BIOLOGICAL SITE ASSESSMENT FOR THE CANNABIS CULTIVATION OPERATION AT 19697 EAST ROAD, LOWER LAKE, CALIFORNIA

July 23, 2019

Applicant:

Mighty Tasting Farms, LLC

Prepared for:

Regional Water Quality Control Board

Prepared by:

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

NATURAL INVESTIGATIONS CO.
WWW.NATURALINVESTIGATIONS.COM

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1. INTRODUCTION

1.1. PROJECT LOCATION AND DESCRIPTION

Natural Investigations Company conducted a biological site assessment for a cannabis cultivation operation at 19697 East Road, Lower Lake, in Lake County, California. The cultivation operation will be established on a 77-acre property comprised of three parcels recently subdivided from two parcels: APN 012-049-07, 38.6 acres; and APN 012-049-10, 38.4 acres. For the purposes of this biological assessment, the entire 77-acre property was the Study Area. The property is accessed by a private graveled road off of East Road, which runs through the property (see exhibits).

The Project Area is approximately 1.5 acres in size and consists of a 1-acre outdoor Cannabis cultivation compound and a 0.5 acre greenhouse compound which will contain 3 greenhouses, each 30 feet by 108 feet (see exhibits). The Project Area was previously graded and cleared of vegetation for a vineyard cultivation operation. A new agricultural well will be drilled. Ancillary facilities consist of existing outbuildings (barn, shed, Conex boxes) for material storage and product processing.

1.2. PURPOSE AND SCOPE OF ASSESSMENT

This Biological Resources Assessment was prepared to assist the Applicant in obtaining enrollment (a Notice of Applicability) in the State Water Resources Control Board's Order WQ 2017-0023-DWQ General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities (General Order). The Applicant's Notice of Receipt required technical reports, including a Biological Resources Assessment. The Water Board has not issued specific guidelines for the preparation of these assessments, so the guidelines for preparing assessments for California Environmental Quality Act compliance were used. The General Order does give these general guidelines:

> "*Prior to commencing any cannabis land development or site expansion activities the cannabis cultivator shall secure a qualified biologist. The cannabis cultivator and the Qualified Biologist shall consult with CDFW and CAL FIRE and designate and mark a no-disturbance buffer to protect identified sensitive plant and wildlife species and communities*." (Section 1, Number 8 of the General Order)
>
> "*Qualified Biologist – an individual who possesses, at a minimum, a bachelor's or advanced degree, from an accredited university, with a major in biology, zoology, wildlife biology, natural resources science, or a closely related scientific discipline, at least two years of field experience in the biology and natural history of local plant, fish, and wildlife resources present at the Cannabis Cultivation Site, and knowledge of state and federal laws regarding the protection of sensitive and endangered species*." (Glossary of the General Order)

In support of this permit enrollment application and general compliance California Environmental Quality Act, Natural Investigations Co. has prepared this assessment to provide 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 Biological Site 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 historic 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 2017-0023-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

For Lake County, no relevant county or municipal tree ordinances were identified that would protect non-commercial tree species such as native oaks (*Quercus* spp.).

In areas outside timberland, pursuant to Public Resource Code section 4526, no tree removal for the purposes of facilitating cannabis production, including solar exposure increases, is allowed within 150 feet of fish bearing water bodies or 100 feet of aquatic habitat for non-fish aquatic species (i.e. aquatic insects). 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.

2. ENVIRONMENTAL SETTING

The Study Area is located within the Inner North Coast Ranges 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

between climate Zones 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 Study Area consists of a sight depression within a flattened hilltop in the southern half, transitioning to sloping ridges and ravines in the northern half. The elevation ranges from approximately 1,500 feet to 1,845 feet above mean sea level. The northern portion of the Study Area drains north into Asbill Creek thence Soda Creek and Putah Creek, eventually flowing into Lake Berryessa. The southern portion of the Study Area drains to the Stienhart Lakes, which are closed, isolated basins.

Prior to the establishment of this cultivation operation, land uses were a private estate with a cannabis garden and open space. The surrounding land uses are private estates with cannabis gardens or corrals, open space, and grazing land.

The Natural Resources Conservation Service (NRCS) has identified several soil types within the Study Area. The geology that underlays the site consists of soils derived from sedimentary rocks, basalt and andesite. No soils derived from serpentine 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 (CNDDB), electronically updated monthly by subscription
- USFWS species list (IPaC Trust Resources Report).

3.2. FIELD SURVEY

Consulting biologist Dr. Geo Graening conducted a reconnaissance-level field survey on July 9, 2019. Weather conditions were hot and sunny. A variable-intensity pedestrian survey was performed, and modified to account for differences in terrain, vegetation density, and visibility. All visible fauna and flora observed were recorded in a field notebook, and identified to the lowest possible taxon. Survey efforts emphasized the search for any special-status species that had documented occurrences in the CNDDB 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. Plant specimens difficult to identify were sent to botanist Margriet Wetherwax (U.C. Berkeley Jepson Herbarium). Dr. Graening holds the following scientific collection permits: CDFW Scientific Collecting Permit No. SC-006802; and CDFW Plant Voucher Specimen Permit 09004. 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 recorded on color aerial photographs, and then 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 et al, 2009). 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. Few animals were active during this hot period, but the following animals were detected within the Study Area during the field survey: Butterflies and moths (Lepidoptera); bumble bee (*Bombus*); honey bee (*Apis*); ladybird beetle (Coccinellidae); bullfrog (*Lithobates catesbeianus*); Pacific chorus frog (*Pseudacris regilla*); black-tailed jackrabbit (*Lepus californicus*); dog (*Canis lupis familiaris*); western pocket gopher (*Thomomys mazama*); Columbian black-tailed deer (*Odocoileus hemionus columbianus*); coyote (scat) (*Canis latrans*); raccoon (prints) (*Procyon lotor*); ground squirrel (*Otospermophilus beecheyi*); mourning dove (*Zenaida macroura*); scrub jay (*Aphelocoma californica*); woodpecker (*Melanerpes formacivorus*); brewer's blackbird (*Euphagus cyanocephalus*); great blue heron (*Ardea herodias*).

4.2. VEGETATION COMMUNITIES AND WILDLIFE HABITAT TYPES

4.2.1. Terrestrial Vegetation Communities

The Study Area contains the following terrestrial vegetation communities: ruderal/developed, annual grassland, chaparral, mixed oak/conifer woodland, mixed oak/conifer forest and marsh/wet meadow. These vegetation communities are discussed here and are delineated in the Exhibits. Aquatic vegetation communities are discussed in more detail in the section on jurisdictional waters.

Ruderal/Disturbed. These areas consist of disturbed or converted natural habitat that is now either in ruderal state, graded, or urbanized with gravel roads, or structure and utility placement. Vegetation within this habitat type consists primarily of nonnative weedy or invasive species or ornamental plants lacking a consistent community structure. This habitat is classified as Holland vegetation type – "Urban – 11100". 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 California Annual Grassland Series (Sawyer et al, 2009) consists of open fields of non-native annual grasses and forbs. These annual grasslands have replaced native habitats of perennial bunchgrasses or foothill chaparral. Mowing or grazing disturbances, rather than periodic wildfires, typically keep this plant community from undergoing successional changes to woodland or back to perennial grassland. Annual species are dominant in the grassland, including bromes (*Bromus spp.*), yellow star-thistle (*Centaurea solstitialis*), wild oats (*Avena sp.*), clover (*Trifolium* spp.), spreading hedgeparsley (*Torilis arvensis*) and other common grasses and forbs. This type of grassland can be classified as "42.026.00 Bromus (diandrus, hordeaceous) – Brachypodium distachyon Herbaceous Semi-Natural Alliance" or as the Holland Type "Non-native grassland".

Chaparral. Two regions of vegetation within the Study Area are dominated by drought-tolerant evergreen shrubs. The chaparral vegetation type typical forms a near-continuous canopy of shrubs with sparse herbaceous cover and occasional trees. The chaparral community within the Study Area consists of common manzanita (*Arctostaphylos manzanita* ssp*. manzanita*), buck brush (*Ceanothus cuneatus*), deerbrush (*Ceanothus integerrimus*), chamise (*Adenostoma fasciculatum*), yerba santa (*Eriodictyon californicum*) and poison oak (*Toxicodendron diversilobum*) with scattered gray pine (*Pinus sabiniana*). This type of chaparral can be classified as "37.323.00 Arctostaphylos (*canescens, manzanita, stanfordiana*) Shrubland Alliance (Sawyer et al, 2009)" or as the Holland Type "Northern mixed chaparral".

Mixed oak/conifer woodland. The mixed oak/pine woodland consists of an open canopy of blue oak (*Quercus douglasii*), gray pine (*Pinus sabiniana*), interior live oak (*Quercus wislizeni*) and canyon live

oak (*Quercus chrysolepis*) with an understory of annual grasses (*Bromus* spp., *Avena*, et al) and herbs and occasional common manzanita (*Arctostaphylos manzanita ssp. manzanita*). The mixed oak/pine woodland is found throughout the Study Area. This vegetation can be classified as "71.020.00 Quercus douglasii woodland alliance (Sawyer et al, 2009)" or as the Holland Type "Blue oak - foothill pine".

Mixed oak/conifer forest. The mixed oak/pine forest consists of a dense, nearly continuous canopy of oak (*Quercus chrysolepis, Q. douglasii, Q. garryana, Q. kelloggii, and Q. wislizeni).*) and pine (*Pinus ponderosa and P. sabiniana*) with an understory of common manzanita, deerbrush, poison oak, annual grasses and herbs. The mixed oak/pine forest is found in the northern half of the Study Area. This vegetation can be classified as "71.100.00 *Quercus* (*agrifolia, douglasii, garryana, kelloggii, lobata, wislizeni*) Forest Alliance (Sawyer et al, 2009)" or as the Holland Type "Oak Forest".

Marsh/wet meadow. A large seasonal marsh is located along the southern boundary of the Study Area. This feature appears to fill with winter rains and dry out by late spring. Plants identified within this marsh include pale spikerush (*Eleocharis macrostachya*), coyote thistle (*Eryngium castrense*), fringed water plantain (*Damasonium californicum*) and two-horned downingia (*Downingia bicornuta*). The CNDDB indicates that this feature is a "large vernal lake with *Limnanthes douglasii*, *Lasthenia glaberrima*, and *Allocarya stipitata micrantha*." Four special status plants have been reported from this wetland: legenere (*Legenere limosa*), Bogg's lake hedge hyssop (*Gratiola hetersepala*), slender Orcutt grass (*Orcuttia tenuis*) and many-flowered navarretia (*Navarretia leucocephala ssp. plieantha*). This vegetation can be classified as "45.230.00 *Eleocharis macrostachya* Herbaceous Alliance (Sawyer et al, 2009) or as the Holland Type "northern basalt flow vernal pool".

4.2.2. Wildlife Habitat Types

The six habitat types found within the Study Area are classified as "Urban" or "Barren", "Annual Grassland", "Blue Oak-Foothill Pine", "Chamise-Redshank Chaparral" and "Fresh Emergent Wetland" wildlife habitat types by CDFW's Wildlife Habitat Relationship System (WHR).

4.2.3. Critical Habitat and Special-status Habitat

One critical habitat for a federally-listed species occurs within the Study Area: slender Orcutt grass (*Orcuttia tenuis*). One special-status habitat was detected within the Study Area: vernal pool. The CNDDB reported one special-status habitats within the Study Area: vernal pool. The CNDDB reported 8 special-status habitats in a 10-mile radius outside of the Study Area: Central Valley drainage rainbow trout/cyprinid stream, Clear Lake drainage resident trout stream, coastal and valley freshwater marsh, northern basalt flow vernal pool, northern interior cypress forest, northern vernal pool, northern volcanic ash vernal pool, and serpentine bunchgrass.

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 specific wildlife corridors exist within or near the Study Area, but the ample open space allows for ample animal movement. No fishery resources exist in or near the Study Area. The Study Area is not located within any known adopted Habitat Conservation Plan or Natural Community Conservation Plan.

4.3. 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. Historical Special-status Species' Occurrences

A list of special-status plant and animal species that historically 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 CNDDB.

The CNDDB 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 CNDDB reported 4 special-status species occurrences within the Study Area; legenere (*Legenere limosa*), Bogg's lake hedge hyssop (*Gratiola heterosepala*), slender Orcutt grass (*Orcuttia tenuis*) and many flowered navarretia (*Navarretia leucocephala* ssp*. plieantha*).

Within a 10-mile buffer of the Study Area boundary, the CNDDB reported several special-status species occurrences, summarized in the following table. 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
  - Northern Spotted Owl (*Strix occidentalis caurina*) Threatened
- Amphibians
  - California Red-legged Frog (*Rana draytonii*) Threatened
- Fishes
  - Delta Smelt (*Hypomesus transpacificus*) Threatened
- Crustaceans
  - Conservancy fairy shrimp (*Branchinecta conservatio*) Endangered
- Flowering Plants
  - Burke's Goldfields (*Lasthenia burkei*) Endangered
  - Lake County stonecrop (*Parvisedum leiocarpum*) Endangered
  - Many-flowered Navarretia (*Navarretia leucocephala ssp. plieantha)* Endangered
  - 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 *Taricha rivularis*	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.
California giant salamander *Dicamptodon ensatus*	CSSC	Mendocino and Lake Counties south to Santa Cruz and Santa Clara Counties.	Wet coastal forests in or near clear, cold permanent and semi-permanent streams and seepages.
Foothill yellow-legged frog *Rana boylii*	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 *Haliaeetus leucocephalus*	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 *Aquila chrysaetos*	CFP/CWL	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 *Falco peregrinus anatum*	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 *Falco mexicanus*	CWL	Inhabits dry, open terrain, either level or hilly.	Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT/CE	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems.	Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.
Purple martin *Progne subis*	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/snag.
Tricolored blackbird *Agelaius tricolor*	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 *Lavinia exilicauda chi*	CT	Found only in Clear Lake, Lake Co, and associated ponds. Spawns in streams flowing into clear lake.	Adults found in the limnetic zone. Juveniles found in the nearshore shallow-water habitat hiding in the vegetation.
Sacramento perch *Archoplites interruptus*	CSSC	Historically found in the sloughs, slow-moving rivers, and lakes of the Central Valley.	Prefers warm water. Aquatic vegetation is essental for young. Tolerates wide range of physio-chemical water conditions.
Long-eared myotis *Myotis evotis*	CSSC	Found in all brush, woodland & forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands & forests.	Nursery colonies in buildings, crevices, spaces under bark, & snags. Caves used primarily as night roosts.
Fringed myotis *Myotis thysanodes*	CSSC	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood & hardwood-conifer.	Uses caves, mines, buildings or crevices for maternity colonies and roosts.
Silver-haired bat *Lasionycteris noctivagans*	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 *Lasiurus cinereus*	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.
Western red bat *Lasiurus blossevillii*	CSSC	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests.	Prefers habitat edges & mosaics with trees that are protected from above & open below with open areas for foraging.
Townsend's big-eared bat *Corynorhinus townsendii*	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.

Common Name *Scientific Name*	Status	General Habitat	Microhabitat
Pallid bat *Antrozous pallidus*	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 *Emys marmorata*	CSSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches, usually with aquatic vegetation.	Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-layin
Brownish dubiraphian riffle beetle *Dubiraphia brunnescens*	CSSC	Aquatic; known only from the ne shore of Clear Lake, Lake County.	Inhabits exposed, wave-washed willow roots.
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	CSSC	Aquatic.	
Wilbur Springs shorebug *Saldula usingeri*	CSSC	Requires springs/creeks with high concentrations of Na, Cl, & Li.	Found only on wet substrate of spring outflows.
Western bumble bee *Bombus occidentalis*	CSSC	Once common & widespread, species has declined precipitously from Central CA to southern B.C., perhaps from disease.	
Clear Lake pyrg *Pyrgulopsis ventricosa*	CSSC	Restricted to Seigler Creek drainage in the south end of the Clear Lake Basin.	Freshwater.
Toren's grimmia *Grimmia torenii*	CNPS 1B.3	Cismontane woodland, lower montane coniferous forest, chaparral.	Openings, rocky, boulder and rock walls, carbonate, volcanic. 325-1160 m.
Elongate copper moss *Mielichhoferia elongata*	CNPS 4.3	Cismontane woodland. Commonly called "copper mosses".	Moss growing on very acidic, metamorphic rock or substrate; usually in higher portions in fens. Often on substrates natu
Loch Lomond button-celery *Eryngium constancei*	FE/CE/CNPS 1B.1	Vernal pools.	Volcanic ash flow vernal pools. 460-855 m.
Big-scale balsamroot *Balsamorhiza macrolepis*	CNPS 1B.2	Chaparral, valley and foothill grassland, cismontane woodland.	Sometimes on serpentine. 90-1555 m.
Greene's narrow-leaved daisy *Erigeron greenei*	CNPS 1B.2	Chaparral.	Serpentine and volcanic substrates, generally in shrubby vegetation. 80-1005 m.
Congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	CNPS 1B.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/CNPS 1B.1	Vernal pools, meadows and seeps.	Most often in vernal pools and swales. 15-600 m.
Colusa layia *Layia septentrionalis*	CNPS 1B.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 hallii*	CNPS 1B.2	Chaparral.	Serpentine hills and ridges. Open, rocky areas within chaparral. 500-900 m.
Bent-flowered fiddleneck *Amsinckia lunaris*	CNPS 1B.2	Cismontane woodland, valley and foothill grassland.	50-500m.
Serpentine cryptantha *Cryptantha dissita*	CNPS 1B.2	Chaparral.	Serpentine outcrops. 330-730m.

Common Name *Scientific Name*	Status	General Habitat	Microhabitat
Freed's jewelflower *Streptanthus brachiatus ssp. hoffmanii*	CNPS 1B.2	Chaparral, cismontane woodland.	Serpentine rock outcrops, primarily in geothermal development areas. 490-1220 m.
Kruckeberg's jewelflower *Streptanthus morrisonii ssp. kruckebergii*	CNPS 1B.2	Cismontane woodland.	Scattered serpentine outcrops near the Lake/Napa county line. 215-1035 m.
Green jewelflower *Streptanthus hesperidis*	CNPS 1B.2	Chaparral, cismontane woodland.	Openings in chaparral or woodland; serpentine, rocky sites. 130-760m.
Legenere *Legenere limosa*	CNPS 1B.1	Vernal pools.	In beds of vernal pools. 1-880 m.
Mt. Saint Helena morning-glory *Calystegia collina ssp. oxyphylla*	CNPS 4.2	Chaparral, lower montane coniferous forest, valley and foothill grassland.	On serpentine barrens, slopes, and hillsides. 280-1010 m.
Oval-leaved viburnum *Viburnum ellipticum*	CNPS 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest.	215-1400 m.
Lake County stonecrop *Sedella leiocarpa*	FE/CE/CNPS 1B.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.
Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	CNPS 1B.1	Chaparral, lower montane coniferous forest.	Rocky, serpentine sites. Slopes and ridges. 450-1000 m.
Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	CNPS 1B.3	Chaparral, cismontane woodland, lower montane coniferous forest.	Volcanic soils. 395-1615 m.
Napa false indigo *Amorpha californica var. napensis*	CNPS 1B.2	Broadleafed upland forest, chaparral, cismontane woodland.	Openings in forest or woodland or in chaparral. 120-2000 m
Jepson's milk-vetch *Astragalus rattanii var. jepsonianus*	CNPS 1B.2	Cismontane woodland, valley and foothill grassland, chaparral.	Commonly on serpentine in grassland or openings in chaparral. 180-1000 m.
Cobb Mountain lupine *Lupinus sericatus*	CNPS 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest, broadleafed upland forest.	In stands of knobcone pine-oak woodland, on open wooded slopes in gravelly soils; sometimes on serpentine. 275-1525 m.
Saline clover *Trifolium hydrophilum*	CNPS 1B.2	Marshes and swamps, valley and foothill grassland, vernal pools.	Mesic, alkaline sites. 0-300 m.
Northern California black walnut *Juglans hindsii*	CNPS 1B.1	Riparian forest, riparian woodland. Few extant native stands remain; widely naturalized.	Deep alluvial soil associated with a creek or stream. 0-440 m.
Two-carpellate western flax *Hesperolinon bicarpellatum*	CNPS 1B.2	Serpentine chaparral.	Serpentine barrens at edge of chaparral. 60-1005 m.
Lake County western flax *Hesperolinon didymocarpum*	CE/CNPS 1B.2	Chaparral, cismontane woodland, valley and foothill grassland.	Serpentine soil in open grassland and near chaparral. 330-365m.
Drymaria-like western flax	CNPS 1B.2	Closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill	Serpentine soils, mostly within chaparral. 390-1000m.

Common Name *Scientific Name*	Status	General Habitat	Microhabitat
Hesperolinon drymarioides		grassland.	
Sharsmith's western flax *Hesperolinon sharsmithiae*	CNPS 1B.2	Chaparral.	Serpentine substrates. 270-300 m.
Keck's checkerbloom *Sidalcea keckii*	FE/CNPS 1B.1	Cismontane woodland, valley and foothill grassland	Grassy slopes in blue oak woodland. 75-650 m.
Marsh checkerbloom *Sidalcea oregana ssp. hydrophila*	CNPS 1B.2	Meadows and seeps, riparian forest.	Wet soil of streambanks, meadows. 1100-2300 m.
Marsh checkerbloom *Sidalcea oregana ssp. hydrophila*	CNPS 1B.2	Meadows and seeps, riparian forest.	Wet soil of streambanks, meadows. 1100-2300 m.
Snow Mountain buckwheat *Eriogonum nervulosum*	CNPS 1B.2	Chaparral.	Dry serpentine outcrops, balds, and barrens. 300-2100 m.
Brandegee's eriastrum *Eriastrum brandegeeae*	CNPS 1B.1	Chaparral, cismontane woodland.	On barren volcanic soils; often in open areas. 425-840 m.
Jepson's leptosiphon *Leptosiphon jepsonii*	CNPS 1B.2	Chaparral, cismontane woodland.	Open to partially shaded grassy slopes. On volcanics or the periphery of serpentine substrates. 100-500m.
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	CNPS 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 *Navarretia leucocephala ssp. pauciflora*	FE/CT/CNPS 1B.1	Vernal pools.	Volcanic ash flow, and volcanic substrate vernal pools. 400-855 m.
Many-flowered navarretia *Navarretia leucocephala ssp. plieantha*	FE/CE/CNPS 1B.2	Vernal pools.	Volcanic ash flow vernal pools. 30-950 m.
Small pincushion navarretia *Navarretia myersii ssp. deminuta*	CNPS 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.
Porter's navarretia *Navarretia paradoxinota*	CNPS 1B.3	Meadows and seeps	Serpentinite, openings, vernally mesic, often drainages. 165-840 m
Rincon Ridge ceanothus *Ceanothus confusus*	CNPS 1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland.	Known from volcanic or serpentine soils, dry shrubby slopes. 75-1065 m.
Bolander's horkelia *Horkelia bolanderi*	CNPS 1B.2	Lower montane coniferous forest, chaparral, meadows, valley and foothill grassland.	Grassy margins of vernal pools and meadows. 450-1100 m.
Pink creamsacs *Castilleja rubicundula var. rubicundula*	CNPS 1B.2	Chaparral, meadows and seeps, valley and foothill grassland.	Openings in chaparral or grasslands. On serpentine. 20-900 m.

Common Name *Scientific Name*	Status	General Habitat	Microhabitat
Boggs Lake hedge-hyssop *Gratiola heterosepala*	CE/CNPS 1B.2	Marshes and swamps (freshwater), vernal pools.	Clay soils; usually in vernal pools, sometimes on lake margins. 10-2375 m.
Dimorphic snapdragon *Antirrhinum subcordatum*	CNPS 4.3	Chaparral, lower montane coniferous forest.	Generally on serpentine or shale in foothill woodland or chaparral on s- and w-facing slopes. 185-800 m.
Northern meadow sedge *Carex praticola*	CNPS 2B.2	Meadows and seeps.	Moist to wet meadows. 0-3200 m.
Dwarf soaproot *Chlorogalum pomeridianum var. minus*	CNPS 1B.2	Chaparral, valley and foothill grassland.	Serpentine. 240-970 m.
Adobe-lily *Fritillaria pluriflora*	CNPS 1B.2	Chaparral, cismontane woodland, foothill grassland.	Usually on clay soils; sometimes serpentine. 60-705 m.
California satintail *Imperata brevifolia*	CNPS 2B.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 *Orcuttia tenuis*	FT/CE/CNPS 1B.1	Vernal pools.	Often in gravelly pools. 35-1760 m.
Eel-grass pondweed *Potamogeton zosteriformis*	CNPS 2B.2	Marshes and swamps.	Ponds, lakes, streams. 0-1860 m.

Definitions of Status Codes: FE = Federally listed as endangered; FT = Federally listed as threatened; FPE = Federally proposed for listing as endangered; FPT = Federally proposed for listing as threatened; FC = Candidate for Federal listing; MB = Migratory Bird Act; CE = California State listed as endangered; CT = California State listed as threatened; CSSC = California species of special concern; CR = California rare species; CFP = California fully protected species; CWL = California Watch List; 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 Rank 2 = CNPS designated rare or endangered plants in California, but more common elsewhere; CNPS Rank 3 = CNPS designated Plants about which more information is needed; and CNPS Rank 4 = CNPS Watch List: Plants of limited distribution.

4.3.2. Special-status Species Observed During Field Survey

During the field survey, no special-status species were detected within the Study Area other than the same rare plants within the vernal pond that were previously reported by the CNDDB.

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

The large vernal pool / marsh within the Study Area has a high potential for harboring special-status plant species and a moderate potential for harboring special-status animal species. The volcanic soils and oak woodland/ forest habitats within the Study Area have a moderate to high potential for harboring special-status plant and animal species. There are no non-wetland water resources, such as watercourses, within the Study Area that can sustain aquatic special-status species.

4.3.4. Focal Species Accounts

4.3.4.1. Vernal pool species

Legenere (*Legenere limosa*), Bogg's lake hedge hyssop (*Gratiola heterosepala*), slender Orcutt grass (*Orcuttia tenuis*) and many flowered navarretia (*Navarretia leucocephala* ssp*. plieantha*) are reported to occur in the large vernal pool in the southern portion of the Study Area.

The CNDDB reports several other species associated with vernal pools that are known to occur in the region: Bolander's horkelia (*Horkelia bolanderi*), small pincushion navarretia (*Navarretia myersii ssp. deminuta*), Burke's goldfields (*Lasthenia burkei*), Loch Lomond button-celery (*Eryngium constancei*), Baker's navarretia (*Navarretia leucocephala ssp. bakeri*) and few-flowered navarretia (*Navarretia leucocephala ssp. pauciflora*). Suitable habitat for these species may be present within the Study Area's vernal pond.

4.3.4.2. Volcanic soil species

Soil maps indicate that much of the Study Area is underlain by soils derived from volcanic materials. Several plant species reported from the region are known to occur in chaparral, woodland and forest habitats on volcanic soils: Rincon Ridge ceanothus (*Ceanothus confusus*), Lake County stonecrop (*Sedella leiocarpa*), Brandegee's eriastrum (*Eriastrum brandegeeae*), Jepson's leptosiphon (*Leptosiphon jepsonii*), Toren's grimmia (*Grimmia torenii*), Greene's narrow-leaved daisy (*Erigeron greenei*) and Konocti manzanita (*Arctostaphylos manzanita ssp. elegans*). Suitable habitat for these species may be present within the Study Area where volcanic soils are present.

4.3.4.3. Bats

The CNDDB indicates that several special status bat species may be found in the area, including long-eared myotis (*Myotis evotis*), fringed myotis (*Myotis thysanodes*), silver-haired bat (*Lasionycteris noctivagans*), hoary bat (*Lasiurus cinereus*), western red bat (*Lasiurus blossevillii*), Townsend's big-eared bat (*Corynorhinus townsendii*) and pallid bat (*Antrozous pallidus*). Habitat for these bats includes a variety of vegetation types including oak savanna, grasslands, and open forest and woodlands with access to riparian and open water for feeding and drinking. Foraging occurs over open country. Maternity colonies tend to be in the more protected, isolated locations. Suitable habitat for these species may be present within the Study Area in forested areas.

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 no water features within the Study Area. One water feature was detected within the Study Area during the field survey (see Exhibits): a large vernal pool. The vernal pool, estimated to be 6 acres in area and 1-3 feet deep, straddles the southern border of the Study Area. Vernal pools are depressions in areas where a hard underground layer, volcanic soils in this case, prevents rainwater from draining downward into the subsoils. When rain fills the pools in the winter and spring, the water collects and remains in the depressions. In the springtime the water gradually evaporates away, until the pools become completely dry. No creeks or watercourses feed into this wetland. No watercourses or riparian vegetation are found within 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 2017-0023-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[13])

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 are approved by the applicable 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

Four special-status plant species are reported by the CNDDB to occur within the vernal pool mapped within the Study Area (in the area marked, see Exhibits). The vernal pool may provide suitable habitat for several additional special status plant and animal species. However, the cannabis cultivation / operation area was intentionally located away from this feature; is over 250 feet away from the vernal pool area. The volcanic soils and chaparral/oak woodland/forest habitats may provide suitable habitat for special status plant and bat species. The cannabis cultivation / operation area will be developed in the annual grassland/disturbed habitat. Construction of the project will not impact the chaparral, woodland, and forest habitats.

No impacts to special-status species are likely to occur from project implementation. Therefore, no mitigation is required. If clearing of natural habitat is performed in the future, a pre-construction special-status species survey is recommended.

Recommended Mitigation Measures

No mitigation is necessary.

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

The Study Area is within the designated critical habitat for slender Orcutt grass (*Orcuttia tenuis*). This species is dependant upon vernal pools. Slender Orcutt grass is reported to occur in the vernal pool mapped within the Study Area (in the area marked, see Exhibits). However, the cannabis cultivation / operation area is over 250 feet away from the vernal pool area. Therefore, no mitigation is required.

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. Implementation of the project does not conflict with any county or municipal policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. We are not aware of any commercial tree species being removed for this project. Approximately 1 gray pine will be removed for installation of the cultivation area. If tree felling is performed in the future, a pre-construction nesting bird survey is recommended.

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

Recommended Mitigation Measures

No mitigation is necessary.

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

There is one water resource within the Study Area: a vernal pool. Vernal pools are protected under State and federal laws, provide habitat for various special-status plant and animal species. The new

cannabis cultivation operational area is at least 250 feet away from the vernal pool. The new operation is compliant with the setback requirements of Cannabis Cultivation Order WQ 2017-0023-DWQ.

Potential adverse impacts to water resources could occur during construction by modification or destruction of stream banks or riparian vegetation, the filling of wetlands, or by increased erosion and sedimentation in receiving water bodies due to soil disturbance. There is no evidence that project implementation directly impacted any aquatic habitats. The total area of ground disturbance for installation of the cultivation operation will be much less than 1 acre because the land was previously prepared for a vineyard; thus, the Cultivator does not need to enroll for coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-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 2017-0023-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.

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 Direct/Indirect Adverse Effects on Nesting Birds

The Study Area contains suitable nesting habitat for various bird species because of the presence of marsh, trees, poles, and dense brush. However, no nests or nesting activity was observed in the project area during the field survey. Riparian corridors and marshes are focal areas for birds. Riparian and marsh habitat is present within the Study Area but not the Project Area. Implementation of the project will have no impact on the riparian or marsh habitat. 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.

6. REFERENCES

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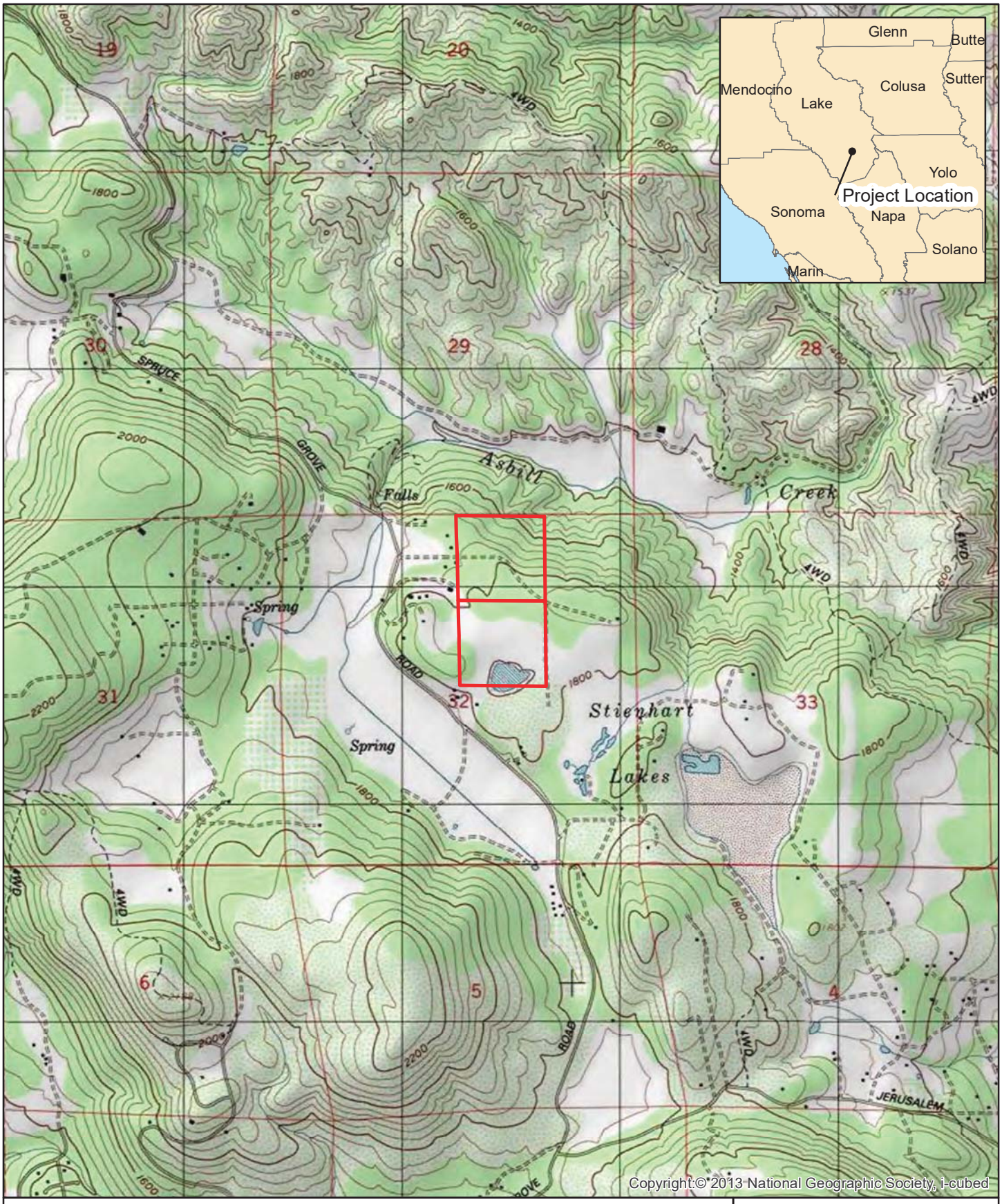
EXHIBITS



Parcel Location

0 0.5 1 Kilometers

0 0.5 1 Miles

1:24,000

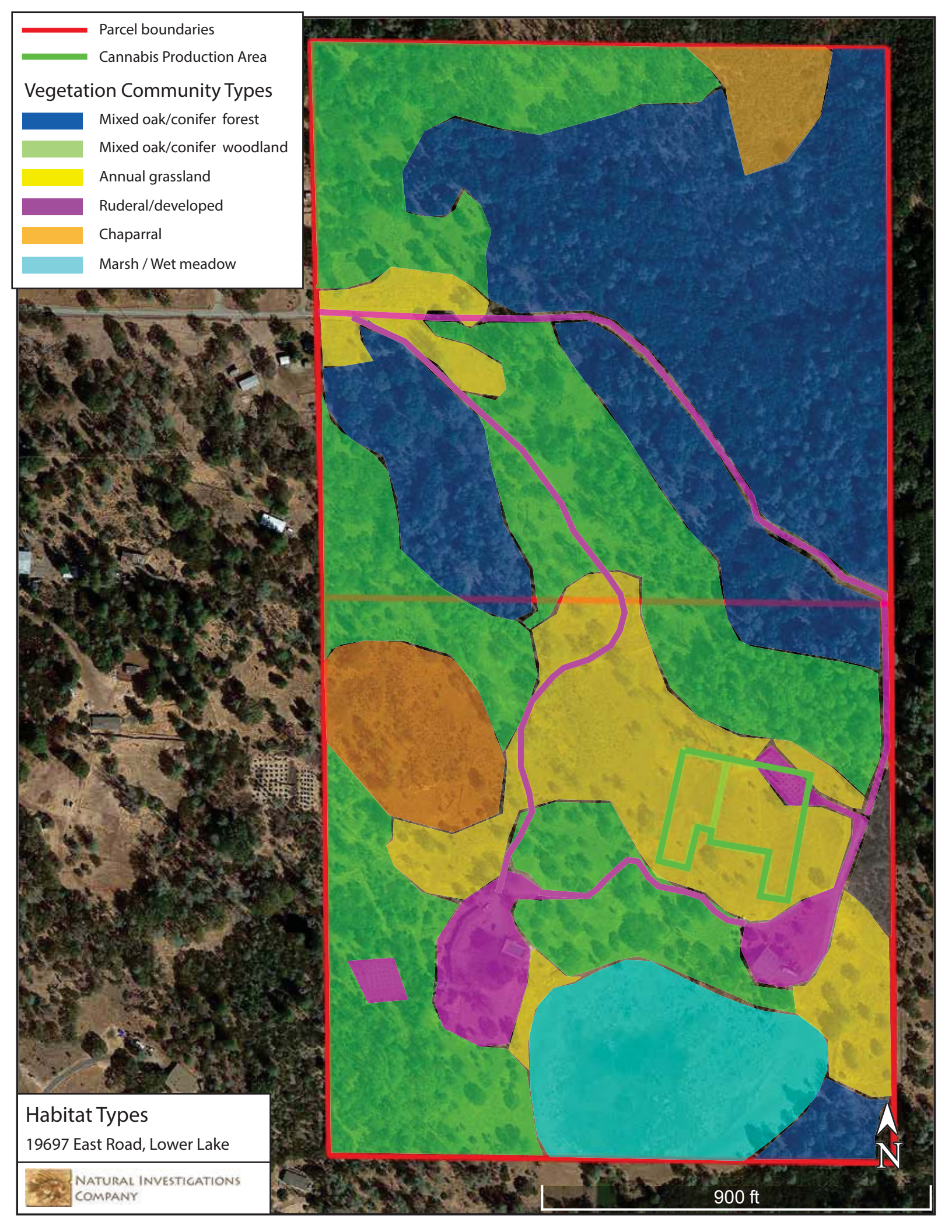
19697 East Road
Parcel Location Map

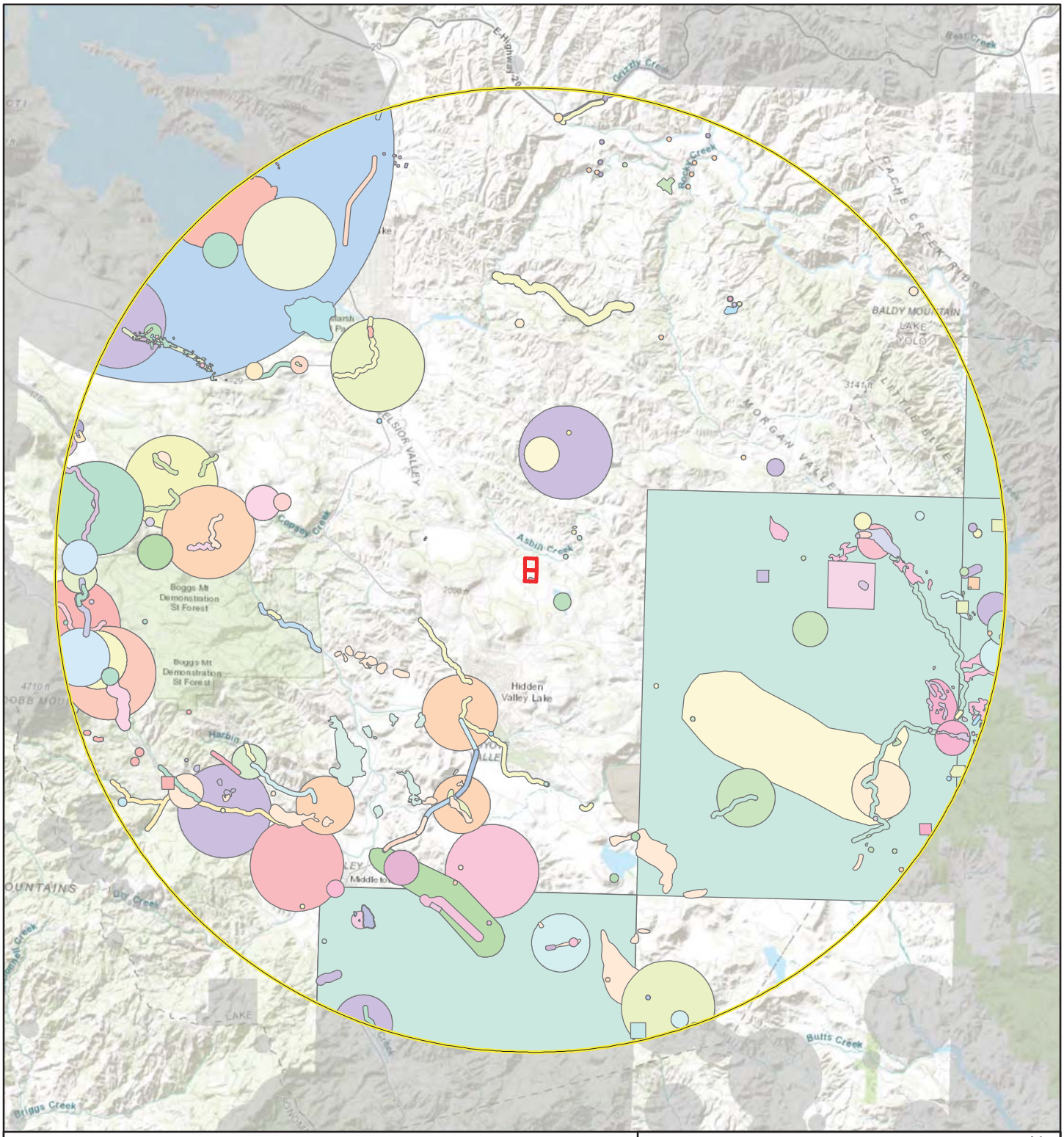
NATURAL INVESTIGATIONS COMPANY

Map Date 7/6/2019

Middletown 1998 Quadrangle: Township 12N, Range 6W, Section 32


Greenhouse cultivation compound
Outdoor cultivation compound
Proposed well
Domestic well
Marsh and vernal pond
Project Details
19697 East Road, Lower Lake
Natural Investigations Company
N
500 ft


Parcel boundaries
Cannabis Production Area
Vegetation Community Types
Mixed oak/conifer forest
Mixed oak/conifer woodland
Annual grassland
Ruderal/developed
Chaparral
Marsh / Wet meadow
Habitat Types
19697 East Road, Lower Lake
Natural Investigations Company
N
900 ft



Parcel Location 10 Mile Buffer

1:190,000 1 inch = 3 miles

0 3 6 Miles

N

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist inshowing 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

19697 East Road

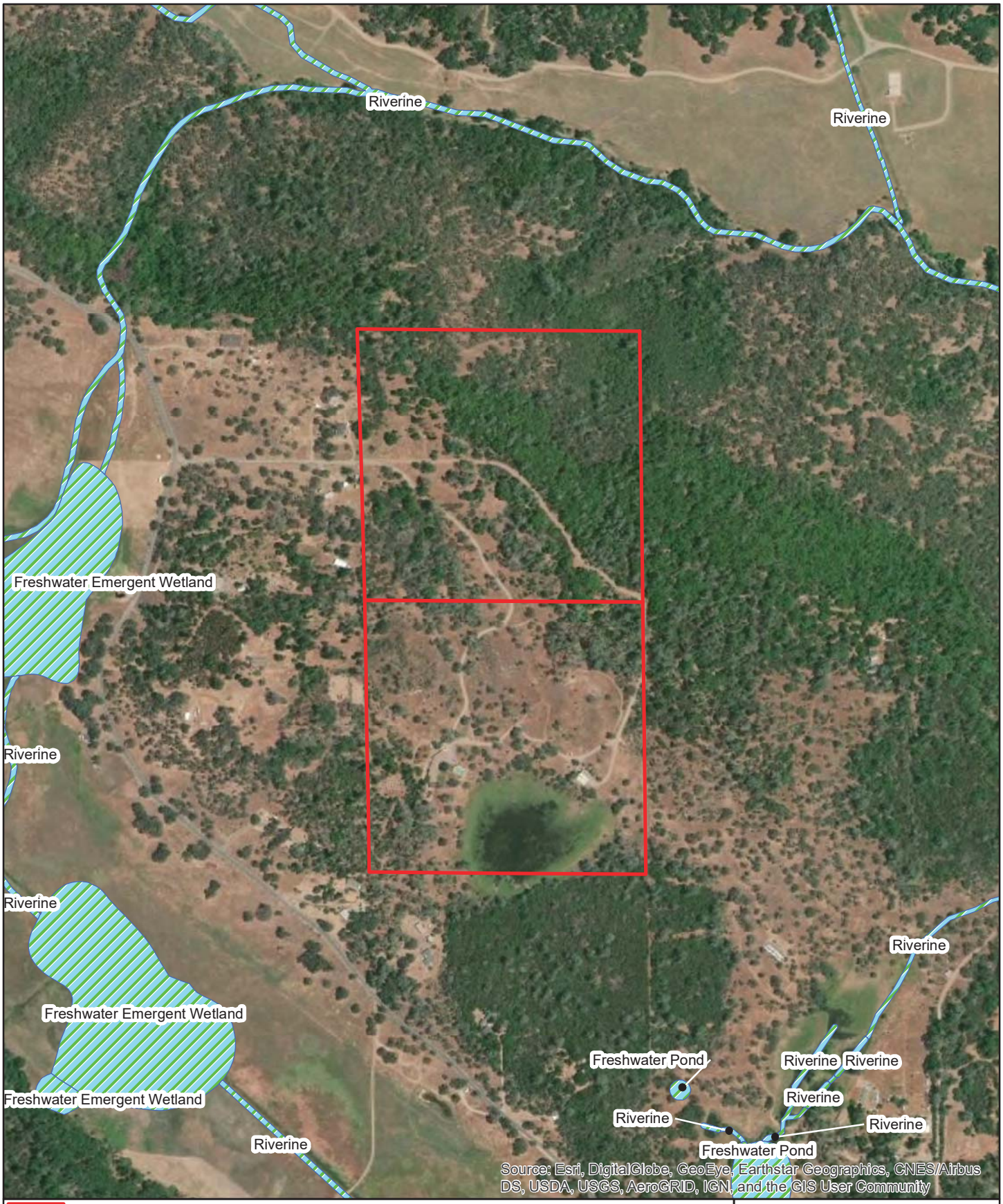
Middletown 1998 Quadrangle:Township 12N, Range 6W, Section 32

NATURAL INVESTIGATIONS CO.
www.NaturalInvestigations.com

Water Resources

19697 East Road, Lower Lake

Natural Investigations Company



Parcel Location

Wetlands and Channels

0 150 300 Meters

0 700 1,400 Feet

1:7,500

N W E S

19697 East Road
National Wetlands Inventory
Features Map

Natural Investigations Company

Map Date 7/6/2019

Middletown 1998 Quadrangle: Township 12N, Range 6W, Section 32

APPENDIX 1: USFWS SPECIES LIST

United States Department of the Interior

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

In Reply Refer To:
Consultation Code: 08ESMF00-2019-SLI-2374
Event Code: 08ESMF00-2019-E-07591
Project Name: 19697 East Road Bio

July 06, 2019

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Consultation Code: 08ESMF00-2019-SLI-2374

Event Code: 08ESMF00-2019-E-07591

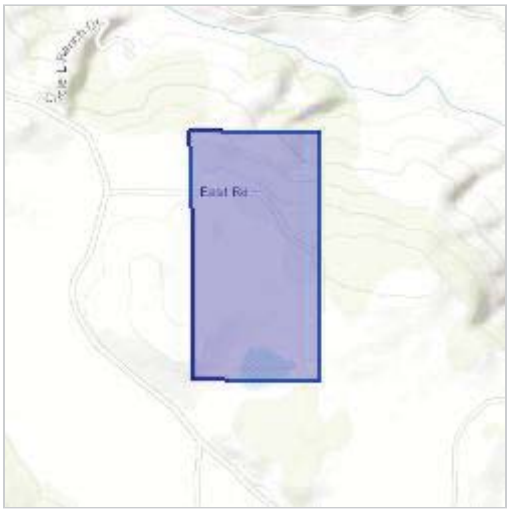
Project Name: 19697 East Road Bio

Project Type: ** OTHER **

Project Description: Bio Assessment

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.84911593592256N122.54641447816826W



Counties: Lake, CA

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Birds

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

Amphibians

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

Fishes

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

Crustaceans

NAME	STATUS
Conservancy Fairy Shrimp *Branchinecta conservatio* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8246	Endangered

Flowering Plants

NAME	STATUS
Burke's Goldfields *Lasthenia burkei* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4338	Endangered
Lake County Stonecrop *Parvisedum leiocarpum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2263	Endangered
Many-flowered Navarretia *Navarretia leucocephala ssp. plieantha* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2491	Endangered
Slender Orcutt Grass *Orcuttia tenuis* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1063	Threatened

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Slender Orcutt Grass *Orcuttia tenuis* https://ecos.fws.gov/ecp/species/1063#crithab	Final

APPENDIX 2: CHECKLIST OF PLANTS DETECTED IN THE STUDY AREA

Appendix 2: Plants Observed

Common Name	***Scientific Name***
Chamise	*Adenostoma fasciculatum*
Silver hairgrass	*Aira cayophyllea*
Common manzanita	*Arctostaphylos manzanita ssp. manzanita*
Wildoat	*Avena fatua*
lesser quaking-grass	*Briza minor*
greater quaking-grass	*Briza major*
bromes	*Bromus spp.*
mustards	*Brassica spp.*
Wedgeleaf ceanothus	*Ceanothus cuneatus*
Deer brush	*Ceanothus integerrimus*
Maltese star-thistle	*Centaurea melatensis*
Western redbud	*Cercis occidentalis*
Doveweed	*Croton setigerus*
Tall sedge	*Cyperus eragrostis*
American wild carrot	*Daucus pusillus*
Spikerush	*Eleocharis macrostachya*
Yerba santa	*Eriodictyon californicum*
Bedstraw	*Galium aparine*
Toyon	*Heteromeles arbutifolia*
Iris	*Iris sp.*
Henbit	*Lamium amplexicaule*
Small tarweed	*Madia exigua*
Needleleaf navarretia	*Navarretia intertexta*
Olive	*Olea europaea*
Mistletoe	*Phoradendron sp.*
Jeffrey pine	*Pinus jeffreyi*
Ponderosa pine	*Pinus ponderosa*
Gray pine	*Pinus sabiniana*
Dot-seed plantago	*Plantago erecta*
Slender woolyheads	*Psilocarphus tenellus*
Blue oak	*Quercus douglasii*
Golden cup live oak	*Quercus chrysolepis*
Oregon oak	*Quercus garryana*
Black oak	*Quercus kelloggii*
Interior live oak	*Quercus wislizeni*
Curly dock	*Rumex crispus*
Purple needlegrass	*Stipa pulchra*
Spreading hedgeparsley	*Torilis arvensis*
Poison oak	*Toxicodendron diversilobum*
Clovers	*Trifolium spp.*
Spring vetch	*Vicia sativa*
Periwinkle	*Vinca*

APPENDIX 3: SITE PHOTOS