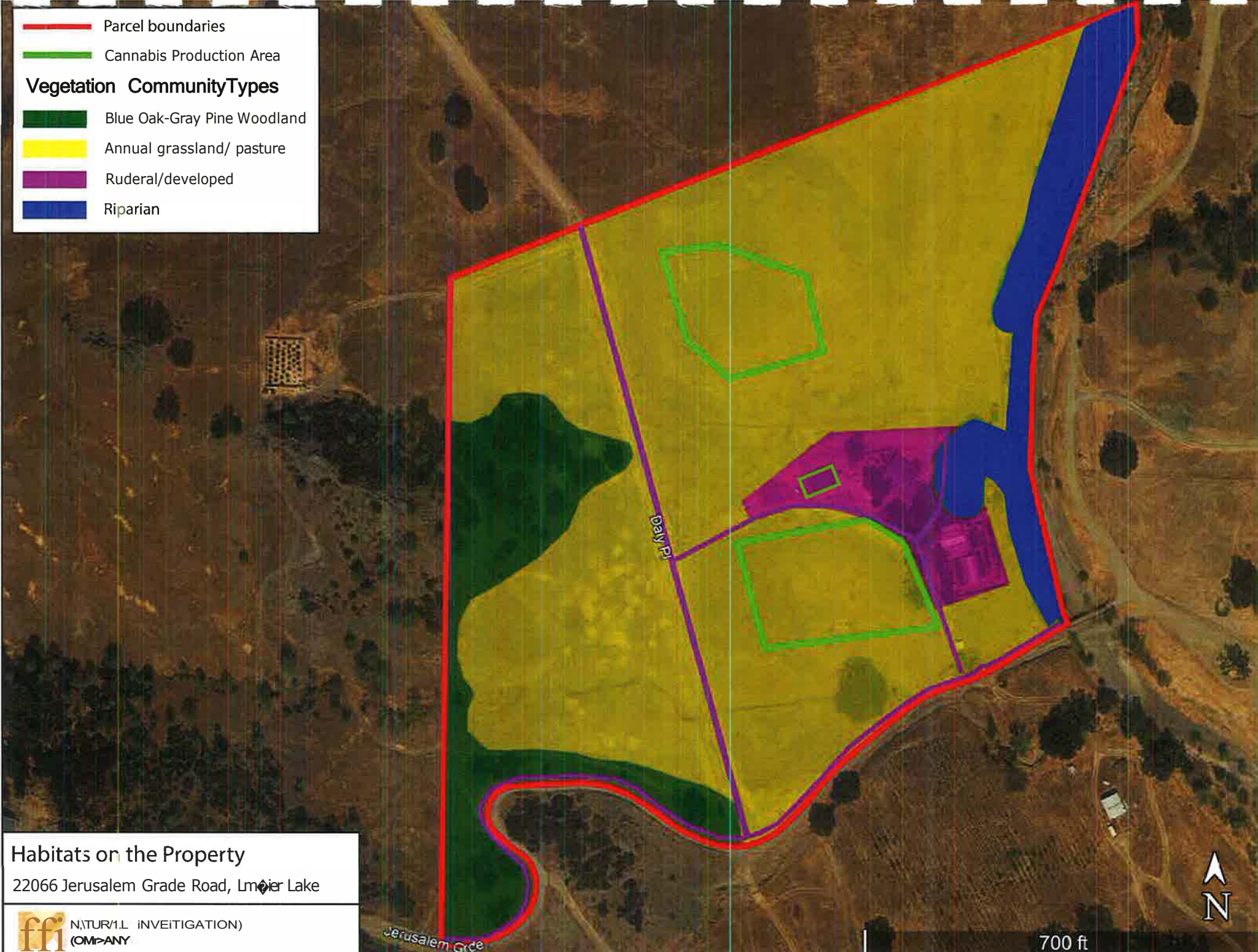
Vegetation CommunityTypes

Blue Oak-Gray Pine Woodland

Annual grassland/ pasture

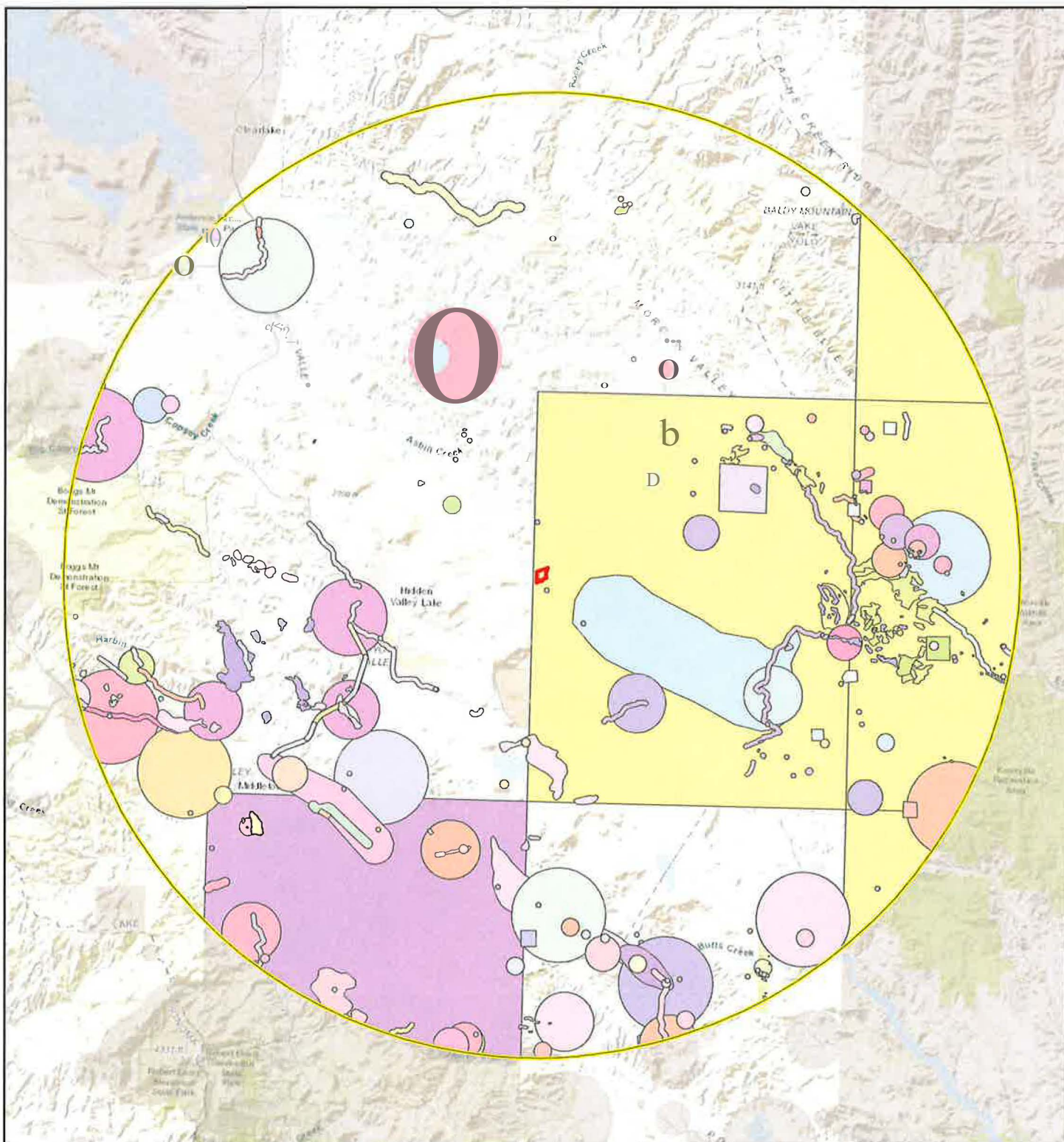
Ruderal/developed

Riparian



Habitats on the Property

22066 Jerusalem Grade Road, Lmoier Lake



c::J Parcel Location **c=Ji** 10Mile Buffer

1: 190,000 1 inch = 3 miles

1 inch = 3 miles

AN

0 3 6 Miles

Special-Status Species Occurrences Map

22066 Jerusalem Grade Rd

Jericho Valley 1958 Revised 1993 Quadrangle:
Township 11 N, Range 6W, Section 11

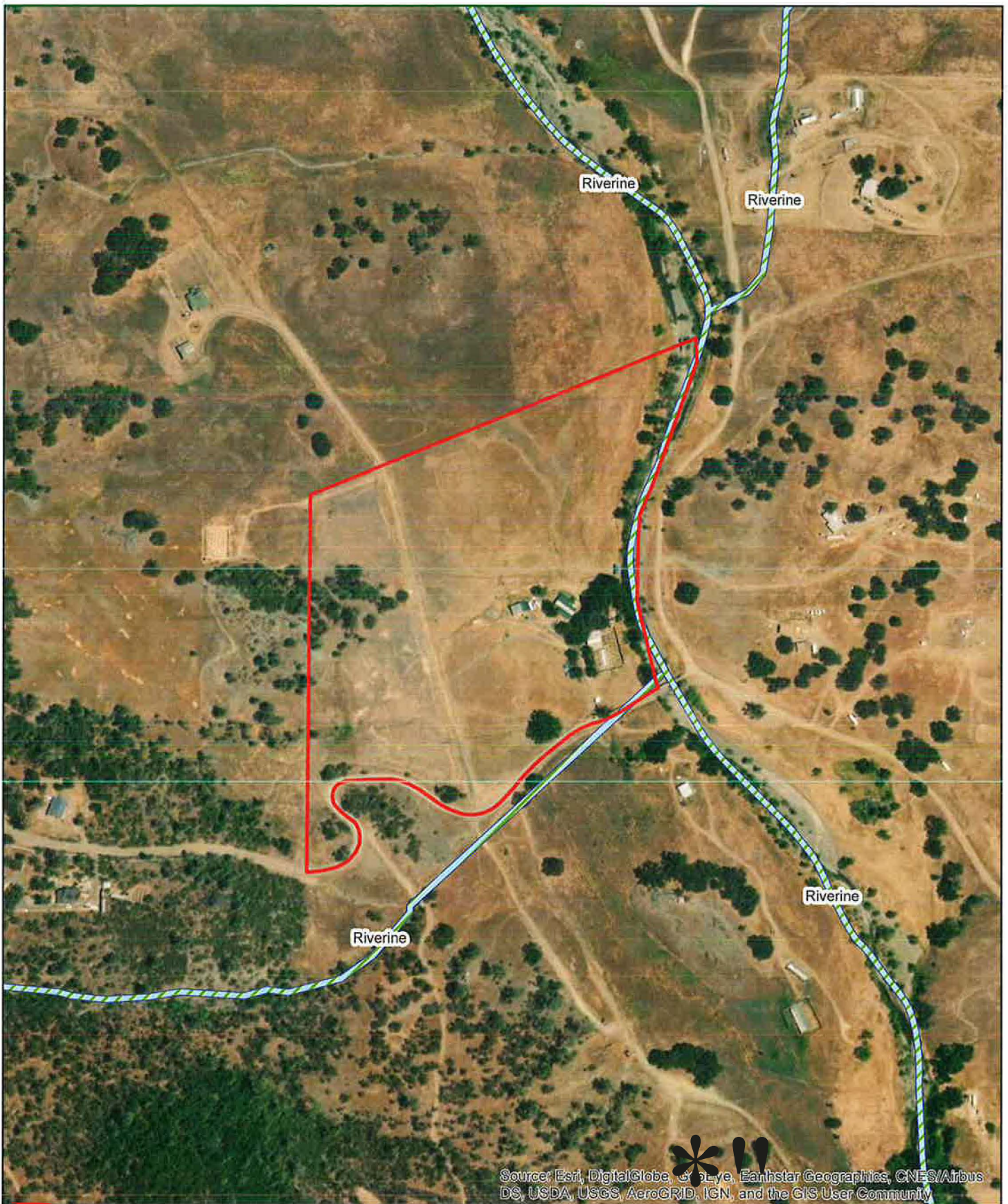


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Notes:

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. 2019. RareFind 5.x, California Natural Diversity Data Base. Biogeographic Data Branch, Sacramento, California. (updated monthly by subscription service)



D

Parcel location



Wetlands and Channels

0 100 200
:1 Meters

0 500 1,000
feet

1:5,000

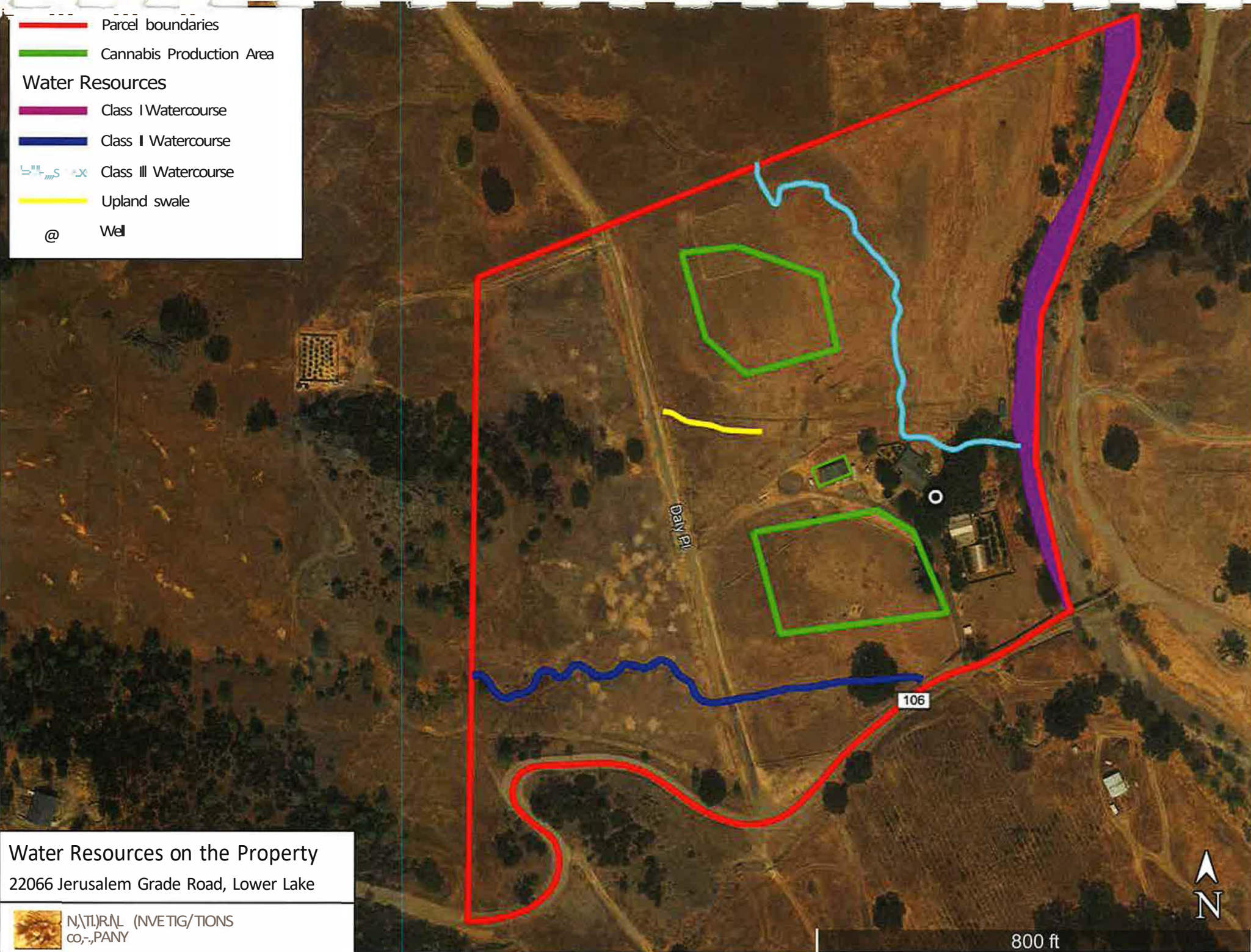
22066 Jerusalem Grade Rd

Features Map
National wetlands inventory



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COMPANY

- Parcel boundaries
- Cannabis Production Area
- Water Resources**
- Class I Watercourse
- Class I Watercourse
- Class III Watercourse
- Upland swale
- @ Well



Water Resources on the Property
 22066 Jerusalem Grade Road, Lower Lake



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 COMPANY



800 ft

APPENDIX: CHECKLIST OF PLANTS DETECTED IN THE STUDY AREA

Appendix 2:

Plants Observed at 22066 Jerusalem Grade Road, Lower Lake, December 9, 2019

Common Name	Scientific Name
Grav pine mistletoe	<i>Arceuthobium occidentale</i>
Common manzanita	<i>Arctostaphylos manzanita</i> ssp. <i>manzanita</i>
California mugwort	<i>Artemisia douglasiana</i>
Milkweed	<i>Asclepias</i> sp.
Wild oat	<i>Avena fatua</i>
Coyote brush	<i>Baccharis pilularis</i>
Mule fat	<i>Baccharis salicifolia</i>
California bristlebush	<i>Brickellia californica</i>
RiPaut brome	<i>Bromus diandrus</i>
Soft chess	<i>Bromus hordeaceus</i>
Italian thistle	<i>Carduus ovinocephalus</i>
Jepson's ceanothus	<i>Ceanothus jeffersonii</i>
Yellow starthistle	<i>Centaurea solstitialis</i>
Western redbud	<i>Cercis occidentalis</i>
Dove weed	<i>Croton setiger</i>
Dodder	<i>Cuscuta</i> sp.
Hederaea doatall arass	<i>Cynosurus echinoides</i>
Medusahead grass	<i>Elymus caput-medusae</i>
Blue wildrice	<i>Elymus alaicus</i>
Canada horseweed	<i>Eriogonum canadense</i>
Italian ryegrass	<i>Festuca ovina</i>
Hayfield tarplant	<i>Hemizonia congesta</i> ssp. <i>luzulaefolia</i>
Tayan	<i>Heteromeles arbutifolia</i>
Shortpod mustard	<i>Hirschfeldia incana</i>
Wand tarplant	<i>Holocarpha virgata</i>
rush	<i>Juncus</i> sp.
Osage orange	<i>Maclura pomifera</i>
Common madia	<i>Madia elegans</i>
White mulberry	<i>Morus alba</i>
Hardina arass	<i>Phalaris amurensis</i>
Gray pine	<i>Pinus sabiniana</i>
Fremont cottonwood	<i>Populus fremontii</i>
Blue oak	<i>Quercus douglasii</i>
Valley oak	<i>Quercus lobata</i>
California rose	<i>Rosa californica</i>
Curly dock	<i>Rumex crispus</i>
Red willow	<i>Salix laevigata</i>
Smilo grass	<i>Stipa miliacea</i>
Poison-oak	<i>Toxicodendron diversilobum</i>
Broad-leaved cattail	<i>Typha latifolia</i>
Rough cocklebur	<i>Xanthium strumarium</i>

APPENDIX: SITE PHOTOS



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**BOTANICAL SURVEY REPORT
FOR THE CANNABIS CULTIVATION OPERATION
AT 22066 JERUSALEM GRADE, LOWER LAKE, CALIFORNIA**

Date Prepared: April 19, 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.

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1. PROJECT LOCATION AND DESCRIPTION

Property / Project Location: at 22066 Jerusalem Grade Road, Lower Lake, in Lake County, California. The property consists of two parcels: a 27.6-acre parcel (APN 013-013-39); and a 10.1-acre parcel (APN 013-012-29).

Brief project description: The Cannabis cultivation operational footprint is approximately 1.5 acres (the Project Area) and is located on APN 013-013-39. The site is minimally developed. The project area is flat and will not require grading or terracing. Vegetation clearing will be limited to mowing of non-native annual grassland that has been severely grazed (see exhibits). No new buildings or roads are planned at this time. The cultivation compound will have a 1-acre cannabis garden grown outdoors in a fenced garden compound approximately 1.25 acres in size.

An existing building/shed will be used for Cannabis processing, and will have an employee break room. The existing home will house up to two employees. The flush toilets within the home will be available to employees. Portable toilets will be rented as needed to support additional workers during peak work periods. Electricity for the home and shed is provided by the local electric utility. Diesel generators will provide back-up electricity. A propane tank (approximately 200 gallons) may be installed to provide fuel for heating the building/shed. Up to two shipping storage containers may be brought in if additional storage space is needed. Employees will use the existing driveway for parking and staging. Dirt access roads connect the cultivation operational areas. Existing facilities that will not be used for this operation include a greenhouse, barn as well as several outbuildings.

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):

The topography of the parcel is undulating, with low ridges and moderate slopes on the western edge, flattening out to the center and east. The elevation ranges from approximately 930 feet to 1,100 feet above mean sea level. Drainage flows south and east, exiting the property and eventually entering Soda Creek. Soda Creek is tributary to Putah Creek.

Land used of the Property and immediate vicinity: The parcel has operated as a small ranch and is currently grazed. The surrounding land use is largely open space, with a few rural residences, equestrian estates, and Cannabis gardens on nearby parcels.

Soils: The geology that underlays the site includes soils derived from serpentine and alluvium. No soils derived from volcanic materials are mapped within or adjacent to this parcel (NRCS 2019).

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., December 9, 2019, majority of day
- Tim Nosal, MS., April 12, 2022, half 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 plus a buffer of 100 feet

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. 202x. Biological Resources Assessment for the Cannabis Cultivation Operation at 22066 Jerusalem Grade, Lower Lake, California.

Natural Investigations Company conducted an off-season 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.

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.

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 plant species occurrences within the Project Area or the surrounding Property. Within the vicinity of the Property, 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 botanical field survey, no special-status plant taxa were detected within the Project Area.

Deposition locations of voucher specimens: n/a

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

The Property contains the following terrestrial vegetation communities: ruderal/urbanized, annual grassland, oak-pine woodland, and riparian. These vegetation communities are discussed here and are delineated in the Exhibits. Aquatic vegetation communities are discussed in the section on jurisdictional waters.

Ruderal/Disturbed. These areas consist of disturbed or converted natural habitat that is now either in ruderal state, planted with cannabis, graded, or urbanized with gravel roads. Vegetation within this habitat type consists primarily of nonnative weedy or invasive species or ornamental plants 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.

Annual Grassland: The flatter topography of the parcel consists largely of heavily grazed annual grassland habitat. This vegetation is comprised largely of non-native grasses and native and non-native herbs including Medusa-head (*Elymus caput-medusae*), yellow star-thistle (*Centaurea solstitialis*), wand tarplant (*Holocarpha virgata*), and hayfield tarplant (*Hemizonia congesta* ssp. *luzulifolia*). This vegetation can be classified as the Holland Type “Non-native Grassland,” and “Annual grassland” habitat type by CDFW’s WHR.

Oak-Pine woodland. Found along the hills and slopes in the western portion of the Property is habitat dominated by oak and pine. The mixed oak/pine woodland consists of an open canopy of blue oak (*Quercus douglasii*) and gray pine (*Pinus sabiniana*) with a heavily grazed understory of shrubs (*Arctostaphylos*, *Ceanothus* and *Heteromeles*) and annual grasses (*Elymus*, *Bromus*, *Avena*, et al). This vegetation can be classified as “*Quercus douglasii* woodland alliance (Sawyer 2009)” or as the Holland Type “Blue Oak - Foothill Pine”.

Riparian: Riparian habitat can be found along the channel of Soda Creek, following the eastern edge of the Property. The riparian vegetation consists of a narrow canopy of Fremont cottonwood (*Populus fremontii*), red willow (*Salix laevigata*) and valley oak (*Quercus lobata*), and a shrub layer of mule fat (*Baccharis salicifolia*), California bricklebrush (*Brickellia californica*) and California rose (*Rosa californica*) with an understory of grasses and other herbs. The riparian forest can be classified as the Holland Type “Great Valley Mixed Riparian Forest” or as “*Populus fremontii* Forest Alliance” (Sawyer 2009).

During the botanical field survey, no sensitive vegetation communities were detected within the Project Area.

4.3. Adequacy of Botanical Field Survey(s)

Potential for a false negative botanical field survey:

A false negative is possible since a late-season botanical field survey was not yet performed.

Did climatic conditions affect the botanical field survey results?

The 2021 season started early and ended early. The region was in drought and in a record heat wave, and late-season target plants should be blooming earlier than usual, or not at all.

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

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

Plants were in peak spring flowering stage. Numerous native plants were observed in flower.

5. POTENTIAL PROJECT IMPACTS

5.1. Special-status Plant Populations

The project appears to be fully installed. General habitat of the land inside the growing compound is ruderal/disturbed although a lot of native plants were observed. The habitat outside of the compound is a pretty healthy annual grassland dominated by native herbs. No trees are in the footprint of this project

The non-native grasslands and pasture within the Property have a low potential for harboring special-status plant species due to the dominance of aggressive non-native grasses and forbs. The river corridor of Soda Creek could sustain aquatic special-status species. There are regions of APN 013-012-29 that contain serpentine soils (see soils map Exhibit). Serpentine soils are suitable habitat for special-status plant species that are adapted to these soils. The Project Area is completely within pasture (non-native annual grassland) that is in a disturbed state from animal grazing. The potential for the Project Area to sustain special-status species is very low. 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.

5.2. Sensitive Natural Communities

The Property contains one terrestrial special-status habitat: riparian habitat along Soda Creek. The Project Area is set back more than 200 feet from Soda Creek. There is no evidence that project implementation will impact any special-status habitats or sensitive natural communities.

6. MITIGATION MEASURES / RECOMMENDATIONS

No mitigation is necessary.

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.

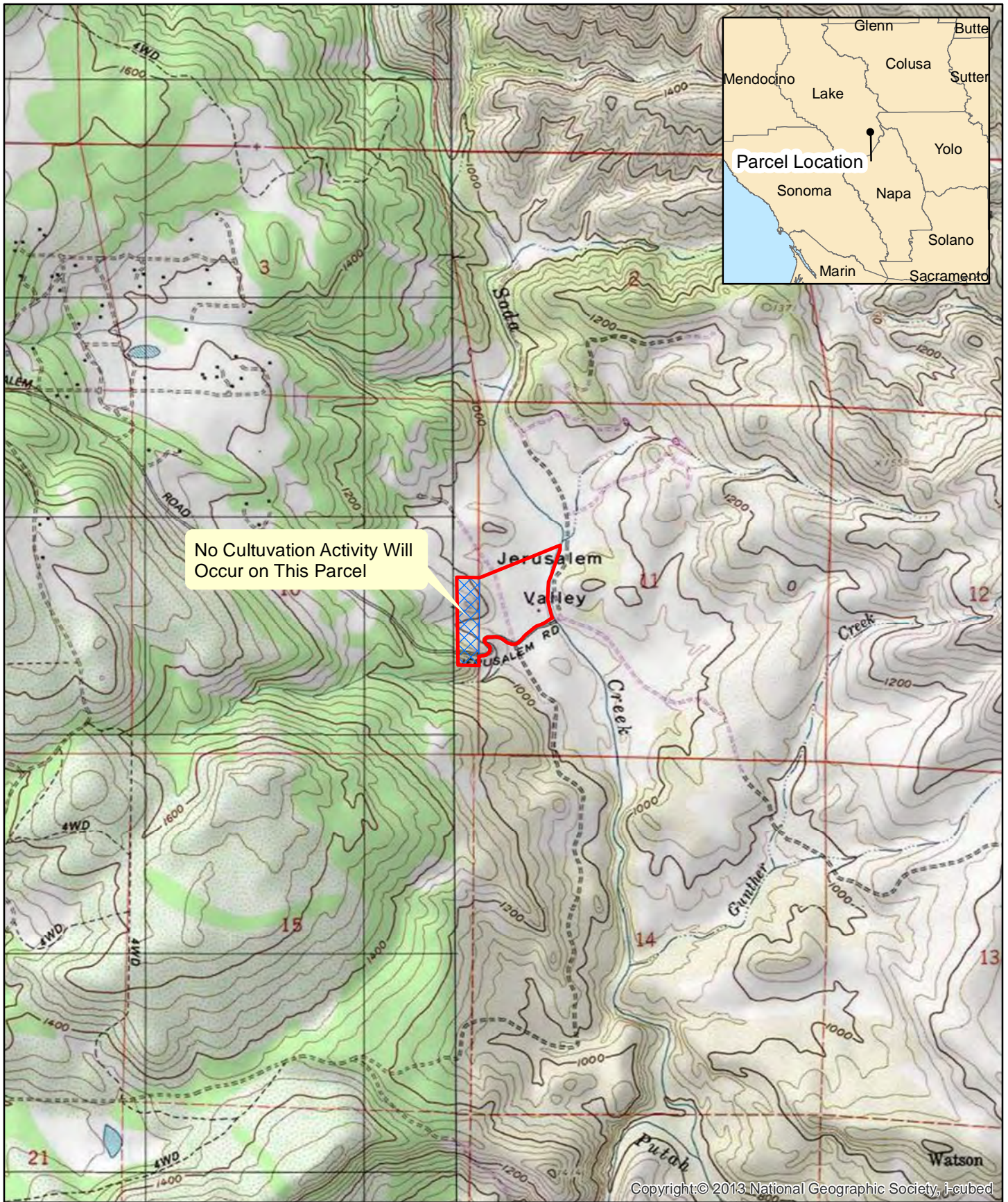
G.O. GRAENING, Ph.D., M.S.E.




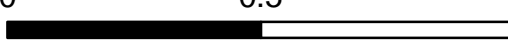
Dr. Graening holds a PhD in Biological Sciences and a Master of Science in Biological and Agricultural Engineering. Dr. Graening is an adjunct Professor at California State University at Sacramento, and is an active researcher in the area of conservation biology; his publication list is available online at <http://www.csus.edu/indiv/g/graeing/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.

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EXHIBITS

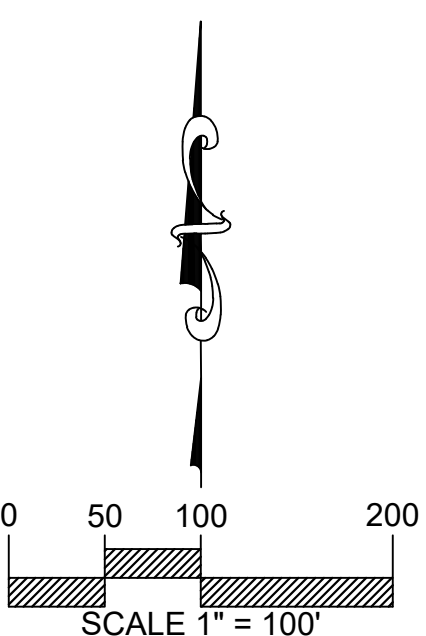


 Parcel location	0 0.5 1  Kilometers	 1:24,000	22066 Jerusalem Grade Rd Parcel Location Map  NATURAL INVESTIGATIONS COMPANY
	0 0.5 1  Miles		

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- KEYNOTES:**
- 1 EXISTING RESIDENCE, 65'Wx55'Lx16'H
 - 2 EXISTING BARN, 55'Wx55'Lx16'H
 - 3 EXISTING SEPTIC SYSTEM LOCATION
 - 4 COMMERCIAL CANNABIS PREMISES BOUNDARY FOR MEDIUM OUTDOOR LICENSE LICENSE# LCA20-001623 SEE SHEET 3.0 FOR PREMISES DETAILS
 - 4A ENTRANCE/EXIT TO COMMERCIAL CANNABIS PREMISES BOUNDARY FOR LICENSE# LCA20-001623
 - 5 COMMERCIAL CANNABIS PREMISES BOUNDARY SPECIALTY COTTAGE OUTDOOR LICENSE LICENSE# LCA20-001624 SEE SHEET 3.0 FOR PREMISES DETAILS
 - 5A ENTRANCE/EXIT TO COMMERCIAL CANNABIS PREMISES BOUNDARY FOR LICENSE# LCA20-001624
 - 6 COMMERCIAL CANNABIS PREMISES BOUNDARY SPECIALTY COTTAGE OUTDOOR LICENSE LICENSE# LCA20-001625 SEE SHEET 3.0 FOR PREMISES DETAILS
 - 6A ENTRANCE/EXIT TO COMMERCIAL CANNABIS PREMISES BOUNDARY FOR LICENSE# LCA20-001625
 - 7 COMMERCIAL CANNABIS PREMISES BOUNDARY SPECIALTY COTTAGE OUTDOOR LICENSE LICENSE# LCA20-001629 SEE SHEET 3.0 FOR PREMISES DETAILS
 - 7A ENTRANCE/EXIT TO COMMERCIAL CANNABIS PREMISES BOUNDARY FOR LICENSE# LCA20-001629
 - 8 SHARED PREMISES BOUNDARY SEE SHEET 3.0 FOR PREMISES DETAILS
 - 8A ENTRANCE/EXIT TO COMMERCIAL CANNABIS PREMISES BOUNDARY FOR ALL LICENSES



NOTES:

- PROPERTY LINES, EASEMENTS, AND TOPOGRAPHIC INFORMATION IS APPROXIMATE AND OBTAINED FROM PUBLICLY AVAILABLE INFORMATION. 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.
- FOR PARCEL BOUNDARIES, ADJACENT PARCEL BOUNDARIES, AND LOCATION MAP SEE SHEET 1.0.
- WATERCOURSE LINE TYPE THICKNESS TO DELINEATE THE TOP OF BANK.
- BASED ON PUBLICLY AVAILABLE DATA THERE ARE NO FAULT ZONES ON THE SUBJECT PROPERTY.
- 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 ONSITE SHALL COMPLY.
- 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.
- STRAW WATTLES SHALL BE PLACED AROUND CULTIVATION AREAS TO PREVENT STORMWATER RUNOFF.
- THE ENTIRE CULTIVATION SITE SHALL BE SEEDDED TO STABILIZE THE SOIL.
- 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:
22066 JERUSALEM GRADE
LOWER LAKE, CA 95457

APN: 013-013-39

CLIENT: TONY HERRERA

CONSULTANT: KYLE GEITNER, PRINCIPAL CONSULTANT

DATE: 4/16/2021 **DRAWN:** ANR

JOB #: 20-044 **SCALE:** AS SHOWN

REVISION: **CHECKED:** KJG

SHEET TITLE: PROPERTY DIAGRAM

SHEET: 2.0
2 OF 3

Parcel boundaries

Cannabis Production Area

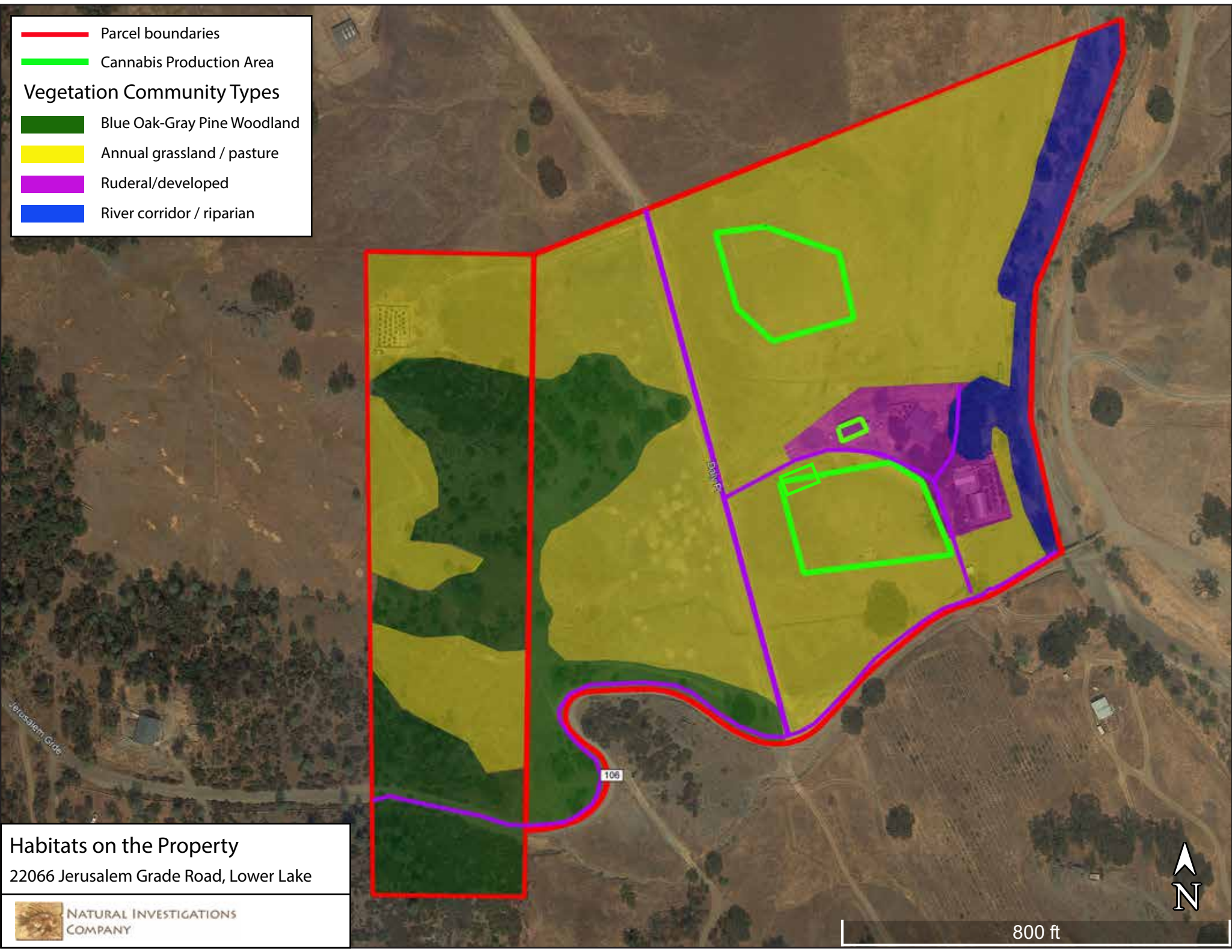
Vegetation Community Types

Blue Oak-Gray Pine Woodland

Annual grassland / pasture


Ruderal/developed

River corridor / riparian

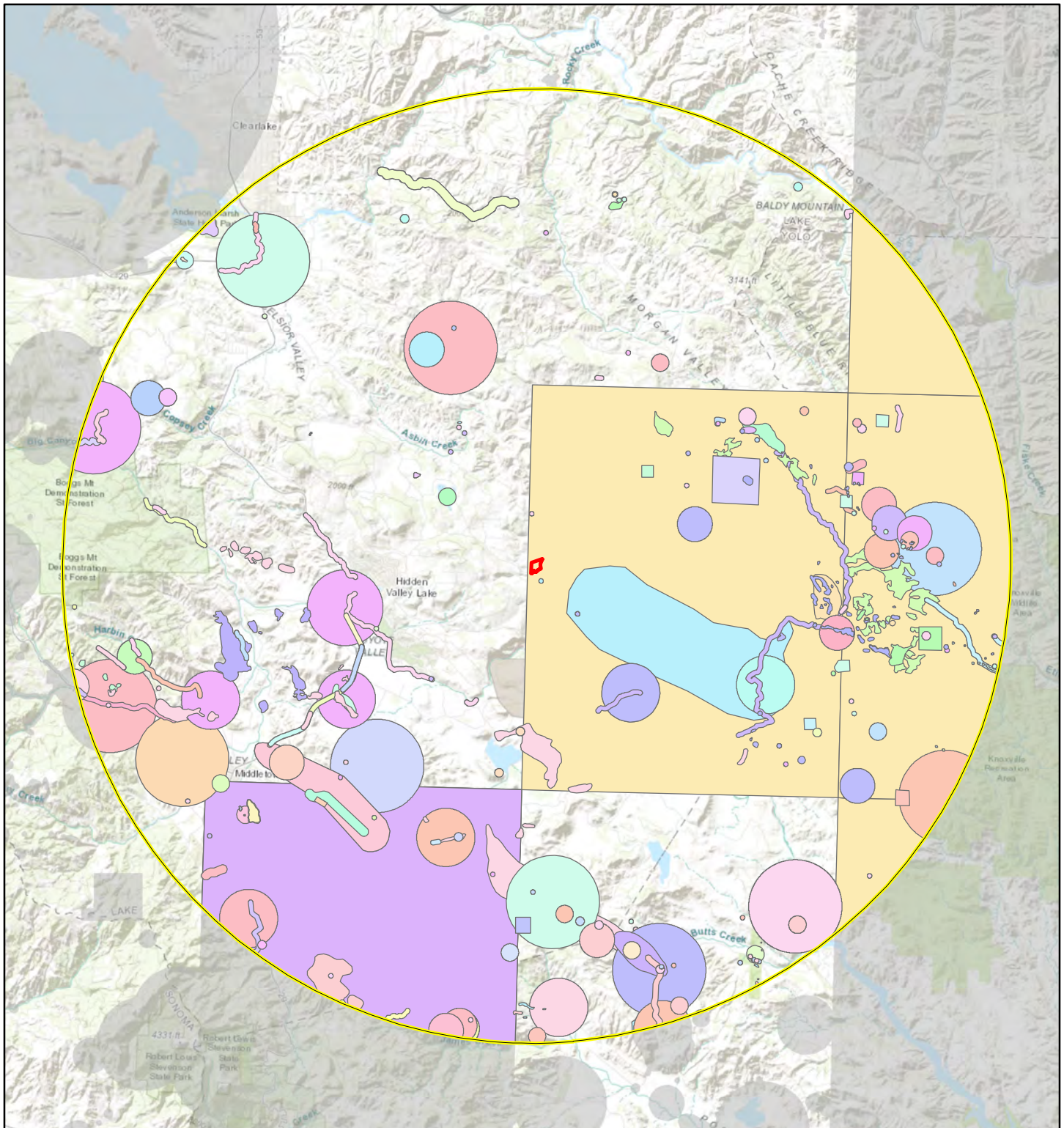


Habitats on the Property

22066 Jerusalem Grade Road, Lower Lake



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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. 2019. RareFind 5.x, California Natural Diversity Data Base. Biogeographic Data Branch, Sacramento, California. (updated monthly by subscription service)

Special-Status Species Occurrences Map

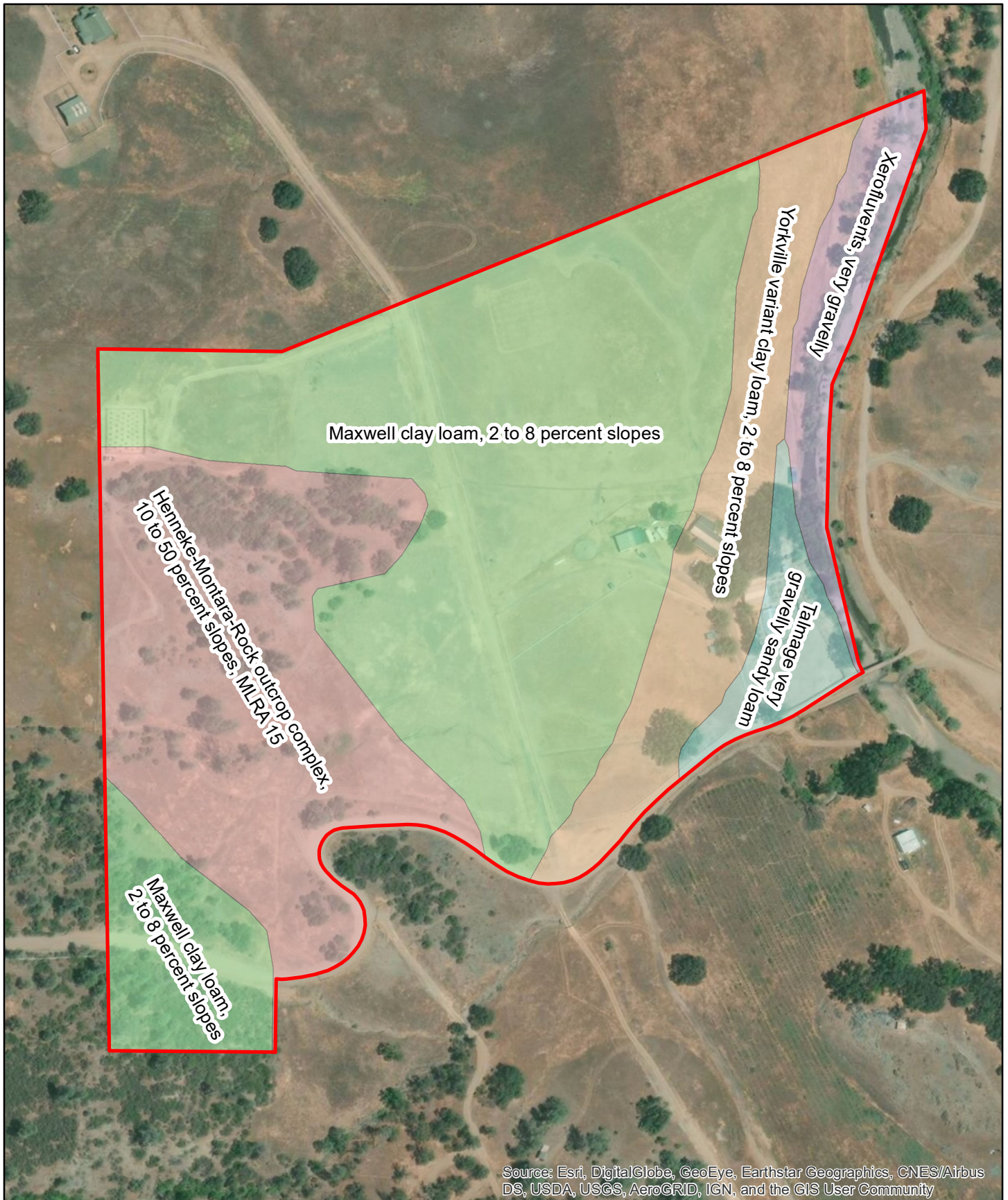
22066 Jerusalem Grade Rd

Jericho Valley 1958 Revised 1993 Quadrangle:
Township 11N, Range 6W, Section 11



NATURAL INVESTIGATIONS CO.

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Parcel location

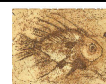
0 50 100
Meters

0 300 600
Feet



1:3,000

22066 Jerusalem Grade Rd
USDA Soil Unit Map



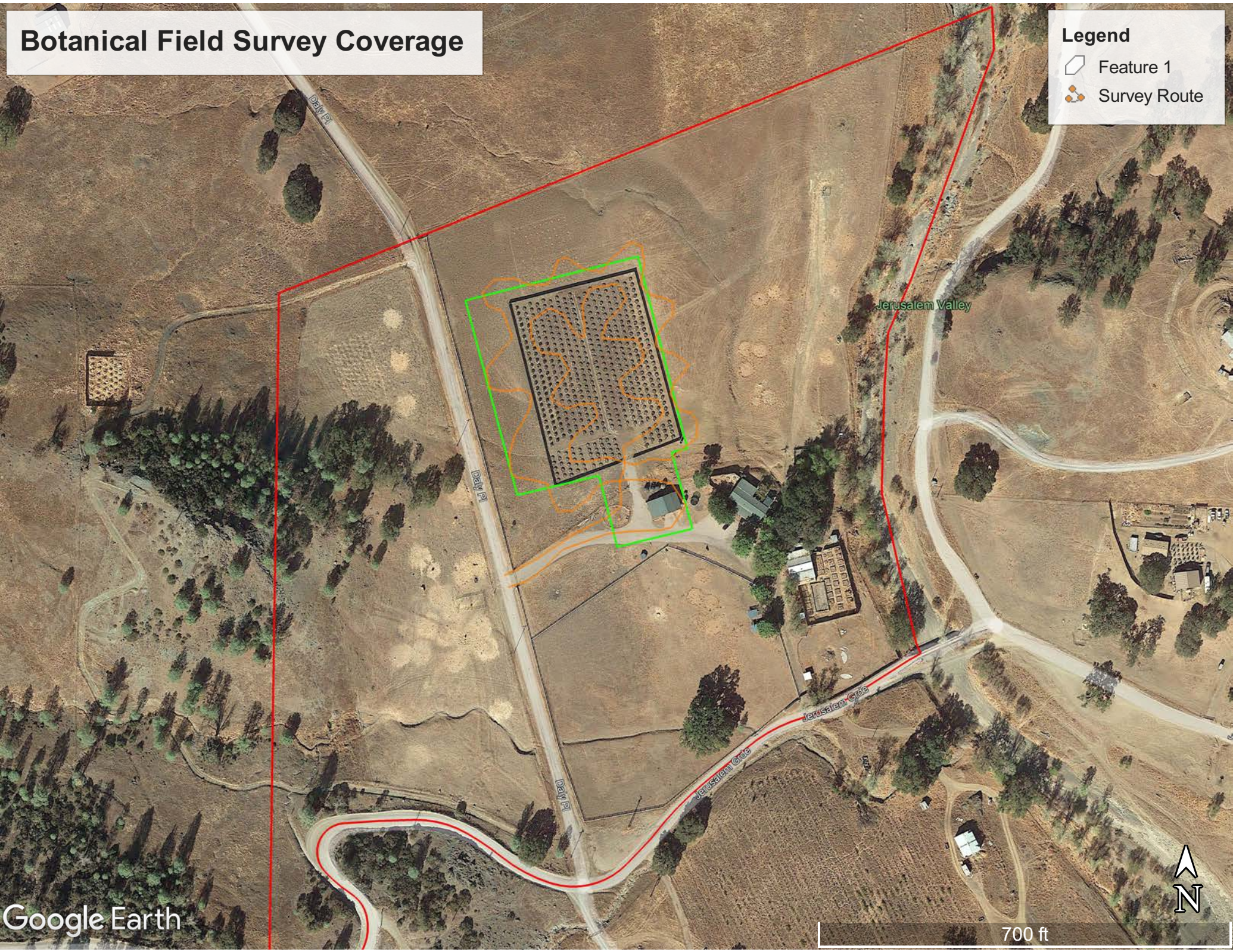
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Botanical Field Survey Coverage

Legend

Feature 1

Survey Route



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;

Appendix 2:

Plants Observed at 22066 Jerusalem Grade Road, Lower Lake, December 9, 2019

Common Name	Scientific Name
Gray pine mistletoe	<i>Arceuthobium occidentale</i>
Common manzanita	<i>Arctostaphylos manzanita ssp. manzanita</i>
California mugwort	<i>Artemisia douglasiana</i>
Milkweed	<i>Asclepias sp.</i>
Wild oat	<i>Avena fatua</i>
Coyote brush	<i>Baccharis pilularis</i>
Mule fat	<i>Baccharis salicifolia</i>
California bristlebush	<i>Brickellia californica</i>
Ripgut brome	<i>Bromus diandrus</i>
Soft chess	<i>Bromus hordeaceus</i>
Italian thistle	<i>Carduus pycnocephala</i>
Jepson's ceanothus	<i>Ceanothus jepsoni</i>
Yellow starthistle	<i>Centaurea solstitialis</i>
Western redbud	<i>Cercis occidentalis</i>
Dove weed	<i>Croton setiger</i>
Dodder	<i>Cuscuta sp.</i>
Hedgehog dogtail grass	<i>Cynosurus echinoides</i>
Medusahead grass	<i>Elymus caput-medusae</i>
Blue wildrye	<i>Elymus glaucus</i>
Canada horseweed	<i>Erigeron canadensis</i>
Italian ryegrass	<i>Festuca perennis</i>
Hayfield tarplant	<i>Hemizonia congesta ssp. luzulifolia</i>
Toyon	<i>Heteromeles arbutifolia</i>
Shortpod mustard	<i>Hirschfeldia incana</i>
Wand tarplant	<i>Holocarpha virgata</i>
rush	<i>Juncus sp.</i>
Osage orange	<i>Maclura pomifera</i>
Common madia	<i>Madia elegans</i>
White mulberry	<i>Morus alba</i>
Harding grass	<i>Phalaris aquatica</i>
Gray pine	<i>Pinus sabiniana</i>
Fremont cottonwood	<i>Populus fremontii</i>
Blue oak	<i>Quercus douglasii</i>
Valley oak	<i>Quercus lobata</i>
California rose	<i>Rosa californica</i>
Curly dock	<i>Rumex crispus</i>
Red willow	<i>Salix laevigata</i>
Smilo grass	<i>Stipa miliacea</i>
Poison-oak	<i>Toxicodendron diversilobum</i>
Broad-leafed cattail	<i>Typha latifolia</i>
Rough cocklebur	<i>Xanthium strumarium</i>

Plants Observed at 22066 Jerusalem Grade, Lower Lake on April 12, 2022

Common Name	Scientific Name
Blow wives	<i>Achyrachaena mollis</i>
Mountain dandelion	<i>Agoseris heterophylla</i>
Slender wild oat	<i>Avena barbata</i>
Wild oat	<i>Avena fatua</i>
Ripgut brome	<i>Bromus diandrus</i>
Soft chess	<i>Bromus hordeaceus</i>
Red brome	<i>Bromus rubens</i>
Red maids	<i>Calandrinia ciliata</i>
Valley tassels	<i>Castilleja attenuata</i>
Cream sacs	<i>Castilleja rubicundula</i> ssp. <i>lithospermoides</i>
Yellow star thistle	<i>Centaurea solstitialis</i>
Sticky mouse-eared chickweed	<i>Cerastium glomeratum</i>
Field bindweed	<i>Convolvulus arvensis</i>
Dodder	<i>Cuscuta</i> sp.
Tall willowherb	<i>Epilobium brachycarpum</i>
Reticulate seeded spurge	<i>Euphorbia spathulata</i>
Rattail sixweeks grass	<i>Festuca myuros</i>
Italian ryegrass	<i>Festuca perennis</i>
Fire evax	<i>Hesperevax acaulis</i>
Wand tarplant	<i>Holocarpha virgata</i>
Mediterranean barley	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>
Wall barley	<i>Hordeum murinum</i>
Smooth cat's-ear	<i>Hypochaeris glabra</i>
California goldfields	<i>Lasthenia californica</i>
Caley pea	<i>Lathyrus hirsutus</i>
Hawkbit	<i>Leontodon saxatilis</i>
Dwarf peppergrass	<i>Lepidium latipes</i>
Shining peppergrass	<i>Lepidium nitidum</i>
True babystars	<i>Leptosiphon bicolor</i>
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Miniature lupine	<i>Lupinus bicolor</i>
Chick lupine	<i>Lupinus microcarpus</i> var. <i>densiflorus</i>
Tarplant	<i>Madia</i> sp.
Common mallow	<i>Malva neglecta</i>
California burclover	<i>Medicago polymorpha</i>
Douglas silverpuffs	<i>Microseris douglasii</i>
Hood canary grass	<i>Phalaris paradoxa</i>
Popcornflower	<i>Plagiobothrys</i> sp.
Slender popcornflower	<i>Plagiobothrys tenellus</i>
Dwarf plantain	<i>Plantago erecta</i>
Annual bluegrass	<i>Poa annua</i>
Bulbous bluegrass	<i>Poa bulbosa</i>

Common Name	Scientific Name
Bluegrass	<i>Poa sp.</i>
Slender wooly marbles	<i>Psilocarphus tenellus</i>
Field buttercup	<i>Ranunculus arvensis</i>
Prickleseed buttercup	<i>Ranunculus muricatus</i>
Western buttercup	<i>Ranunculus occidentalis</i>
Jointed charlock	<i>Raphanus sativus</i>
Clustered dock	<i>Rumex conglomeratus</i>
Curly dock	<i>Rumex crispus</i>
Willow	<i>Salix sp.</i>
Old man of spring	<i>Senecio vulgare</i>
Tumble mustard	<i>Sisymbrium altissimum</i>
Sow thistle	<i>Sonchus oleraceus</i>
Red sandspurry	<i>Spergularia rubra</i>
Indian clover	<i>Trifolium albopurpureum</i>
Tree clover	<i>Trifolium ciliolatum</i>
Cowbag clover	<i>Trifolium depauperatum var. depauperatum</i>
Bull clover	<i>Trifolium fulcatum</i>
Rose clover	<i>Trifolium hirtum</i>
Thimble clover	<i>Trifolium microdon</i>
Butter and eggs	<i>Triphysaria eriantha</i>
Ithuriel's spear	<i>Triteleia laxa</i>
Stinging nettle	<i>Urtica urens</i>
Spring vetch	<i>Vicia sativa</i>
Winter vetch	<i>Vicia villosa</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), Serpentine (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, Serpentine (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	

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
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

**BOTANICAL SURVEY REPORT
FOR THE CANNABIS CULTIVATION OPERATION
AT 22066 JERUSALEM GRADE, LOWER LAKE, CALIFORNIA**

Date Prepared: June 6, 2022

Prepared by:

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NATURAL INVESTIGATIONS CO.

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1. PROJECT LOCATION AND DESCRIPTION

Property / Project Location: at 22066 Jerusalem Grade Road, Lower Lake, in Lake County, California. The property consists of two parcels: a 27.6-acre parcel (APN 013-013-39); and a 10.1-acre parcel (APN 013-012-29).

Brief project description: The Cannabis cultivation operational footprint is approximately 1.5 acres (the Project Area) and is located on APN 013-013-39. The site is minimally developed. The project area is flat and will not require grading or terracing. Vegetation clearing will be limited to mowing of non-native annual grassland that has been severely grazed (see exhibits). No new buildings or roads are planned at this time. The cultivation compound will have a 1-acre cannabis garden grown outdoors in a fenced garden compound approximately 1.25 acres in size.

An existing building/shed will be used for Cannabis processing, and will have an employee break room. The existing home will house up to two employees. The flush toilets within the home will be available to employees. Portable toilets will be rented as needed to support additional workers during peak work periods. Electricity for the home and shed is provided by the local electric utility. Diesel generators will provide back-up electricity. A propane tank (approximately 200 gallons) may be installed to provide fuel for heating the building/shed. Up to two shipping storage containers may be brought in if additional storage space is needed. Employees will use the existing driveway for parking and staging. Dirt access roads connect the cultivation operational areas. Existing facilities that will not be used for this operation include a greenhouse, barn as well as several outbuildings.

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):

The topography of the parcel is undulating, with low ridges and moderate slopes on the western edge, flattening out to the center and east. The elevation ranges from approximately 930 feet to 1,100 feet above mean sea level. Drainage flows south and east, exiting the property and eventually entering Soda Creek. Soda Creek is tributary to Putah Creek.

Land used of the Property and immediate vicinity: The parcel has operated as a small ranch and is currently grazed. The surrounding land use is largely open space, with a few rural residences, equestrian estates, and Cannabis gardens on nearby parcels.

Soils: The geology that underlays the site includes soils derived from serpentine and alluvium. No soils derived from volcanic materials are mapped within or adjacent to this parcel (NRCS 2019).

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., December 9, 2019, majority of day
- Tim Nosal, MS., April 12, 2022, half day
- Tim Nosal, MS., June 1, 2022, quarter 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 plus a buffer of 100 feet

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. 2019. Biological Resources Assessment for the Cannabis Cultivation Operation at 22066 Jerusalem Grade, Lower Lake, California.
- Natural Investigations Co. 2022. Botanical Survey Report for the Cannabis Cultivation Operation at 22066 Jerusalem Grade, Lower Lake, California

In 2019, Natural Investigations Company conducted an off-season botanical survey during the biological resources assessment. No special-status plant species were detected within the Project Area or the surrounding Property.

The 2022 botanical survey report had the following findings and conclusions: no special-status plant species were detected during the field surveys; the Project Area contains suitable habitat for some regionally-occurring special-status species; although two botanical field surveys have been performed, there has not been a floristic survey in the late floristic season. An additional botanical survey would be more comprehensive.

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.

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.

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 plant species occurrences within the Project Area or the surrounding Property. Within the vicinity of the Property, 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 surveys on December 9, 2019, April 12, 2022, and June 1, 2022 are listed in the Appendix. During the botanical field surveys, no special-status plant taxa were detected within the Project Area.

Deposition locations of voucher specimens: n/a

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

The Property contains the following terrestrial vegetation communities: ruderal/urbanized, annual grassland, oak-pine woodland, and riparian. These vegetation communities are discussed here and are delineated in the Exhibits. Aquatic vegetation communities are discussed in the section on jurisdictional waters.

Ruderal/Disturbed. These areas consist of disturbed or converted natural habitat that is now either in ruderal state, planted with cannabis, graded, or urbanized with gravel roads. Vegetation within this habitat type consists primarily of nonnative weedy or invasive species or ornamental plants 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.

Annual Grassland: The flatter topography of the parcel consists largely of heavily grazed annual grassland habitat. This vegetation is comprised largely of non-native grasses and native and non-native herbs including Medusa-head (*Elymus caput-medusae*), yellow star-thistle (*Centaurea solstitialis*), wand tarplant (*Holocarpha virgata*), and hayfield tarplant (*Hemizonia congesta* ssp. *luzulifolia*). This vegetation can be classified as the Holland Type “Non-native Grassland,” and “Annual grassland” habitat type by CDFW’s WHR.

Oak-Pine woodland. Found along the hills and slopes in the western portion of the Property is habitat dominated by oak and pine. The mixed oak/pine woodland consists of an open canopy of blue oak (*Quercus douglasii*) and gray pine (*Pinus sabiniana*) with a heavily grazed understory of shrubs (*Arctostaphylos*, *Ceanothus* and *Heteromeles*) and annual grasses (*Elymus*, *Bromus*, *Avena*, et al). This vegetation can be classified as “*Quercus douglasii* woodland alliance (Sawyer 2009)” or as the Holland Type “Blue Oak - Foothill Pine”.

Riparian: Riparian habitat can be found along the channel of Soda Creek, following the eastern edge of the Property. The riparian vegetation consists of a narrow canopy of Fremont cottonwood (*Populus fremontii*), red willow (*Salix laevigata*) and valley oak (*Quercus lobata*), and a shrub layer of mule fat (*Baccharis salicifolia*), California bricklebrush (*Brickellia californica*) and California rose (*Rosa californica*) with an understory of grasses and other herbs. The riparian forest can be classified as the Holland Type “Great Valley Mixed Riparian Forest” or as “*Populus fremontii* Forest Alliance” (Sawyer 2009).

During the botanical field surveys, no sensitive vegetation communities were detected within the Project 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. Field conditions, survey timing and weather patterns were sufficient for the observation of annual and perennial species which occupy the Study Area.

Did climatic conditions affect the botanical field survey results?

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

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

Surveys were conducted when plants were in peak spring and summer flowering stages. Numerous native plants were observed in flower.

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 three 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.

The project appears to be fully installed. General habitat of the land inside the growing compound is ruderal/disturbed although a lot of native plants were observed. The habitat outside of the compound is a heavily grazed annual grassland dominated by native herbs. No trees are in the footprint of this project.

The non-native grasslands and pasture within the Property have a low potential for harboring special-status plant species due to the dominance of aggressive non-native grasses and forbs. The river corridor of Soda Creek could sustain aquatic special-status species. There are regions of APN 013-012-29 that contain serpentine soils (see soils map Exhibit). Serpentine soils are suitable habitat for special-status plant species that are adapted to these soils. The Project Area is completely within pasture (non-native annual grassland) that is in a disturbed state from animal grazing. The potential for the Project Area to sustain special-status species is very low. 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.

5.2. Sensitive Natural Communities

The Property contains one terrestrial special-status habitat: riparian habitat along Soda Creek. The Project Area is set back more than 200 feet from Soda Creek. There is no evidence that project implementation will impact any special-status habitats or sensitive natural communities.

6. MITIGATION MEASURES / RECOMMENDATIONS

No special status plant species were observed within the Property. It is unlikely that special status plant species are present within the Project Area. Additional special status plant surveys are not deemed necessary. No sensitive natural communities will be adversely impacted by project implementation. No mitigation is necessary.

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 Lake County, including numerous biological and botanical surveys. Additional botanical expertise includes leading field trips exploring the botany of Northern California, co-authoring a fuel management plan for listed plant species on Pine Hill in El Dorado County and a Master's thesis on Stebbins's morning glory (*Calystegia stebbinsii*), an endangered plant of the Sierra Nevada foothills.

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.

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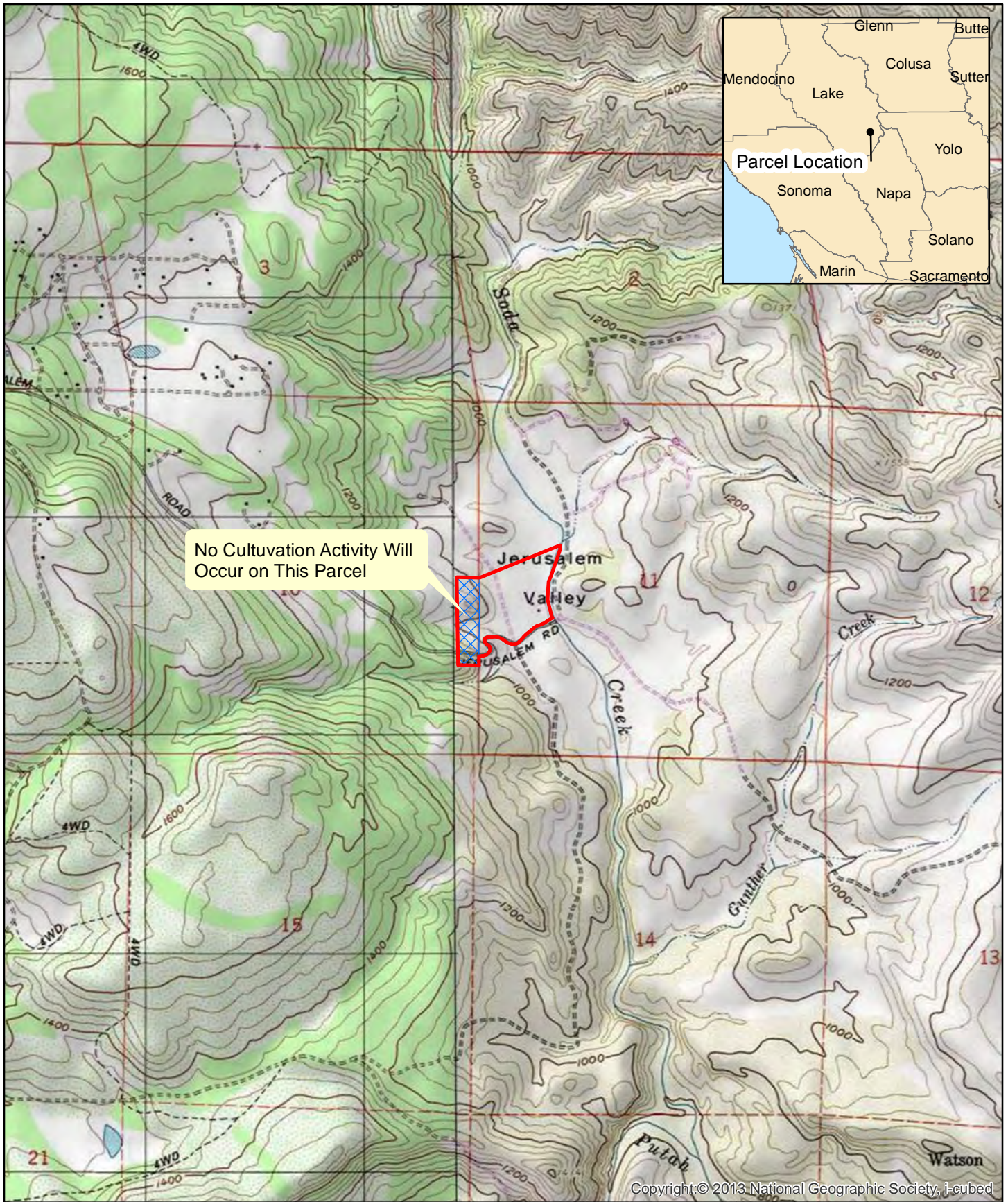
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EXHIBITS



Parcel location

0

0.5

1

Kilometers

0

0.5

1

Miles



1:24,000

22066 Jerusalem Grade Rd
Parcel Location Map



NATURAL
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Parcel boundaries

Cannabis Production Area

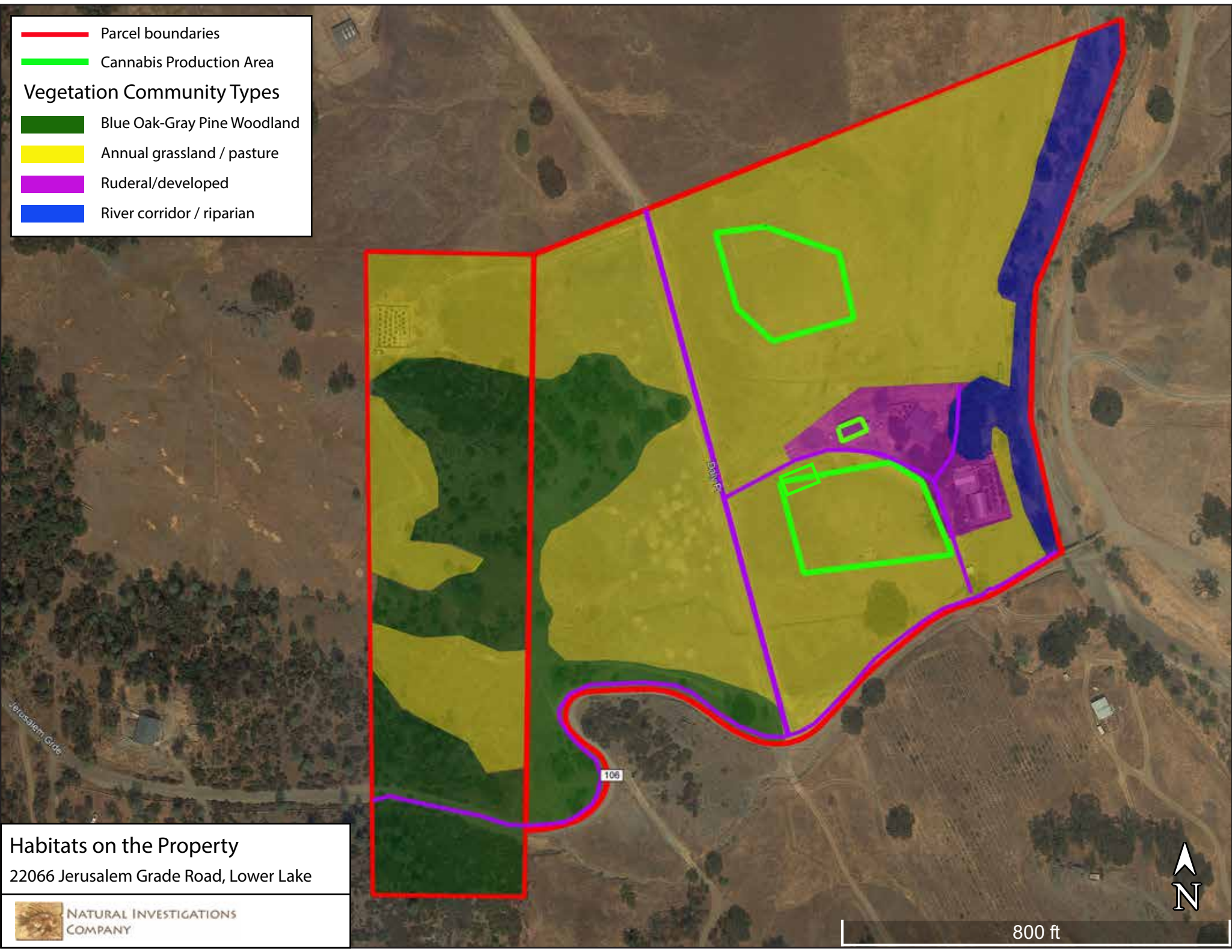
Vegetation Community Types

Blue Oak-Gray Pine Woodland

Annual grassland / pasture


Ruderal/developed

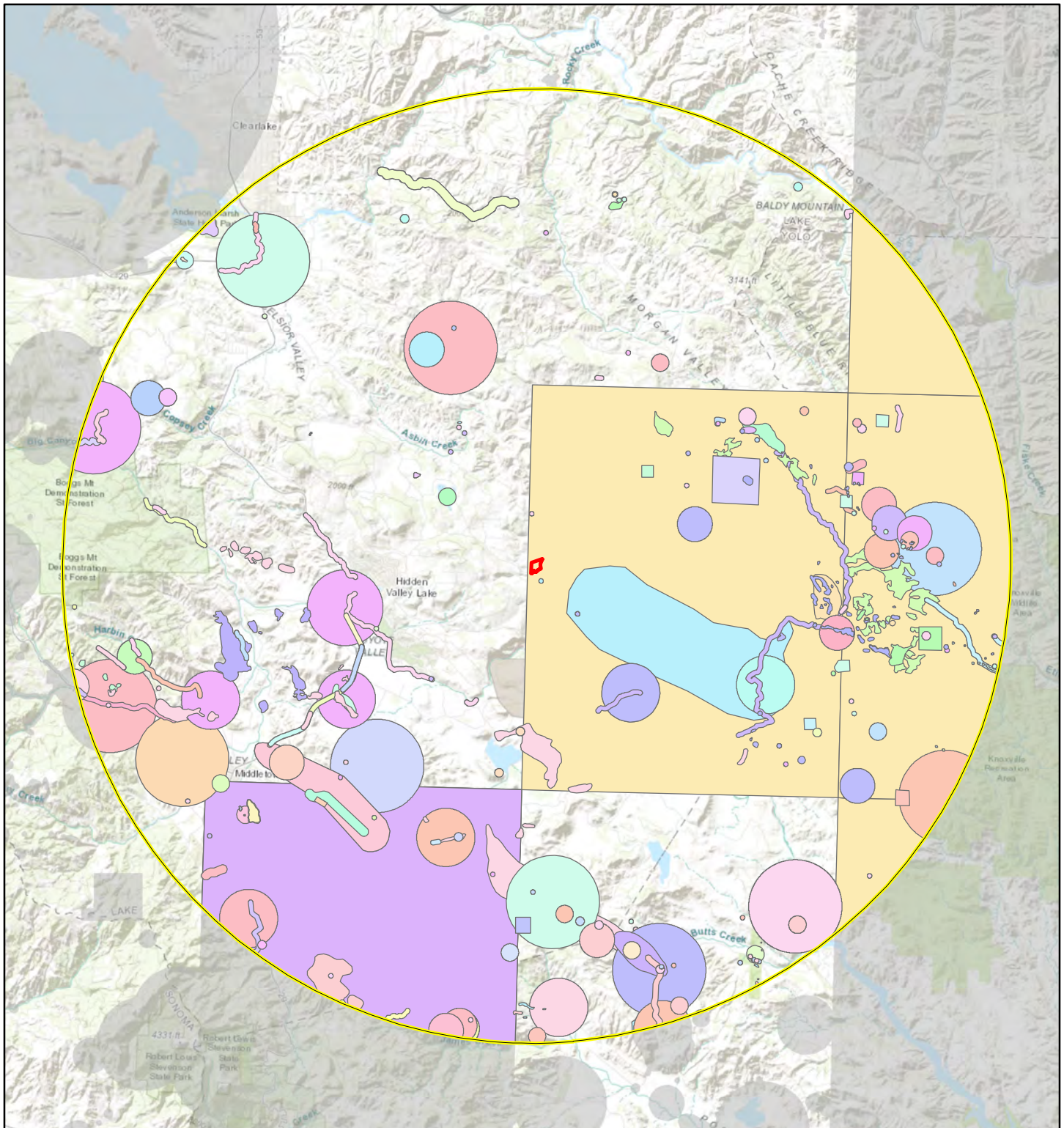
River corridor / riparian



Habitats on the Property

22066 Jerusalem Grade Road, Lower Lake

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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. 2019. RareFind 5.x, California Natural Diversity Data Base. Biogeographic Data Branch, Sacramento, California.
 (updated monthly by subscription service)

Special-Status Species Occurrences Map

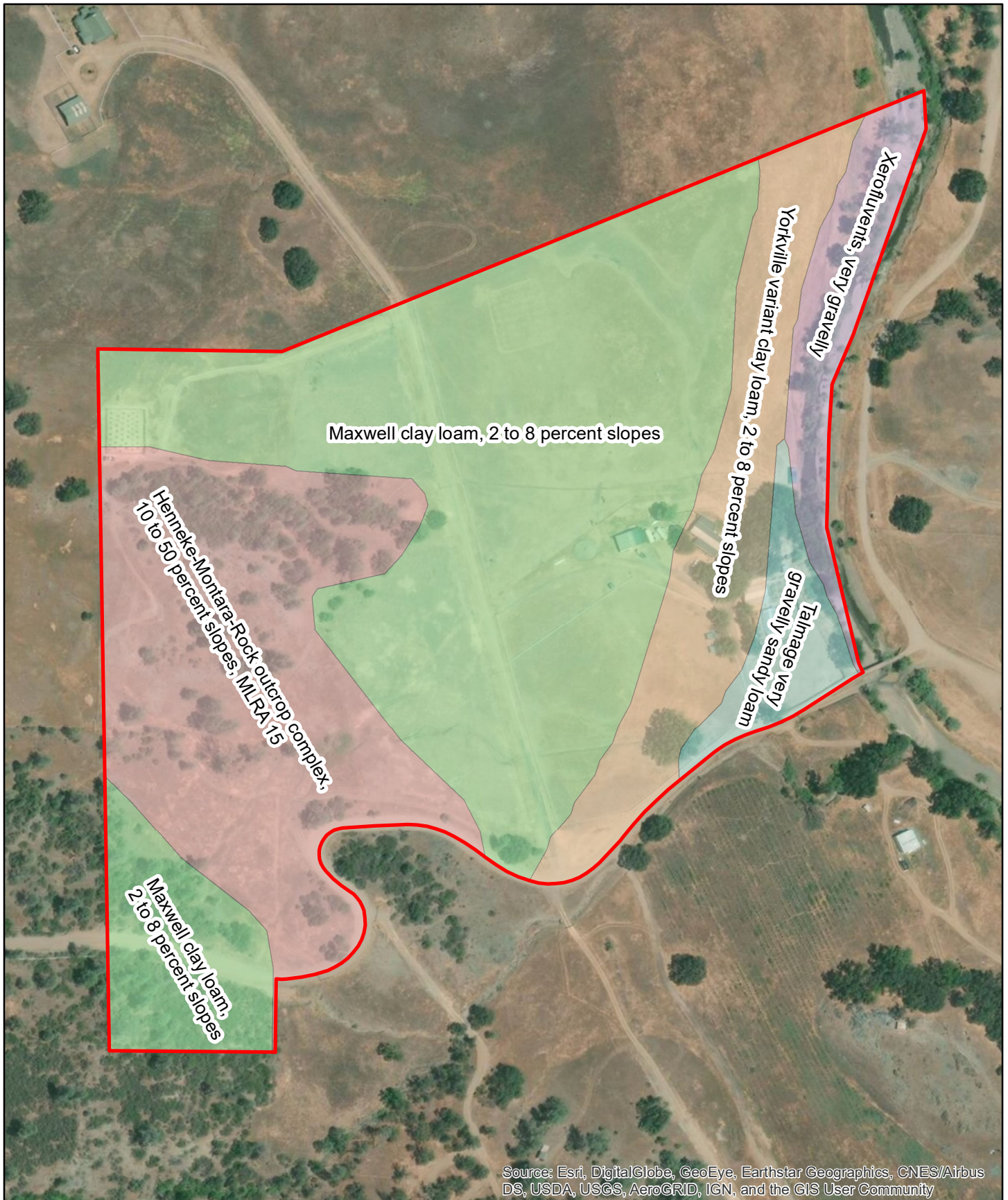
22066 Jerusalem Grade Rd

Jericho Valley 1958 Revised 1993 Quadrangle:
Township 11N, Range 6W, Section 11



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Parcel location

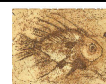
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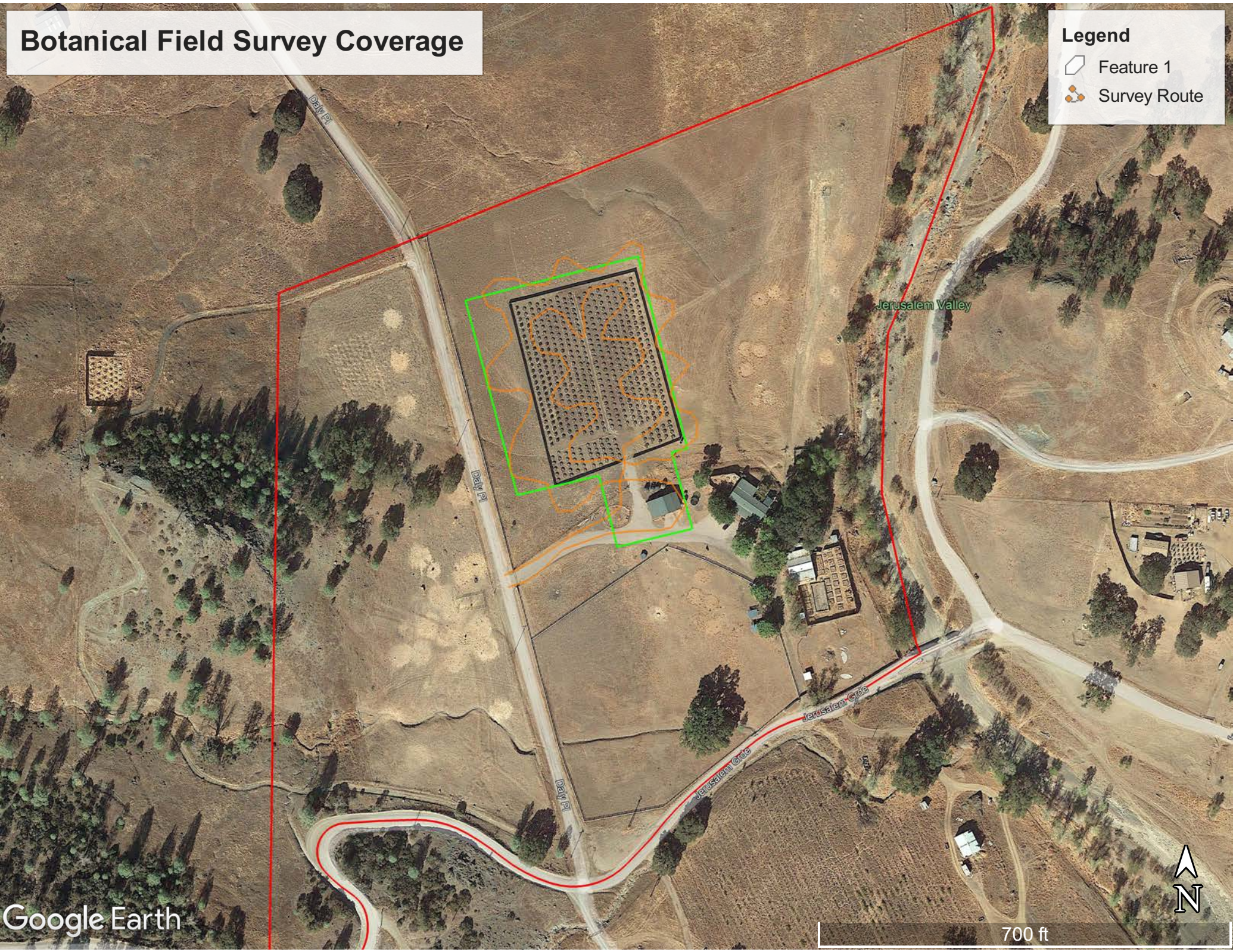
22066 Jerusalem Grade Rd
USDA Soil Unit Map



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Botanical Field Survey Coverage

- Legend**
- Feature 1
 - Survey Route



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 22066 Jerusalem Grade, Lower Lake
on December 9, 2019, April 12, 2022 and June 1, 2022

Common Name	Scientific Name
Blow wifes	<i>Achyrachaena mollis</i>
Mountain dandelion	<i>Agoseris heterophylla</i>
Gray pine mistletoe	<i>Arceuthobium occidentale</i>
Common manzanita	<i>Arctostaphylos manzanita ssp. manzanita</i>
California mugwort	<i>Artemisia douglasiana</i>
Indian milkweed	<i>Asclepias eriocarpa</i>
Slender wild oat	<i>Avena barbata</i>
Wild oat	<i>Avena fatua</i>
Coyote brush	<i>Baccharis pilularis</i>
Mule fat	<i>Baccharis salicifolia</i>
California bricklebush	<i>Brickellia californica</i>
Elegant brodiaea	<i>Brodiaea elegans</i>
Ripgut brome	<i>Bromus diandrus</i>
Soft chess	<i>Bromus hordeaceus</i>
Red brome	<i>Bromus rubens</i>
Red maids	<i>Calandrinia ciliata</i>
Italian thistle	<i>Carduus pycnocephala</i>
Valley tassels	<i>Castilleja attenuata</i>
Cream sacs	<i>Castilleja rubicundula ssp. lithospermoides</i>
Jepson's ceanothus	<i>Ceanothus jepsonii</i>
Yellow star thistle	<i>Centaurea solstitialis</i>
Sticky mouse-eared chickweed	<i>Cerastium glomeratum</i>
Western redbud	<i>Cercis occidentalis</i>
Lamb's quarters	<i>Chenopodium album</i>
Field bindweed	<i>Convolvulus arvensis</i>
Dove weed	<i>Croton setiger</i>
Dodder	<i>Cuscuta sp.</i>
Bermuda grass	<i>Cynodon dactylon</i>
Hedgehog dogtail grass	<i>Cynosurus echinoides</i>
Medusahead grass	<i>Elymus caput-medusae</i>
Blue wildrye	<i>Elymus glaucus</i>
Tall willowherb	<i>Epilobium brachycarpum</i>
Canada horseweed	<i>Erigeron canadensis</i>
Reticulate seeded spurge	<i>Euphorbia spathulata</i>
Rattail sixweeks grass	<i>Festuca myuros</i>
Italian ryegrass	<i>Festuca perennis</i>
Hayfield tarplant	<i>Hemizonia congesta ssp. luzulifolia</i>
Fire evax	<i>Hesperevax acaulis</i>
Toyon	<i>Heteromeles arbutifolia</i>
Shortpod mustard	<i>Hirschfeldia incana</i>

Common Name	Scientific Name
Wand tarplant	<i>Holocarpha virgata</i>
Mediterranean barley	<i>Hordeum marinum ssp. gussoneanum</i>
Wall barley	<i>Hordeum murinum</i>
Smooth cat's-ear	<i>Hypochaeris glabra</i>
rush	<i>Juncus sp.</i>
Prickly lettuce	<i>Lactuca serriola</i>
California goldfields	<i>Lasthenia californica</i>
Caley pea	<i>Lathyrus hirsutus</i>
Hawkbit	<i>Leontodon saxatilis</i>
Dwarf peppergrass	<i>Lepidium latipes</i>
Shining peppergrass	<i>Lepidium nitidum</i>
True babystars	<i>Leptosiphon bicolor</i>
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Miniature lupine	<i>Lupinus bicolor</i>
Chick lupine	<i>Lupinus microcarpus var. densiflorus</i>
Osage orange	<i>Maclura pomifera</i>
Common madia	<i>Madia elegans</i>
Tarplant	<i>Madia sp.</i>
Common mallow	<i>Malva neglecta</i>
California burclover	<i>Medicago polymorpha</i>
Douglas silverpuffs	<i>Microseris douglasii</i>
White mulberry	<i>Morus alba</i>
Downy pincushion plant	<i>Navarretia pubescens</i>
Harding grass	<i>Phalaris aquatica</i>
Hood canary grass	<i>Phalaris paradoxa</i>
Timothy grass	<i>Phleum pratense</i>
Gray pine	<i>Pinus sabiniana</i>
Popcornflower	<i>Plagiobothrys sp.</i>
Slender popcornflower	<i>Plagiobothrys tenellus</i>
Dwarf plantain	<i>Plantago erecta</i>
English plantain	<i>Plantago lanceolata</i>
Annual bluegrass	<i>Poa annua</i>
Bulbous bluegrass	<i>Poa bulbosa</i>
Bluegrass	<i>Poa sp.</i>
Knot grass	<i>Polygonum arenastrum</i>
Fremont cottonwood	<i>Populus fremontii</i>
Slender wooly marbles	<i>Psilocarphus tenellus</i>
Blue oak	<i>Quercus douglasii</i>
Valley oak	<i>Quercus lobata</i>
Field buttercup	<i>Ranunculus arvensis</i>
Prickleseed buttercup	<i>Ranunculus muricatus</i>
Western buttercup	<i>Ranunculus occidentalis</i>
Jointed charlock	<i>Raphanus sativus</i>
Dyer's mignonette	<i>Reseda luteola</i>

Common Name	Scientific Name
California rose	<i>Rosa californica</i>
Clustered dock	<i>Rumex conglomeratus</i>
Curly dock	<i>Rumex crispus</i>
Red willow	<i>Salix laevigata</i>
Willow	<i>Salix sp.</i>
Old man of spring	<i>Senecio vulgare</i>
Fringed checkermallow	<i>Sidalcea diploscypha</i>
Tumble mustard	<i>Sisymbrium altissimum</i>
Sow thistle	<i>Sonchus oleraceus</i>
Red sandspurry	<i>Spergularia rubra</i>
Smilo grass	<i>Stipa miliacea</i>
Poison-oak	<i>Toxicodendron diversilobum</i>
Indian clover	<i>Trifolium albopurpureum</i>
Tree clover	<i>Trifolium ciliolatum</i>
Cowbag clover	<i>Trifolium depauperatum</i> var. <i>depauperatum</i>
Bull clover	<i>Trifolium fucatum</i>
Rose clover	<i>Trifolium hirtum</i>
Thimble clover	<i>Trifolium microdon</i>
Butter and eggs	<i>Triphysaria eriantha</i>
Ithuriel's spear	<i>Triteleia laxa</i>
Wheat	<i>Triticum aestivum</i>
Broad-leafed cattail	<i>Typha latifolia</i>
Stinging nettle	<i>Urtica urens</i>
Spring vetch	<i>Vicia sativa</i>
Winter vetch	<i>Vicia villosa</i>
Rough cocklebur	<i>Xanthium strumarium</i>
Muehlenberg's centaury	<i>Zeltnera muehlenbergii</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	

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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	

Common name Scientific name	Status	Blooming Period	Habitat	Micro-habitat
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