

# BIOLOGICAL RESOURCES REPORT

**Guergui & Stoyon Mandelov**

**APN: 107-233-013**

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## Table of Contents

<b>1</b>	<b>Executive Summary .....</b>	<b>1</b>
<b>2</b>	<b>Introduction.....</b>	<b>1</b>
<b>3</b>	<b>Environmental Setting.....</b>	<b>1</b>
3.1	Project Location .....	1
3.2	Soil, Topography, and Hydrology .....	1
3.3	Vegetation/Habitat.....	1
<b>4</b>	<b>Proposed Action .....</b>	<b>2</b>
<b>5</b>	<b>Regulatory Framework .....</b>	<b>5</b>
<b>6</b>	<b>Methods.....</b>	<b>8</b>
6.1	Scoping.....	8
6.2	Site Visit .....	9
<b>7</b>	<b>Results .....</b>	<b>9</b>
7.1	Special Status-Plants.....	9
7.2	Special Status Natural Communities .....	9
7.3	Riparian Habitat .....	9
7.4	Waters of the United States .....	9
7.5	Wildlife.....	9
<b>8</b>	<b>Environmental Consequences.....</b>	<b>29</b>
8.1	Special Status Plants.....	29
8.2	Special Status Natural Communities .....	29
8.3	Riparian Habitat .....	29
8.4	Waters of the United States .....	30
8.5	Wildlife.....	30
8.5.1	Direct & Indirect Effects.....	30
8.5.2	Cumulative Effects.....	34
8.5.3	Summary of Effects .....	34
<b>9</b>	<b>Literature Cited .....</b>	<b>35</b>

## **List of Figures**

Figure 1. Cultivation Area. ....	3
Figure 2. Site Map.....	4
Figure 3. Northern Spotted Owl Activity Centers in the Vicinity of the Guergui Mandelov Project Site. ....	19

## **List of Appendices**

Appendix A. Special-Status Plants Scoping List.....	A-1
Appendix B. Special-Status Wildlife Scoping List.....	B1
Appendix C. Site Photographs.....	C-1

# BIOLOGICAL RESOURCES REPORT

## 1 Executive Summary

A Biological Assessment was conducted on November 8, 2018 by Kyle Wear and Jessica Stauffer on the Guergui and Stoyon Mandelov Property (APN 107-233-013) for an existing cannabis project located in the Panther Gap/Mattole Road area of Humboldt County, California. The proposed project occurs on one parcel within the Bull Creek USGS quadrangle, near the town of Honeydew.

The purpose of this document is to assess the suitability of the site to support biological resources and analyze potential effects of project implementation on those resources. Biological resources include common vegetation and habitat types, sensitive plant communities, and special-status plant and animal species. The analysis includes a description of the existing environmental conditions, the methods used for assessment, and the potential direct and indirect impacts of project implementation in compliance with the Humboldt County final Environmental Impact Report (EIR), Amendments to Humboldt County Code Regulating Commercial Cannabis Activities (Ascent Environmental 2018). However, specific mitigation measures are not included because no potentially significant or significant impacts were identified.

## 2 Introduction

The purpose of this study was to evaluate potential impacts from commercial cannabis cultivation to sensitive biological resources on a 155 - acre parcel, APN: 107-233-013, near Honeydew in Humboldt County, California. Potential biological impacts from cannabis cultivation are outlined in the final Environmental Impact Report (EIR) for the Amendments of Humboldt County Code Regulation Commercial Cannabis Activities (Ascent Environmental 2018).

## 3 Environmental Setting

### 3.1 Project Location

The project is located off Panther Gap Road approximately 4 miles northwest of Honeydew on the Bull Creek USGS quadrangle (Section 27, T2S, R1E).

### 3.2 Soil, Topography, and Hydrology

There is no soil data for the parcel on the *Web Soil Survey* (USDA, NRCS 2018). The cultivation sites are on flat graded areas. The remainder of the parcel includes west and southeast facing steep slopes (50-75%). There is an ephemeral stream that drains into Dry Creek. Both watercourses are outside the project footprint. There are no stream crossings on the road system.

### 3.3 Vegetation/Habitat

The cultivation sites are on existing graded areas that are often rocky and devoid of vegetation or dominated by non-native grasses. The adjacent habitat is coniferous forest dominated by Douglas fir (*Pseudotsuga menziesii*) and tanoak (*Notholithcarpus densiflorus* var. *densiflorus*).

## **4 Proposed Action**

The proposed action consists of 19,375 square feet of cannabis cultivation on the existing disturbed footprint (Figure 1). There are nine existing greenhouses on site measuring 100'x20', 100'x20', 50'x40', 100'x20', 130'x25', 25'x10', 130'x25', 75'x20', 100'x20', and 105'x25'. Three other structures exist; a residence used for living (25'x25'), and two sheds used for storage and/or drying (20'x10' and 20'x20'). There is one existing HDPE tank of unknown capacity. The water source is rainwater catchment and from a well on an adjacent property, also owned by the applicant. This site is not connected to the power grid and produces power from a generator.

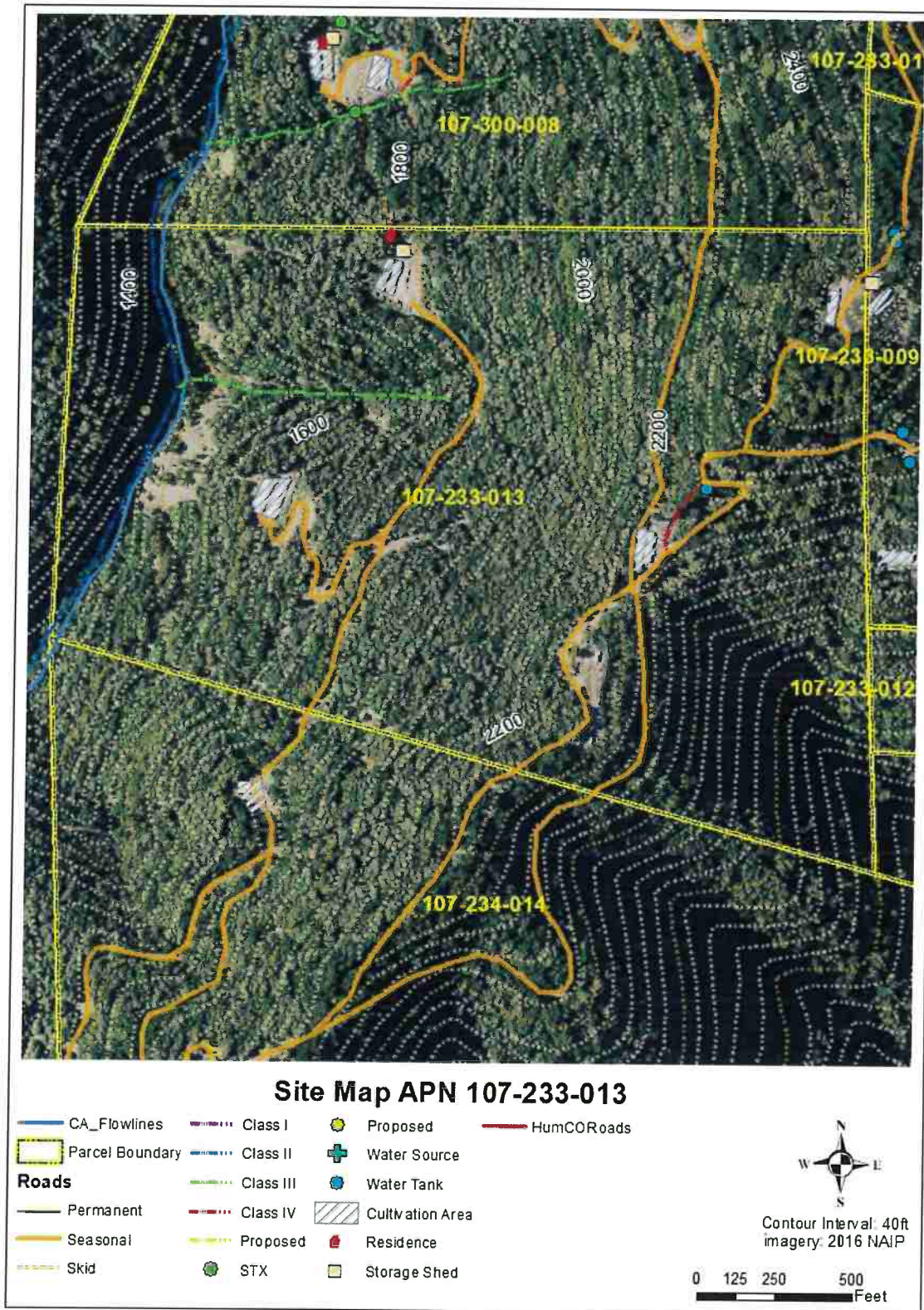
**Figure 1. Cultivation Area.**



Google Earth Pro Image taken 5/28/2014 showing maximum cultivation area (19,375 square feet).



Figure 2. Site Map.



## 5 Regulatory Framework

### Special Status Plants

Special status plants include taxa that are listed under the Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA), in addition to plants that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA). This includes plants with California Rare Plant Ranks (CRPR) of 1A, 1B, 2A, or 2B or other species that warrant consideration based on local or biological significance.

### Special Status Plant Communities

Special status plant communities are communities with limited distribution that may be vulnerable to environmental impacts. The Global (G) and State (S) rarity rankings for currently recognized vegetation alliances are provided on the CDFW *Natural Communities List* (CDFW 2010). The list is based on the vegetation classification in *A Manual of California Vegetation*, 2<sup>nd</sup> Edition (Sawyer et al. 2009). Natural communities with S ranks of 3 or lower are considered of special concern. However, they may not warrant protection under CEQA unless they are considered high quality. Human disturbance, invasive species, logging, and grazing are common factors considered when judging whether the stand is high quality and warrants protection.

### Riparian Habitat

Riparian vegetation is defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994). This often includes stands of alders, willows, and/or cottonwoods along the banks of streams and rivers.

### Waters of the United States

Waters of the United States are regulated by the U.S Army Corps of Engineers (Army Corps) under the Clean Water Act. Waters of the United States include, but are not limited to, territorial seas, waters used for interstate or foreign commerce and their tributaries, and waters adjacent to the aforementioned, including wetlands. More information can be found at:

<https://www.epa.gov/cwa-404/definition-waters-united-states-under-clean-water-act>

Army Corps jurisdiction in waters such as creeks includes the area below the ordinary high water mark, which is the line on the bank established by fluctuations of water that leave physical characteristics such as a distinct line on the bank, shelving, destruction of terrestrial vegetation, and presence of debris.

The Army Corps defines wetlands as:

“...areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Federal, state and local environmental laws and policies relevant to the California Environmental Quality Act (CEQA) review process and their associated significance criteria as they relate to wildlife are described below.



## **Federal Endangered Species Act**

The U.S. Congress passed the Federal Endangered Species Act in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the “take” of endangered or threatened wildlife species. “Take” is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3)(19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3). Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

FESA and Clean Water Act (CWA) Section 404 guidelines prohibit the issuance of wetland permits for projects that jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. The U.S. Army Corps of Engineers (Corps) must consult with the USFWS and/or the National Marine Fisheries Service (NMFS) when threatened or endangered species under their jurisdiction may be affected by a proposed project. In the context of the proposed project, FESA would be initiated if development resulted in take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

## **Birds of Conservation Concern**

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS to “identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973.” Birds of Conservation Concern 2008 is the most recent effort to carry out this mandate. Birds species considered include: nongame birds, game birds without hunting seasons, subsistence-hunted nongame birds in Alaska, ESA candidate, proposed and recently delisted species.

The overall goal of the Birds of Conservation Concern is to accurately identify the migratory and non-migratory bird species (beyond those already designated as Federally threatened or endangered) that represent the USFWS’s highest conservation priorities.

Birds of Conservation Concern 2008 encompasses three distinct geographic scales including the National level (United States in its entirety, including island “territories” in the Pacific and Caribbean), at the North American Bird Conservation Initiative (NABCI) Bird Conservation Regions (BCRs), and at the USFWS Regions level. This is primarily derived from assessment scores from three major bird conservation plans: the Partner’s in Flight North American Landbird Conservation Plan, the United States Shorebird Conservation Plan, and the North American Waterbird Conservation Plan. It includes some non-MBTA-protected species because their conservation status and efforts are of concern to the USFWS.

### **Migratory Bird Treaty Act**

Raptors (birds of prey), migratory birds, and other avian species are protected by a number of state and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Section 3503.5 of the California Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

On December 2008, a Memorandum of Understanding (MOU) between the USDA Forest Service (USFS) and the USFWS to Promote the Conservation of Migratory Birds was signed. The intent of the MOU is to strengthen migratory bird conservation through enhanced collaboration and cooperation between the Forest Service and the Fish and Wildlife Service as well as other federal, state, tribal and local governments. Within the National Forests, conservation of migratory birds focuses on providing a diversity of habitat conditions at multiple spatial scales and ensuring that bird conservation is addressed when planning for land management activities.

### **The Bald and Golden Eagle Protection Act**

The Bald and Golden Eagle Protection Act (Eagle Act) prohibits the taking or possession of and commerce in bald and golden eagles with limited exceptions. Under the Eagle Act, it is a violation to "take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof." Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

### **California Endangered Species Act**

In December of 1984 the State of California enacted the California Endangered Species Act (CESA). CESA is similar to the FESA but pertains to state-listed endangered and threatened species. CESA requires state agencies to consult with the California Department of Fish and Game (CDFG) when preparing California Environmental Quality Act (CEQA) documents. The purpose is to ensure that the state lead agency actions do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code §2080). CESA directs agencies to consult with CDFG on projects or actions that could affect listed species, directs CDFG to determine whether jeopardy would occur and allows CDFG to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows CDFG to authorize exceptions to the state's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code § 2081).

### **California Department of Fish and Game Codes**

Fully protected fish species are protected under Section 5515; fully protected amphibian and reptile species are protected under Section 5050; fully protected bird species are protected under Section 3511; and fully protected mammal species are protected under Section 4700. The California Fish and Game Code defines take as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Except for take related to scientific research, all take of fully protected species is prohibited.

Section 3503 of the California Fish and Game Code prohibits the killing of birds or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests. Sections 2062 and 2067 define endangered and threatened species.

### **California Department of Fish and Wildlife Species of Concern**

In addition to formal listing under FESA and CESA, species receive additional consideration by CDFW and local lead agencies during the CEQA process. Species that may be considered for review are included on a list of “Species of Special Concern,” developed by the CDFW. It tracks species in California whose numbers, reproductive success, or habitat may be threatened.

### **Western Bat Working Group Priority Species**

The Western Bat Species Regional Priority Matrix is a product of the Western Bat Working Group Workshop held in Reno, Nevada, February 9-13, 1998. The matrix is intended to provide states, provinces, federal land management agencies, interested organizations and individuals a better understanding of the overall status of a given bat species throughout its western North American range. Subsequently, the importance of a single region or multiple regions to the viability and conservation of each species becomes more apparent. The matrix should also provide a means to prioritize and focus population monitoring, research, conservation actions, and the efficient use of limited funding and resources currently devoted to bats.

### **Humboldt County Code**

20.1.5 Required Mitigation. All development within coastal elk habitat areas shall be sited and designated to mitigate the impacts which would significantly degrade such habitat areas.

### **Humboldt County General Plan**

Biological Resources Policies 3431.1-3431.7 and 3432.1-3432.10.

## **6 Methods**

### **6.1 Scoping**

Lists of special status plants (Appendix A) and wildlife (Appendix B) that could potentially occur on the property was generated by consulting the *California Natural Diversity Database* (CDFW 2018), the Californian Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants* (CNPS 2018) and the Biogeographic Information and Observation System (BIOS) *Northern Spotted Owl Viewer* (CDFW 2018) in addition to obtaining a US Fish and Wildlife Service (USFWS) species list for the scoping area that included the Bull Creek and adjacent (Scotia, Taylor Peak, Buckeye Mtn., Shubrick Peak, Honeydew, Redcrest, Ettersburg and Weott) 7.5-minute quadrangles.

## 6.2 Site Visit

A site visit was conducted by botanist, Kyle Wear and wildlife biologist, Jessica Stauffer on November 8, 2018. Mr. Wear is a professional botanist with over 20 years of experience conducting floristic survey and other botanical work in northern California. Ms. Stauffer is a professional wildlife biologist with 20 years experience conducting wildlife surveys, assessments, and other wildlife work in northwestern California and beyond.

## 7 Results

### 7.1 Special Status Plants

The project footprint lacks habitat for most special status plants on the scoping list. Humboldt vetch (*Astragalus agnicidus*) is the most likely plant to occur in the disturbed area and appurtenant road system. There is some potential for white flowered rein orchid (*Piperia candida*) on road cuts or in the adjacent forest understory outside of the project area. Seacoast ragwort (*Packera bolanderi* var. *bolanderi*) could also occur in habitat such as roadcuts. There is some potential for coast fawn lily (*Erythronium revolutum*) and giant fawn lily (*E. oregonum*) along Dry Creek outside the project area.

### 7.2 Special Status Natural Communities

No special status natural communities were observed during the site visit. The project area is disturbed ruderal habitat. The adjacent forest is consistent with Douglas fir – tanoak Forest (*Pseudotsuga menziesii* – *Lithocarpus densiflorus* Forest Alliance) a common natural community with rarity ranking of G4 S4.

### 7.3 Riparian Habitat

No riparian habitat was observed in or near the project area during the site visit.

### 7.4 Waters of the United States

Dry Creek and its tributary drain into the Mattole River thus are considered Waters of the U.S (Figure 1). No wetlands were observed during the site visit.

### 7.5 Wildlife

Based on their ranges and existing habitat, a literature review and queries of the databases listed above, it was determined that 35 special-status wildlife species have been documented from the vicinity of the project area. Appendix B summarizes the potential for these species to occur in the study area. Of these, 26 species were determined to have a moderate or high potential for occurrence and are addressed in this report. The remaining 9 species were determined to have no potential for occurrence or are unlikely to occur in the project area so are not addressed further, with the exception of their inclusion in Appendix B.

Species with a moderate – high potential for occurrence include the following:

#### Invertebrates

obscure bumble bee (*Bombus caliginosus*)  
western bumble bee (*Bombus occidentalis*)

Amphibians/Reptiles

Red-bellied newt (*Taricha rivularis*)  
northern red-legged frog (*Rana aurora*)  
foothill yellow-legged frog (*Rana boylei*)  
western pond turtle (*Emys marmorata*)

Birds

sharp-shinned hawk (*Accipiter striatus*)  
Cooper's hawk (*Accipiter cooperii*)  
northern goshawk (*Accipiter gentilis*)  
osprey (*Pandion haliaetus*)  
American peregrine falcon (*Falco peregrinus anatum*)  
northern spotted owl (*Strix occidentalis caurina*)  
Vaux's swift (*Chaetura vauxi*)  
purple martin (*Progne subis*)

Mammals

Townsend's big-eared bat (*Corynorhinus townsendii*)  
silver-haired bat (*Lasionycteris noctivagans*)  
western red bat (*Lasiurus blossevillii*)  
long-eared myotis (*Myotis evotis*)  
fringed myotis (*Myotis thysanodes*)  
long-legged myotis (*Myotis volans*)  
Yuma myotis (*Myotis yumanensis*)  
Humboldt mountain beaver (*Aplodontia rufa humboldtiana*)  
North American porcupine (*Erethizon dorsatum*)  
Sonoma tree vole (*Arborimus pomo*)  
fisher (*Pekania pennant*), West Coast Distinct Population Segment (DPS)  
American badger (*Taxidea taxus*)

Special-status wildlife species with a moderate - high potential for occurrence are discussed in greater detail below.

**Obscure Bumble Bee** –Obscure bumble bee occurs in Mediterranean California and the Pacific Coast, from southern California to southern British Columbia, with scattered records from the east side of California's Central Valley (Williams et al. 2014). This species is uncommon throughout its range (Williams et al. 2014). McFrederick and LeBuhn (2006) document an apparent decline around San Francisco. However, on nearby San Bruno Mountain, a protected area just south of San Francisco, the species maintained the same relative abundance in 2002 and 2003 as they had 40 years prior.

Obscure bumble bee inhabits open grassy coastal prairies and Coast Range meadows. Nesting occurs underground as well as above ground in abandoned bird nests. Males patrol circuits in search of mates. This species is classified as a medium long-tongued species, whose food plants include *Ceanothus*, *Cirsium*, *Clarkia*, *Keckiella*, *Lathyrus*, *Lotus*, *Lupinus*, *Rhododendron*, *Rubus*, *Trifolium*, and *Vaccinium* (Williams et al 2014).

Climate change and extensive development (at least in California) are likely to threaten this species. Habitat loss may be more serious for this species than most because it does not appear to



do well in heavily agricultural regions and may fail to persist at all in more urbanized places. McFrederick and LeBuhn (2006) document an apparent decline around San Francisco, suggesting *B. caliginosus* does not do well in urban parks, and that it is outcompeted by *B. vosnesenskii* which can be very abundant in urban habitats.

Bumble bees, as a whole, are threatened by a number of factors including pesticide use, pathogens from managed pollinators, competition with non-native bees, and climate change (reviewed in Goulson 2010, Williams et al. 2009, Cameron et al. 2011 and Fürst et al. 2014). Reduced genetic diversity resulting from any of these threats can be particularly concerning for bumble bees, since their method of sex-determination can be disrupted by inbreeding, and since genetic diversity already tends to be low in this group due to the colonial life cycle (i.e., even large numbers of bumble bees may represent only one or a few queens) (Goulson 2010, Hatfield et al. 2012).

**Western Bumble Bee** – Historically, western bumble bee occurred from the Pacific coast to the Colorado Rocky Mountains. A severe population decline has occurred west of the Sierra-Cascade crest but populations are known from the Great Basin, the Rocky Mountains and Alaska. Several subspecies have also been suggested. Although rare throughout much of its range, the species can be locally common (Hatfield et al. 2015, Koch et al. 2012).

Like most other species of bumble bee, western bumble bee typically nests underground in abandoned rodent burrows or other cavities. Most reports of nests are from underground cavities such as old squirrel or other animal nests and in open west-southwest slopes bordered by trees, although a few nests have been reported from above-ground locations such as in logs among railroad ties (Hatfield et al. 2015, Hobbs 1968, MacFarlane et al. 1994, Plath 1922, Thorp et al. 1983). Availability of nest sites may depend on rodent abundance (Evans et al. 2008, Hatfield et al. 2015). Nest tunnels have been reported to be up to 10 feet long and may be lined with grass or bird feathers (Hatfield et al. 2015, MacFarlane et al. 1994).

Suitable habitat for this species occurs in open grassy areas, urban parks and gardens, chaparral and shrub areas and mountain meadows (Williams et al. 2014).

Bumble bees, including western bumble bee, are generalist foragers and have been reported visiting a wide variety of flowering plants. The species requires plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is generally from early February to late November but likely varies by elevation (Hatfield et al. 2015).

Threats to this species include disease, habitat loss and alteration (primarily from agriculture), urban development, conifer encroachment (primarily from fire suppression), grazing, timber harvest, insecticides that kill individuals directly, herbicides that remove floral resources, and climate change (Evans et al. 2008).

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**Red-bellied Newt** – Red-bellied newt occurs in Sonoma, Mendocino, Humboldt and Lake Counties and is abundant throughout most of its range. It migrates to streams during the fall and winter rains (Zeiner et al. 1990).

Primary habitat includes redwood forest but it is also found within mixed conifer, valley-foothill woodland, montane hardwood and hardwood-conifer habitats (Zeiner et al. 1990).

Rapid-flowing, permanent streams with rocky substrate are required for breeding, egg-laying and larval development. The species spends the dry season underground within root channels.

Red-bellied newt feeds on arthropods, worms and snails in water and on the forest floor within ground litter.

During reproduction males arrive at the breeding site before the female in February. In March to April, females lay approximately 12 flat clusters of 6-16 eggs each on the undersides of rocks (Behler and King 1979). Females breed every three years, on average (Hedgecock 1978). Larvae transform in the late summer to early fall. Sexual maturity is attained at 6-10 years of age (Hedgecock 1978).

This species is primarily active at night. It may migrate to streams during autumn rains, returning to terrestrial habitat in the spring. Migratory movements are stimulated primarily by the rain but heavy amounts of rain can inhibit movement toward the stream. Red-bellied newt may migrate a mile or more to and from the breeding stream. Aestivation in terrestrial habitat takes place during the summer months. Red-bellied newts are relatively long lived and secrete toxins to deter predators (Zeiner et al. 1990).

**Northern Red-legged Frog** – The range of northern red-legged frog extends from southwestern British Columbia, including Vancouver Island in Canada, south along the coast of the United States (primarily west of Cascade-Sierran crest), to northwestern California (Shaffer et al. 2004). The species has been introduced and is well established and widely distributed on Graham Island, Queen Charlotte Islands (Haida Gwaii), British Columbia; it is unclear whether the species is native there or introduced many years ago (Ovaska et al. 2002). *Rana aurora* also is introduced and established on Chichagof Island, Alaska; the source of the frogs was Oregon (Hodge 2004).

Suitable habitat occurs in the vicinity of quiet permanent waters of streams, marshes, or (less often) ponds and other quiet bodies of water. The frogs are sometimes found in damp woods and meadows some distance from water, especially during wet weather. This species occurs in sites with dense vegetation (e.g., willows) close to water and some shading. Red-legged frogs may occupy ephemeral pools if the water remains until late spring or early summer. Aestivation sites include small mammal burrows and moist leaf litter in dense riparian vegetation up to 26 meters from water (Rathbun et al. 1993). Desiccation cracks in dry pond bottoms may be used as refuges (Alvarez 2004). Breeding sites most often are in permanent water; eggs are attached to stiff submerged stems at the surface of the water.

Factors contributing to local declines include wetland destruction and degradation/fragmentation, urbanization, residential development, reservoir construction, stream channelization, livestock grazing of riparian vegetation, off-road vehicle activity, drought, and exotic fishes (bass, mosquito fish) and possibly bullfrogs (Kiesecker and Blaustein 1998; USFWS 1994, 1996, 2001; Adams 1999, 2000; Lawler et al. 1999; Cook and Jennings 2001; Kiesecker et al. 2001 and Cook 2002). An important threat is the loss of wetlands in the Willamette Valley (Oregon) and Puget Lowlands (Washington), but populations remain in some urbanized areas. Conversion of habitat to more permanent ponds is an important threat (as this allows breeding waters to be invaded by non-native predators). Habitat characteristics and good leaping ability may render *Rana aurora*

less vulnerable to bullfrog predation than is *Rana pretiosa* (Pearl et al. 2004). McAllister and Leonard (in Jones et al. 2005) noted that in many areas red-legged frogs coexist with bullfrogs.

Declines in the red-legged frog complex (including *Rana draytonii*) also have been attributed to global warming, UV-B radiation (Belden and Blaustein 2002), airborne contaminants (pesticide drift), and disease (Davidson et al. 2001). Davidson et al. (2002) found support for the negative impact of wind-borne agrochemicals and weaker evidence for the widespread impact of habitat destruction and UV-B radiation; evidence did not support the hypothesis that declines have been caused by climate change.

**Foothill Yellow-legged Frog** - Foothill yellow-legged frog occurs primarily in the Coast Ranges from Oregon south to the Transverse Mountains in Los Angeles County, California, in most of northern California west of the Cascade crest, and along the western slopes of the Sierra Nevada, south to Kern County in a variety of habitats including valley hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types (CNDDDB 2018, Zeiner et al. 1990).

The species prefers partly shaded, shallow streams and riffles with a rocky substrate but inhabits a variety of aquatic habitats (depending on their life stage and the time of year) including: pools, riffles and runs in rivers and smaller tributary streams. Adults generally occur along the mainstem of rivers during spring when they are breeding in pools and then return to basking and foraging sites at stream tributaries. Juvenile frogs tend to migrate to upstream tributaries in late summer and early fall.

Foraging habitat includes areas that support both terrestrial and aquatic invertebrates. Foothill yellow-legged frog appears to prefer adult insect prey but is also known to predate snails and consume pieces of molted skin (Fitch 1936). Tadpoles likely graze on algae and diatoms along rocky stream bottoms (Zeiner et al. 1990).

Cover objects are an important component of foothill yellow-legged frog habitat. Individuals seek cover under submerged refugia such as rocks or sediments when disturbed or during periods of inactivity and/or hibernation, especially during cold weather (Zeiner et al. 1990).

Breeding habitat is typified by areas where gravel and/or rocks provide structure for egg cluster attachment near stream margins in moving water (Zeiner et al. 1990). Breeding occurs from April through late June in California and metamorphosis is attained 3-4 months after hatching (July-September).

Foothill yellow-legged frog is highly aquatic in comparison to other ranid frogs in California and is always found near permanent water, even during wet times of the year. Tadpoles require water for at least 3-4 months while metamorphosing.

**Western Pond Turtle** - The western pond turtle occurs in a variety of habitat types associated with permanent or nearly permanent water (Holland 1991) and is often concentrated in low flow regions of rivers and creeks, such as side channels and backwater areas. The species typically inhabits permanent water bodies and adjacent mud banks. However, female pond turtles often climb hillsides, sometimes moving 1,500 feet or more from the streamside to nest during the spring or early summer (Holland 1991, Zeiner et al. 1990).

Nesting occurs in upland habitats consisting of dry grassy areas with a predominantly south or southwest aspect and including appropriate soils, thermal conditions and basking sites. Nests are constructed four inches below ground in moist areas in sandy to very hard soil types. Nests and

burrows are usually found in undisturbed areas of duff or mud, but pond turtles have been found nesting under mine tailings. Eggs are laid from March to August, and take 73 to 80 days to incubate. Turtles leave the water in late September and spend the winter in burrows up to 500 feet away from the stream. Hatchlings are poor swimmers and require shallow edgewater areas with minimal current. Basking sites such as rocks and logs are an important component of western pond turtle habitat.

Overwintering habitat is variable and includes forested areas.

**Sharp-shinned Hawk** – Sharp-shinned hawk is a relatively common migrant and winter resident throughout California, except in areas with deep snow. However, breeding distribution for the species is poorly documented. There are very few breeding records for the Cascades/Sierra Nevada. It may no longer breed in the southern Sierra Nevada. It is thought to breed south in the Coast Ranges to about 35 ° latitude and at scattered location in the Transverse and Peninsular Ranges. It is an uncommon winter migrant to the Channel Islands and uncommon permanent resident and breeder in med-elevation habitats (Zeiner et al. 1990).

Suitable breeding habitat is ponderosa pine, black oak, riparian deciduous, mixed conifer and Jeffrey pine habitats. It prefers, but is not restricted to, riparian habitats. Critical elements of breeding habitat include the presence of north-facing slopes and plucking perches. It typically nests in dense, pole and small-tree stands of conifers, which are cool, moist, well shaded and with little ground cover, near water. The nest itself is a platform or cup in dense foliage against the trunk of the nest tree, or in the main crotch of the tree, usually 6-80 feet above ground. It's nests are the least conspicuous of the accipiters (Call 1978).

Sharp-shinned hawk breeds April-August, peaking late May-July. Clutch sizes average 4-5 eggs, ranging from 3-8. Incubation is 34-35 days and is shared by both parents. The male brings food to the female and the semi-altricial young. Fledging occurs at approximately 60 days and coincides with the fledging of prey birds, providing a food supply for young, inexperienced hunters. Nests may be reused in subsequent breeding seasons (Zeiner et al. 1990).

Prey items are mostly small birds, usually no larger than jays. This species also takes small mammals, insects, reptiles and amphibians. It hunts by perching and then darting out in sudden flight to surprise prey or cruises rapidly in search flights. It often hunts in a fashion similar to northern harrier, in low, gliding flights. It frequently forages in openings at edges of woodlands, hedgerows, brushy pastures and shorelines, especially where migrating birds are found. This species is an important predator of small birds and may compete with Cooper's hawk (Zeiner et al. 1990).

Threats to this species include pesticides and other contaminants, collisions with human-made objects and habitat degradation, primarily from timber harvest.

**Cooper's Hawk** - The Cooper's hawk is a crow-sized woodland raptor that breeds throughout much of the United States, southern Canada, and northern Mexico. Despite its broad distribution, it is a secretive, inconspicuous species, particularly in the breeding season and even in areas where it is a common nester. In California the species' breeding range is from Siskiyou County south to San Diego County, formerly in riparian forests along the lower Colorado River; scattered nesting in interior valleys and woodlands of the Coast Range from Humboldt County south, and in western foothills of the Sierra Nevada. Cooper's hawk may still breed at oases in desert regions (e.g, Owens Valley; Garrett and Dunn 1981). It is a rare and local breeder in Marin County (Shuford 1993).

Preferred breeding habitat is deciduous, mixed, and evergreen forests (Bent 1937, Titus and Mosher 1981, Reynolds et al. 1982 and Rosenfield et al. 1991), and deciduous stands of riparian habitat (Call 1978, Kennedy 1988b). Increasingly in recent years, Cooper's hawk breeds in suburban and urban areas (Beebe 1974, Stahlecker and Beach 1979, Murphy et al. 1988, Rosenfield et al. 1991, Boal and Mannan 1999, Rosenfield et al. 2000, McConnell 2003). In conifer forests in Oregon, principal habitat differences among the three North American accipiters were linked to the age of the nesting stand, with Sharp-shins in the youngest (25–50 yr old) and densest (1180 trees/ha) stands, Cooper's in intermediate (30–70 yr, 907 trees/ha), and goshawks in older (= 150 yr) and more open stands (482 trees/ha) (Reynolds 1983). Moore and Henny (Moore and Henny 1983) reported comparable results for nest sites of these species, also in Oregon conifer forests, and noted that vegetative structure at Cooper's hawk nests was similar to that described in eastern deciduous forests (Titus and Mosher 1981).

Breeding pairs are typically present at the nest site as early as the beginning of March with nest building and copulation by mid- to late-March. Nest construction generally takes about 2 weeks to complete but can take significantly less time. First eggs are usually early to late April. Incubation is 30-36 days and fledging at 26-29 days. Pairs often re-nest if the initial clutch is lost in early incubation or before (Meng 1951, Meng and Rosenfield 1988, Rosenfield and Bielefeldt 1999).

Prey items are typically medium-sized birds and some small mammals. Cooper's hawk relies on concealment and uses a series of brief perch-and-scan episodes to find prey, but also flies close to the ground, using bushes to shield its approach; a sudden burst of speed is the usual pursuit when hunting from a perch (Meng 1951, Beebe 1974, Fischer 1986, Kennedy and Gessaman 1991). The species is also known to hunt from higher flight, stooping on prey in open habitat (Mead 1963, Clark 1977) and occasionally pursuing prey on foot (Bent 1937, Rosenfield 1988).

Threats to this species include pesticides and other contaminants, collisions with human-made objects and habitat degradation, primarily from timber harvest.

**Northern Goshawk** – Northern goshawk is a large forest raptor (largest of the 3 North American accipiters), occupying boreal and temperate forests throughout the Holarctic. In North America, it breeds from Alaska to Newfoundland and south. It is a partial migrant and winters throughout its breeding range. Some individuals undergo short movements to lower elevations during winter, apparently in search of food (Squires and Reynolds 1997).

Preferred breeding habitat is mature forest with high (60-90%) canopy closure and large trees on moderate slopes with open understories in either coniferous, deciduous, or mixed-pine forests, depending on availability (Reynolds et al. 1982, Speiser and Bosakowski 1984, Squires and Ruggiero 1996). Nest trees are usually one of the largest trees in the nest area and most territories contain several (1-5) alternative nest trees. The nest is a bowl constructed of thin sticks lined with tree bark and greenery. Forest stands containing nests are often small (24-247 acres). In California, maximum distance between alternate nest stands was 1 mile and approximately 85% of alternate nest stands were <1,093 yards apart. Depending on the continuity of forest cover, nests of adjacent pairs occur at regular intervals (Squires and Reynolds 1997).

Breeding pairs typically return to their nesting territories by March or early April, eggs are laid late April-early May. The incubation period is 28-38 days and fledging occurs at 40-42 days (mid-June – mid-August, depending on nest initiation date) (Squires and Reynolds 1997).



Northern goshawk is an opportunistic predator, taking a wide variety of prey, depending on region, season, vulnerability and availability primarily including ground and tree squirrels, rabbits and hares, larger passerines, woodpeckers, game birds, and corvids. Occasionally, reptiles and insects are also taken.

Foraging individuals travel through the forest in a series of short flights, punctuated with brief periods of prey searching from elevated hunting perches (short duration sit-and-wait predatory movements). Occasionally, the species hunts by flying rapidly along forest edges, openings and through dense vegetation to surprise prey (Johnsgard 1990) and also attack in flight (Kenward 1982). The species may also stalk prey on foot, using vegetation and topography for concealment (Bergstrom 1985, Backstrom 1991).

Plucking perches are an essential component of suitable goshawk habitat and some perches near nests are used repeatedly for plucking prey. Plucking post structures may be downed logs, stumps, or old nests. Preferred perches are low, bent-over trees or saplings and are typically located in denser portions of the secondary canopy and are open, upslope from and fairly close to the nest, (Bull and Hohmann 1994, Reynolds and Meslow 1984).

**Osprey** – Osprey is a piscivorous raptor whose distribution in the Americas includes a breeding range that is widespread and expanding throughout Canada and the United States. Along the coast of California, the species' range has expanded south to include a growing population around San Francisco Bay (Brake et al. 2014) and two small disjunct populations from San Diego to Irvine and east and north of San Bernadino.

Breeding habitat varies greatly but common components are: 1) adequate supply of accessible fish within energetically adequate commuting distance (10–20 km) of nest; shallow waters (0.5–2 m deep) generally provide most accessible fish; 2) open nest sites free from predators (especially mammalian)—such sites generally elevated (e.g., trees, large rocks, especially over water, or bluffs), or predator-free islands, or, increasingly, artificial structures such as nest platforms, towers supporting electrical lines or cellphone relays, and channel markers; 3) ice-free season of sufficient duration to allow fledging of young.

Generally the male seeks the nest site before the arrival of the female, but pairs do visit sites together. Male may start nest-building (stick nest) before pairing; female not known to do so. Rarely single females will settle at a nest site before pairing, especially if they have bred at the site previously. During the summer breeding season, single (and occasionally paired) birds may prospect sites, apparently for the next season. This is especially true for failed breeders, who spend considerable time visiting new sites but includes young birds that have yet to establish their first nest. Common features of nest sites are generally: proximity to water, especially good feeding areas; openness, allowing easy access to nest; safety from ground predators, achieved by height or over-water location (islands; flooded trees, channel markers); sufficiently wide and stable base to accommodate the large nest. The species habituates quickly and easily to nearby human activity.

Eggs are laid soon after the nest takes shape and clutch size is 1-4 eggs (3 typical). Incubation is an average of 37 days. Fledging is 62.5 days among ospreys in the Gulf of California.

Threats to this species include ingestion of lead, plastics and other contaminants, collisions with vehicles and aircraft, fishing nets/line and habitat degradation. The species is tolerant of development but some regional population declines have been associated with loss of nest sites resulting from timber harvest and agricultural activities.

**American Peregrine Falcon** – This species was formerly extirpated from much of its original range due to the effects of synthetic organic chemicals such as DDT. Reoccupancy and restoration is still incomplete. The species current breeding distribution is local and spotty throughout most of North America. Areas where the range is particularly diminished are the mid-western and eastern United States, where most of the distribution is urban, but reportedly growing quickly. Areas of Alaska and the western United States including Utah, Arizona, western Colorado and northern California are where the Peregrine falcon is most widely found (White et al. 2002). The species is a long-distance migrant that travels one of the longest distances of any raptor and may undertake long water crossings. It is a leap-frog migrant that commonly follows leading and diversion lines and that travels alone or in small groups of 10-20 individuals. Peregrine falcons hunt during migration and may stay as long as eight days at stopovers for this purpose. Satellite tracked individuals have been shown to migrate distances of between 87-124 miles per day. Migration for Peregrine falcons occurs mostly from morning through late afternoon. Migration movements can be broad front or narrow front in form. The Peregrine falcon is known to migrate at heights at or below 2,953 feet. The Peregrine has clear migration routes which either occur along leading lines or coastal areas with ideal habitat on the Eastern and Gulf Coasts and Eastern Mexico such as Chincoteague and Assateague Island in MD and VA and Padre Island, TX and Veracruz, Mexico. Peregrines also migrate in lesser concentrations along shores of the Great Lakes, the West Coast of the U.S., western Mexico, and the eastern front of the Rocky Mountains (Goodrich and Smith 2008, p. 138).

Preferred habitat includes many terrestrial biomes in North America. Most often, breeding pairs utilize habitats containing cliffs and almost always nest near water (Wheeler 2003, p. 477, White et al. 2002). Open habitats are generally used for foraging. Non-breeding individuals may also occur in open areas without cliffs. Many artificial habitats like towers, bridges and buildings are also utilized (White et al. 2002).

Peregrine falcons typically build their nests in substrates on ledges of cliffs ranging from 8-400 m in height. The male creates a depression in the substrate by scraping it with his feet. Most Peregrine falcons will use ledges used by other Peregrines in previous years. In Humboldt County, Peregrines are known to have nested in large redwood tree snags, which imitate cliffs (Buchanan et al. 2014). Peregrines arrive at nest sites around April or May and egg laying may begin from two weeks to two months later depending on the latitude.

Peregrine falcons prey on a select group of species in regional and local areas, and their selections may vary seasonally. Their prey mainly consists of birds ranging from small passerines to mid-sized waterfowl. They may also feed on bats. Juveniles primarily feed on large flying insects (Wheeler 2003, p. 477). Peregrine falcons are active throughout the day from dawn to dusk and can even be nocturnal. They usually hunt in the morning and late evening (Wheeler 2003, p. 477). Peregrine falcons are aerial and perching hunters that rarely scavenge. From perches, Peregrines dive quickly to capture prey. In an aerial attack, Peregrine falcons will dive at high speed while gliding, soaring or kiting at a low altitude. Prey is often eaten while soaring, gliding or kiting (Wheeler 2003, p. 478).

Threats include illegal shooting in North America and on wintering grounds. Poisoning, especially from organochlorides was historically responsible for severe Peregrine declines; however, following the DDT ban, levels of this poison significantly decreased, and Peregrine falcon populations have since made a full recovery (Wheeler 2003, p. 490). Peregrine Falcons still fall victim to poisoning, but no poisons are presently known to have impacts to Peregrine

falcons at the population level in North America (White et al. 2002). Adult mortality sources also include electrocution from utility wires and poles. Juveniles collide with several anthropogenic structures and vehicles including windows, cars and trains and succumb to natural predators and mortality resulting territorial aggression (Wheeler 2003, p. 490). Human disturbance near nests can also cause decreased nest success (Wheeler 2003, p. 491).

**Northern Spotted Owl** - Northern spotted owl was listed as Threatened June 26, 1990 (USDI FWS 1990). Critical Habitat was designated on January 15, 1992 and most recently revised on May 11, 2016 (USDI FWS 1990, 1992). The proposed action partially falls within designated Critical Habitat for northern spotted owl.

This species occurs along the Pacific coast from southwestern British Columbia to central California in forested habitats. Typically, northern spotted owl is strongly associated with late-successional/old-growth forests. In northern California it also occurs in some types of relatively young forests, especially where those forests are structurally similar to late-successional/old-growth forest stands (Solis and Gutierrez 1990). Interference competition resulting from the range expansion of the closely related and more aggressive barred owl (*Strix varia*) into the Pacific Northwest has forced northern spotted owl into lower quality habitat. However, research suggests extinction rates are higher and nest colonization rates lower in fragmented forests and that older forest at the core of northern spotted owl territories is necessary for suitable nest sites (Dugger et al. 2005, Dugger et al. 2011, Swindle et al. 1999).

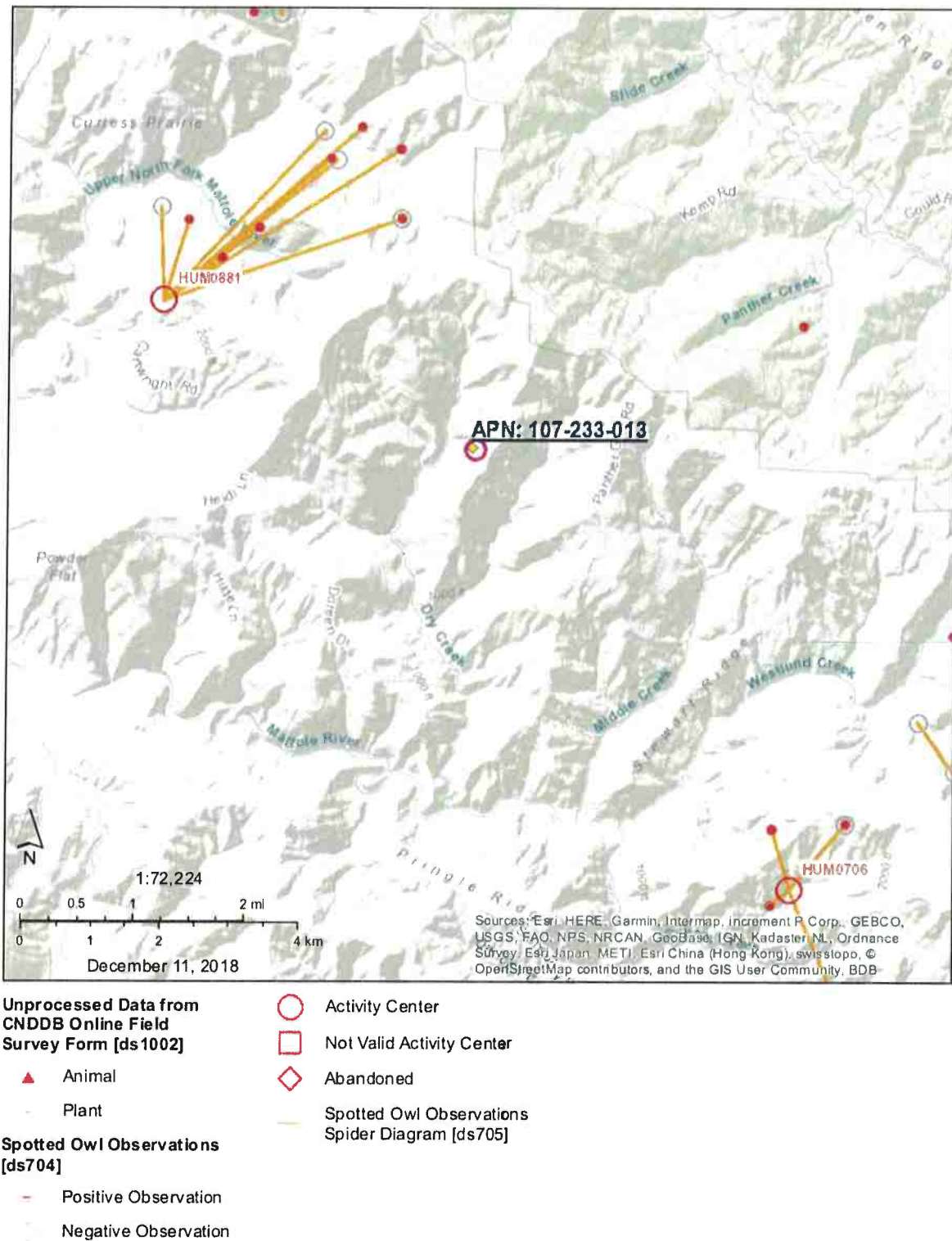
Spotted owls generally select nesting and roosting habitat in areas that exhibit dense canopy closure, complex forest structure, decadence (snags, downed logs and large woody debris, broken top trees), and open understory suitable to sub-canopy flight (Solis and Gutierrez 1990, Hunter and Gutierrez 1995). In the region of northwestern California where the action is proposed, dusky-footed woodrat (*Neotoma fuscipes*) is the primary prey species of northern spotted owl (Zabel et al. 1993). Current data suggest that northern spotted owl foraging habitat in the project region generally tends to follow the distribution of habitats with abundant dusky-footed woodrat populations (Gutierrez et al. 1998, Ward and Gutierrez 1998). Primarily, these are areas with conifers that exhibit comparatively smaller basal areas than those of nesting and roosting habitats (Solis and Gutierrez 1990) and generally occur at ecotones between late and early seral stage mixed conifer forests (Ward and Gutierrez 1998, Zabel et al. 1993).

Spotted owls are generally monogamous and exhibit prolonged parental care (Gutierrez et al. 1995). Long-lived and territorial, pairs are typically spaced 1-2 miles apart in uniform habitat depending on local topographic conditions and demonstrate breeding site fidelity. The breeding season begins with pair bond formation from February to early March and ends with fledging of young through August with variation among pairs dependent upon nest initiation date (Gutierrez et al. 1995).

The decline of the northern spotted owl has been attributed to loss of nesting habitat due to commercial timber harvest and more recently to competition from the barred owl, which is expanding its range in the western United States (Dugger et al. 2011).

There are no northern spotted owl activity centers known to occur within 1.3 miles of the action area although several occur within 5 miles (HUM0881, HUM0706, HUM0017, HUM0976, and HUM0018). The nearest activity center (HUM0881) is located approximately 2.3 miles northwest of the project site as depicted in the map below (Figure 3).

Figure 3. Northern Spotted Owl Activity Centers in the Vicinity of the Guergui Mandelov Project Site.



**Vaux's Swift** – Vaux's swift is a summer resident of northern California. It breeds fairly commonly in the Coast Ranges from Sonoma County north and very locally south to Santa Cruz County, in the Sierra Nevada and possibly in the Cascade Range. It prefers redwood and Douglas-fir habitat with nest sites occurring in large hollow trees and snags, especially tall, burned-out stubs. Vaux's swift is a fairly common migrant throughout most of the state in April and May and in August and September. A few winter irregularly in the southern coastal lowlands (Grinnell and Miller 1944, McCaskie et al. 1979, Garrett and Dunn 1981).

Nesting occurs in redwood, Douglas-fir and occasionally in chimneys and buildings, often in large flocks. Nests are typically built on the vertical inner wall of a large, hollow tree or snag, especially those charred by fire (Bent 1940). Appropriate nest sites in large, hollow trees are likely the most important habitat requirement for this species. Breeding occurs from early May to mid-August. Solitary nesting is apparently typical. Clutch Size in 3-7 eggs, usually 4-5. Incubation is 18-20 days. Altricial young are tended by both parents and leave the nest tree at approximately 28 days (Zeiner et al. 1990).

Foraging is exclusively on flying insects taken in long, continuous foraging flights. Vaux's swift feed high in the air over most terrains and habitats and commonly at lower levels as well in forest openings, above burns, and especially along rivers (Grinnell and Miller 1944) and lakes (Terres 1980).

This species apparently migrates to wintering grounds in Mexico and Central America, but a few winter irregularly in coastal lowlands of southern California. It may enter torpor in periods of cold weather, when flying insects are scarce, as some other swift do (Terres 1980).

Threats to this species include timber harvest activities that remove older tree and hollow snags and eliminate nest and roost habitat and other management activities that reduce the incidence of heartrot and aerial insects thus reducing potential habitat and prey for Vaux's swift (Bull and Collins 2007).

**Purple Martin** – In California, the purple martin is an uncommon to rare local summer resident in variety of wooded low-elevation habitats throughout the state, a rare migrant in spring and fall and absent in winter. It occupies valley foothill and montane hardwood, valley foothill and montane hardwood-conifer and riparian habitats. It also occurs in coniferous habitats, including closed-cone pine-cypress, ponderosa pine, Douglas-fir and redwood. In the south, it now only occurs as a rare and local breeder on the coast and in interior mountain ranges, with few breeding locations (Garrett and Dunn 1981). It is absent from higher desert regions except as a rare migrant. In the north, it is an uncommon to rare local breeder on the coast and inland to Modoc and Lassen Counties (McCaskie et al. 1979 and Airola 1980). It is also absent from the higher slopes of the Sierra Nevada. The species inhabits open forests, woodlands and riparian areas during the breeding season. It is found in a variety of open habitats during migration, including grassland, wet meadow and fresh emergent wetland, usually near water (Zeiner et al. 1990).

Breeding habitat includes old-growth, multi-layered, open forest and woodland with snags. Nesting occurs primarily in old woodpecker cavities and sometimes in human-made structures, in nest boxes, under bridges and in culverts. Nests are often located in a tall, old, isolated tree or snag in open forest or woodland (Dawson 1923). The species is not as likely to use nest boxes in California as it is in the eastern U.S. (Zeiner et al. 1990). Nesting occurs from April into August, with peak activity in June. Pairs nests colonially or singly, depending on nest site availability. It



lays 3-8 eggs with clutch size averaging 4-5. It may raise 2 broods in some years. Altricial young are tended by both parents and leave the nest at 24-31 days (Harrison 1978).

Foraging is on insects which purple martin hawks on long, gliding flights 100-200 feet above the ground (Airola 1980). It occasionally forages on the ground for ants and other insects (Bent 1942).

Seasonal movements include arrival from South America in late March. Numbers during migration and through the summer remain small and it departs again by late September.

Threats to this species include the continued loss of riparian habitat that has already resulted in marked declines in recent decades, removal of snags and competition for nest cavities from European starlings (*Sturnus vulgaris*) and house sparrows (*Passer domesticus*). It has been eliminated from much of its historical range in California (Remsen 1978).

**Yellow Warbler** - The yellow warbler's breeding distribution in California includes from the coast range in Del Norte County, east to Modoc plateau, south along the coast range to Santa Barbara and Ventura counties and along the western slope of the Sierra Nevada south to Kern County. It also breeds along the eastern side of California from the Lake Tahoe area south through Inyo County as well as in several southern California mountain ranges and throughout most of San Diego County. It winters in the Imperial and Colorado river valleys (Zeiner 1990). It is a common migrant on the Channel and Farallon Islands in spring and fall (DeSante and Ainley 1980, Garrett and Dunn 1981).

Breeding habitat is in riparian woodlands from coastal and desert lowlands up to 8,000 feet in the Sierra Nevada. It also breeds in montane chaparral and in open ponderosa pine and mixed conifer habitats with substantial amounts of brush. Numbers of breeding pairs have declined dramatically in recent decades in many lowland areas (southern coast, Colorado River, San Joaquin and Sacramento Valleys). It is now rare to uncommon in many lowland areas where it was formerly common (McCaskie et al. 1979 and Garrett and Dunn 1981). Territory for this species often includes tall trees for singing and foraging and a heavy brush understory for nesting (Ficken and Ficken 1966). Breeding is from mid-April to early August with peak activity in June. Pairs breed solitarily. Nest is an open cup placed 2-16 feet above ground in a deciduous sapling or shrub. Clutch size is 3-6 eggs (usually 4 or 5) and are incubated by the female for 11 days. Altricial young are tended by both parents until fledging at 9-12 days (Harrison 1978). Young breed the following year.

Foraging is primarily on insects and spiders gleaned by hovering in the upper canopy of deciduous trees and shrubs. It occasionally hawks insects from the air or forages on berries as well (Bent 1953, Ehrlick et al. 1988).

Activity pattern includes arrival in California in April and departure by October. There is apparently a post-breeding upslope movement mostly to middle elevations (Beedy 1975). Small numbers regularly overwinter in southern California lowlands (Garrett and Dunn 1981).

Threats to this species include predation by small mammals, accipiters, corvids and snakes. Brood parasitism by brown-headed cowbird (*Molothrus ater*) is also occurs extensively and apparently has been a major cause of the drastic decline in numbers of this species in lowland locations in recent decades (Bent 1953, Garrett and Dunn 1981 and Remsen 1978).

**Townsend's Big-eared Bat** - Townsend's big-eared bat is found throughout California but the details of its distribution are not well known. This species is found in all but subalpine and alpine

habitats, and may be found at any season throughout its range. Once considered common, the species is now considered uncommon in California. It is most abundant in mesic habitats (Zeiner et al. 1990).

Small moths constitute the principal food source of Townsend's big-eared bat. Beetles and a variety of soft-bodied insects also are taken. Prey is captured in flight using echolocation, or by gleaning from foliage. Flight is slow and maneuverable and the species is capable of hovering.

Townsend's big-eared bat is nocturnal and hibernates. Peak activity is late in the evening preceded by flights close to the roost. Hibernation occurs from October to April (Zeiner et al. 1990).

Caves, mines, tunnels, buildings, or other human-made structures are required for roosting. This species may use separate sites for night, day, hibernation, or maternity roosts. Hibernation sites are cold, but not below freezing. Individuals may move within the hibernaculum to find suitable temperatures. Roosting sites are the most important limiting resource for this species (Zeiner et al. 1990).

Small clusters or groups (usually fewer than 100 individuals) of females and young form the maternity colony. Maternity roosts are in relatively warm sites. Most mating occurs from November-February, but many females are inseminated before hibernation begins. Sperm is stored until ovulation occurs in the spring, with gestation lasting 56-100 days depending on temperature, size of the hibernating cluster, and time in hibernation. Births occur in May and June, peaking in late May. A single litter of 1 is produced annually. Young are weaned in 6 weeks and fly by 2.5-3 weeks after birth. Growth rates depend on temperature. The maternity group begins to break up in August. Females mate in their first autumn, males in their first or second autumn. About half of young females return to their birth site after their first hibernation. Subsequent return rates are 70-80%. The maximum recorded age is 16 years.

This species is extremely sensitive to disturbance of roosting sites. A single visit may result in abandonment of the roost. All known nursery colonies in limestone caves in California apparently have been abandoned. Numbers reportedly have declined steeply in California and they are especially sensitive to injury by wing banding (Humphrey and Kunz 1976, Zeiner et al. 1990).

**Silver-haired Bat** - The distribution of the silver-haired bat includes coastal and montane forests from the Oregon border south along the coast to San Francisco Bay, and along the Sierra Nevada and Great Basin region to Inyo County. It also occurs in southern California from Ventura and San Bernardino Counties south to Mexico and on some of the Channel Islands. This species also is recorded in Sacramento, Stanislaus, Monterey and Yolo Counties. During spring and fall migrations the silver-haired bat may be found anywhere in California. There may be some sexual segregation in the summer range, females occurring further to the north. Silver-haired bats are common, but erratic in abundance. Summer habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. Summer range is generally below 2750 m (9,000 feet) (Barbour and Davis 1969, Izor 1979, Kunz 1982).

Silver-haired bat is primarily a coastal and montane forest dweller, foraging mainly on moths and other soft-bodied insects as well as beetles and hard-shelled insects to some extent. Foraging flight is slow and fluttery with short glides. Feeds less than 20 feet above forest streams, ponds, and open brushy areas. Uses echolocation to locate prey.

Requires hollow trees, snags, buildings, rock crevices, caves, and/or trees with scaly bark they can roost under for roost sites and needs drinking water. Poor urine-concentrating ability probably restricts this species to mesic habitats (Geluso 1978).

Females may form nursery colonies or occur as solitary individuals in dense foliage or hollow trees during reproduction. Mating occurs in the fall, beginning in late August. Sperm is stored over the winter. After a gestation of 50-60 days, the young are born from May-July. One or two young (average 1.8) are born. Lactation lasts about 36 days. The young are mature in their first summer. This species has been shown to live to 12 years.

Silver-haired bat hibernates, emerging earlier than most bats. Most activity is crepuscular and the home range size is 46-91 me (150-300 feet).

Where this species occurs with red and hoary bats, the species differ in time of activity (Kunz 1973). Where the big brown bat is numerically superior, the silver-haired bat shifts to a later activity time (Whitaker et al. 1977). May be found foraging with a wide variety of bat species. This species has been classified as a "moth strategist" (Black 1974), but diet varies with study location. Rabies is known to occur in silver-haired bats. Owls and skunks have been known to prey on this bat.

**Western Red Bat** – The western red bat is common in some areas of California, occurring from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts. The winter range includes western lowlands and coastal regions south of San Francisco Bay. There is migration between summer and winter ranges, and migrants may be found outside the normal range (Zenier et al. 1990).

Roosting habitat includes forests and woodlands from sea level up through mixed conifer forests. Feeds over a wide variety of habitats including grasslands, shrublands, open woodlands and forests, and croplands. It is not found in desert areas. During warm months, sexes occupy different portions of the range (Williams and Findley 1979).

This species roosts primarily in trees, less often in shrubs. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas. Preferred roost sites are protected from above, open below, and located above dark groundcover. Such sites minimize water loss. Roosts may be from 2-40 feet above ground level. Females and young may roost in higher sites than males (Zeiner et al. 1990).

Foraging is on a variety of insects. The most important prey are moths, crickets, beetles, and cicadas. Foraging flight is slow and erratic. Though capable of rapid, direct flight, the species is maneuverable. Utilizing echolocation, it captures insects in wing and tail membranes. It is frequently seen foraging in large concentrations. Foraging may be from high above treetops to nearly ground level. The same foraging route may be followed on many occasions (Zeiner et al. 1990).

During reproduction, young are born in roost sites as described above. Family groups nest together and nursery colonies are comprised of many females and their young.

A nocturnal species, western red bat begins foraging 1-2 hours after sunset and may forage throughout the night with a second peak before sunrise. It has been seen at temperatures as low as 7° C (44° F), but is generally active above 20°C (68°F). In cold climates it spends the winter in hibernation, with arousals on warm winter days. In California, most individuals probably

make relatively short migrations between summer and winter ranges. Migration occurs in the spring (Zeiner et al. 1990).

**Long-eared Myotis** - The long-eared myotis is widespread in California, but generally is believed to be uncommon in most of its range. It avoids the arid Central Valley and hot deserts, occurring along the entire coast and in the Sierra Nevada, Cascades, and Great Basin from the Oregon border south through the Tehachapi Mountains to the Coast Ranges.

Suitable habitat can be found in nearly all brush, woodland, and forest habitats, from sea level to at least 2,700 m (9,000 feet), but coniferous woodlands and forests seem to be preferred.

This species roosts in buildings, crevices, spaces under bark, and snags. Caves are used primarily as night roosts. The long-eared myotis roosts singly, or is found in fairly small groups. Nursery colonies consist of 12-30 individuals and are found in buildings, crevices, snags, and behind bark.

Foraging occurs along habitat edges, in open habitats and over water. Long-eared myotis feeds on a variety of arthropods including beetles, moths, flies, and spiders. It takes more beetles than other myotis species, and there is some evidence that it takes more beetles when it is sympatric with *M. auriculus* (Black 1974, Husar 1976). Insects are caught in flight, gleaned from foliage, or occasionally taken from the ground. Foraging flight is slow and maneuverable. This species is capable of hovering. It forages among trees, over water, and over shrubs, usually less than 12 meters (40 feet) above the ground. This species has a relatively poor urine concentrating ability, and probably requires water (Geluso 1978).

A nocturnal species, long-eared myotis emerges late in the evening. It hibernates but little is known about its winter habits although it likely makes local movements to suitable hibernacula.

**Fringed Myotis** - The fringed myotis is widespread in California, occurring in all but the Central Valley and Colorado and Mojave deserts. Its abundance appears to be irregular; but it may be common locally. It occurs in a wide variety of habitats with recorded ranges in elevations from sea level to 9,350 feet in New Mexico (Barbour and Davis 1969). Optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer, generally at 4,000 to 7,000 feet (Zeiner et al. 1990).

Fringed myotis feeds mostly on beetles but also on moths, arachnids, and orthopterans (Black 1974). Foraging flight is slow and maneuverable, and capture of prey may utilize wing and tail membranes. This species is capable of hovering, and occasionally may land on the ground. It feeds over open habitats (including water) and by gleaning from foliage.

Fringed myotis is nocturnal and hibernates. It is active from shortly after sunset to 4-5 hours after sunset. Wind and precipitation reduce activity. The period of hibernation is October through March. Pregnant and lactating females may be heterothermic to conserve energy (Studier et al. 1973, Zeiner et al. 1990). This species is also migratory, making relatively short, local movements to suitable hibernacula.

This species roosts in caves, mines, buildings, and crevices. Separate day and night roosts may be used, with adults and sub-adults generally forming separate groups in the roost. Maternity colonies of up to 200 individuals are located in caves, mines, buildings, or crevices. Adult males are absent from maternity colonies, which are occupied from late April through September. Maternity group members may remain together during hibernation. The fringed myotis is easily disturbed at roosting sites. (Zeiner et al. 1990).

Mating occurs in the fall, followed by delayed fertilization. Gestation lasts 50-60 days. The young are born in late June. A single offspring is produced per year. Females are lactating from July through August (Zeiner et al. 1990).

**Long-legged Myotis** - The long-legged myotis is common in California, occurring in the coastal ranges from Oregon to Mexico, the Cascade/Sierra Nevada ranges to southern California, most of the Great Basin region, and in several Mojave Desert mountain ranges. It is absent only from the Central Valley, the Colorado and Mojave deserts (except in mountain ranges), and from eastern Lassen and Modoc Counties.

This species is most common in woodland and forest habitats above 1,200 meters (4,000 feet). It forage in chaparral, coastal scrub, Great Basin shrub habitats, and in early successional stages of woodlands and forests. It is uncommon in desert and arid grassland habitats. Records range from sea level to 3,600 meters (11,400 feet); the latter record is from New Mexico (Findley et al. 1975).

This species roosts in rock crevices, buildings, under tree bark, in snags, mines, and caves. Separate day and night roosts may be used. Trees probably are the most important day roosts. Caves and mines are used only as night roosts. There are a few records of hibernation in caves.

Nursery colonies are formed that consist of hundreds of individuals, usually under bark or in hollow trees, but occasionally in crevices or buildings.

Feeding occurs over water, and over open habitats, using denser woodlands and forests for cover and reproduction (Warner and Czaplewski 1984). The long-legged myotis feeds on flying insects, primarily moths (Black 1974, Whitaker et al. 1977, 1981). Flight of this species is strong and direct. It feeds at fairly low heights 3-5 meters (10-15 feet) over water, close to trees and cliffs, and in openings in woodlands and forests. This species is not particularly maneuverable, and generally it makes a single attempt at capture during a feeding pass. Associated with these flight and feeding patterns is the ability to detect prey at a long distance (10 meters) (Fenton and Bell 1979). The long-legged myotis responds to short-lived patches of high insect density, often congregating with other bat species (Bell 1980). This species drinks regularly, and has poor urine-concentrating ability.

A nocturnal species, long-legged myotis emerges at or shortly after, dusk, later than some other species (e.g., *Myotis californicus*, *M. occultus*, and *Pipistrellus hesperus*) (Jones 1965). Fairly cold-tolerant, this species does hibernate during winter and likely makes short migrations to suitable hibernacula.

**Yuma Myotis** - The Yuma myotis is common and widespread in California. It is uncommon in the Mojave and Colorado Desert regions, except for the mountain ranges bordering the Colorado River Valley. Found in a wide variety of habitats ranging from sea level to 3,300 meters (11,000 feet.), but it is uncommon to rare above 2,560 meters (8,000 feet).

Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water, which it uses as foraging sites and sources of drinking water.

The Yuma myotis roosts in buildings, mines, caves, or crevices. The species also has been seen roosting in abandoned swallow nests and under bridges. Separate, often more open, night roosts may be used.



Maternity colonies of several thousand females and young may be found in buildings, caves, mines, and under bridges. Warm, dark sites are preferred. Individuals are clustered tightly in the warmest sites when temperatures are low. If temperatures exceed 40°C (104°F), bats seek cooler locations, and individuals roost farther apart.

Foraging is on a wide variety of small flying insects found by echolocation. This species usually feeds over water sources such as ponds, streams, and stock tanks. Prey includes moths, midges, flies, termites, ants, homopterans, and caddisflies (Easterla and Whitaker 1972, Black 1974, Whitaker et al. 1977, 1981). The Yuma myotis is an efficient forager, sometimes returning to the roost with a full stomach 15 min after dusk (Barbour and Davis 1969). These bats respond to temporary patches of prey, such as ant swarms (Vaughan 1980), although many authors report that regular foraging routes are followed. The Yuma myotis has a relatively poor urine concentrating ability, and frequently is observed drinking.

A nocturnal species, Yuma myotis emerges soon after sunset in many areas (Barbour and Davis 1969), but Jones (1965) reported that peak activity was 1-2.5 hours after sunset. Warm temperatures are preferred, and activity may be extended on warm nights. Winter habits are poorly known, but this species apparently hibernates and likely makes local or short migrations to suitable hibernacula. Individuals that spend the summer at high elevations probably move downslope.

**Humboldt Mountain Beaver** – Humboldt mountain beaver is found throughout the Cascade, Klamath, and Sierra Nevada Ranges. Distribution is often scattered with populations local and uncommon in the Sierra Nevada and other interior areas. Mountain beaver occurs in dense riparian-deciduous and open, brushy stages of most forest types. Typical habitat in the Sierra Nevada is montane riparian; in the Coast Ranges, most populations occur below 900 meters (2,700 feet) (Borrecco and Anderson 1980).

It occupies open and intermediate-canopy coverage with a dense understory near water. Deep, friable soils are required for burrowing, along with a cool, moist microclimate.

Burrows are located in deep soils in dense thickets, preferably near a stream or spring. Nests are lined with dry vegetation. Nest chambers are situated 1 to 4.5 feet below the ground surface. The species defends its burrow systems and nest sites (Goslow 1964, Borrecco and Anderson 1980).

Mountain beavers breed from December through March (peak in February). Young are born February to June (peak March through May). The species produces one litter per year, gestation is 28-30 days and lactation lasts up to 60 days. Litter size averages 2-3 (range 1-5). Females usually do not bear young until their second year. Longevity is unknown, but individuals have lived 3 years in captivity (Martin 1971, Hooven 1977, Lovejoy and Black 1979). Maximum life expectancy estimated to be 6 years.

The species is known to occasionally damage coniferous tree plantations with burrowing and gnawing. Shrews, moles, snowshoe hares, brush rabbits, deer mice, voles, minks, long-tailed weasels, and spotted skunks use mountain beaver burrows (Maser et al. 1981). Predators include bobcats, long-tailed weasels, minks, coyotes, and owls.

**North American Porcupine** – The North American Porcupine is one of the most widely distributed mammals in North America, but recent reports have suggested declines in parts of its range in the west. In California, little is known about the historical or current status of the porcupine, and maps of its distribution conflict considerably. Nevertheless, the species is of interest to natural resource managers. For much of the 1900s, foresters and others primarily

treated porcupines as pests because of the undesirable damage they inflict feeding on trees and gnawing on man-made items in search of salt. More recently, porcupines have been recognized for their role in promoting forest structure and diversity, and as potential prey for the fisher (*Pekania pennanti*) (Appel et al. 2017).

North American porcupine requires forested habitats with an understory of herbs, grasses and shrubs (Woods 1973), preferring open stands of conifers. In the spring and summer they will use meadows, brushy and riparian habitats for feeding. In winter, throughout much of its range, it is restricted to forest habitats. In relatively arid regions, it is somewhat restricted to riparian habitats (Zeiner et al. 1990).

The species uses caves, large rock crevices, hollow logs and trees for denning. Dens are occupied primarily in the winter when daytime temperatures drop below 0° C (32° F). It will occupy several different dens during the winter, moving every few weeks. Winter dens in caves were usually protected by rocks that kept warm and dry (Shapiro 1949). Simultaneous occupation of den sites by 2 animals was generally observed only during the breeding season (Dodge and Barnes 1975).

North American porcupine mates in the fall or winter. Gestation is nearly 7 months. Births usually take place from April through May, but may occur from February through June. There is a single litter of 1, with a few possible instances of twins (Struthers 1928, Spencer 1950, Costello 1966, Dodge 1975, Dodge 1982, Roze 1989). Females are seasonally polyestrous, recycling every 25-30 days if fertilization does not occur (Woods 1973). Their precocial young are capable of climbing and assuming a defensive posture soon after birth and can survive on a diet of vegetation by 2 weeks of age. Females are sexually mature as yearlings and reproduce for the remainder of their lives, which may be up to 10 years (Brander 1971, Woods 1973, Dodge 1982, Roze 1989).

This species was thought to be a generalist herbivore, consuming a wide range of plant species and materials including leaves, bark, needles, forbs, grasses and mast (Woods 1973, Roze 2009). However, recent studies suggest that the species should be classified as a facultative specialist due to its seasonal dependence on cambium and conifer needles (Coltrane 2012). This seasonal specialization distinguishes it from other herbivores (Rasmussen et al. 1975) and allows it to survive and persist where many other species cannot. The wide distribution of porcupines is often attributed to their impressive physiological tolerance for heat and cold as well as their broad diet (Roze 2009).

Mobility is apparently strongly influenced by habitat and thus varies from one area to another. Territories are not defended but males may fight over estrous females. Winter feeding trees are also sometimes defended.

Reasons for the decline of this species are unknown but likely related, at least in part, to extermination efforts by foresters.

**Sonoma Tree Vole** – Sonoma tree vole distribution is along the North Coast from Sonoma County north to the Oregon border, being more or less restricted to the fog belt. It is reported to be rare to uncommon throughout its range but the difficulty of locating nests and capturing individuals makes abundance hard to assess. It occurs in old-growth and other forests, mainly Douglas-fir, redwood, and montane hardwood-conifer habitats.

It constructs nest of Douglas-fir needles in trees, preferably tall trees. Nest may be situated on whorls of limbs against the trunk, or at the outer limits of branches. In young second-growth

Douglas-fir, the broken tops of trees are frequently used (Maser et al. 1981). Nest site varies from about 45 cm (18 in) in length, breadth and height, to 0.9 m (3 feet) in diameter, and 0.6 to 0.9 m (2 to 3 ) in height (Howell 1926). Older nursery nests may encircle entire tree.

Males nest most frequently in a tree nest constructed of fir needles, or, less frequently, in shallow burrows at the base of fir trees, beneath litter. Females seem to spend most of their lives in trees, constructing large, domed nursery nests of Douglas-fir needles, from 2-45 m (6-150 feet) above the ground. Howell (1926) noted that medium to large nests generally belonged to females, whereas small nests more likely belonged to males. Nests may be occupied by succeeding generations, increasing in size with each generation.

The species breeds year-round, but mostly from February through September. Gestation is 26 days for non-lactating females, up to 48 days for lactating females, including delayed implantation. Females may breed 24 hours after giving birth. Litter size averages 2 (range 1-4). There are one, or more, litters per year, and two litters of different ages may occupy a nest at the same time. Young are altricial, cared for by the female only. Weaning occurs at 30-40 days. The lengthy gestation and weaning periods may be related to the physiological cost of obtaining nutrients from coniferous foliage.

Sonoma tree vole specializes on needles of Douglas-fir and grand fir for foraging. Needles and twigs are gathered primarily during the night, and may be consumed where found, or brought to the nest. Needle resin ducts are removed. The remaining part is eaten, and the resin ducts may be used to line the nest cup. Young, tender needles are often eaten entirely. Food may be stored. Tender bark of terminal twigs may be eaten as well (Maser 1965, Maser et al. 1981). Drinking water is required, but in lab a colony maintained by Hamilton (1962) subsisted entirely on moistened needles. Under natural conditions, water probably is obtained from food, but individuals also lick dew and rain off needles of coniferous trees in the vicinity of nests (Maser 1965).

The home range of Sonoma tree vole probably encompasses one to several fir trees, with females often living in one tree and males visiting several trees (Howell 1926).

The spotted owl has historically been the main predator of Sonoma tree voles throughout its geographical distribution (Forsman 1976), but saw-whet owls also are predators and perhaps raccoons. Howell (1926) suggested that Steller's jays may be the most important predators of tree mice. Severe winter storms probably also affect local populations adversely.

**Pacific Fisher** – The fisher is a medium-sized, forest carnivore associated with late-seral and old-growth forest stands. In California, it has been extirpated from 50% of its former range as a result of trapping, habitat loss, and loss of prey species (i.e., porcupine). Fisher has become extinct in Oregon and Washington, causing the northern California population (West Coast DPS) to be reproductively isolated from conspecifics in the rest of North America. The species' current range in northern California includes Del Norte, Humboldt, Mendocino, Siskiyou, Shasta, and Trinity Counties (Center for Biological Diversity 2008).

Strongly associated with mature and late-successional forests, fisher inhabits stands exhibiting high canopy closure, large trees and snags, large woody debris, large hardwoods, and multiple canopy layers (Buskirk et al. 1994b). Denning and resting sites are important components of fisher habitat. Denning sites are utilized for giving birth and raising kits and resting sites are critical for resting between foraging bouts. Females give birth in natal dens and subsequently move their kits to one or several maternal dens over the breeding season (Nichol 2006). The

breeding season is mid-April to late-May (Frost et al. 1997). Denning and resting sites are large physical structures such as live trees, snags, and logs. Determining the attributes of suitable foraging habitat for fisher is harder as a result of their large home ranges and mobility (average home range size in northern California were 14,349 acres for males and 3,701 acres for females) but is thought to be similar to that of denning and resting habitat, often typified by characteristics associated with mature and late-successional forests (Dark 1997, Jones and Garton 1994, Zielinski 1999 in Center for Biological Diversity 2008, Zielinski et al 2004).

Pacific fisher has been shown to avoid areas with little forest cover or significant human disturbance, preferring large areas of contiguous interior forest (Dark 1997, Jones and Garton 1994, Powell 1993, Carroll et al. 1999, Weir and Harestad 2003). Seglund (1995) found that a majority of fisher rest sites (83%) were further than 328 feet from human disturbance and Dark (1997) documented that fishers used and rested in areas with less habitat fragmentation and less human activity. Rosenberg and Raphael (1986) found that presence of fishers was highly correlated with stand insularity and that they "decreased sharply in frequency of occurrence in stands <247 acres".

Fisher is an opportunistic, generalist predator, capturing a variety of prey items including birds, porcupines, snowshoe hares, squirrels, mice and voles, shrews, insects, deer carrion and fruit (Bowman et al. 2006, Martin 1994, Powell 1993, Zielinski et al. 1999). In northern California fisher has been found to have a slightly different diet than elsewhere across its range. Snowshoe hare and porcupine are less abundant and make up less of the fisher diet while reptiles were determined to be a much more important prey item than in other regions, particularly in the interior (Golightly et al. 2006).

Petitions to list fisher in the western United States under FESA have been submitted three times (Beckwill 1990, Carlton, 1994, Greenwald et al. 2000). The USFWS determined that there was insufficient information to indicate that the Pacific fisher (*Martes pennanti pacifica*) is a valid, genetically distinct, subspecies. However the agency did recognize the West Coast Range as a Distinct Population Segment (DPS) (USDI FWS 1991).

## **8 Environmental Consequences**

### **8.1 Special Status Plants**

The project proposes no new grading, disturbance to natural vegetation or activities outside the existing footprint. Thus, there will be no change in the existing conditions or potential for future impacts to special status plants.

The proposed project will have *no effect* on special status plants.

### **8.2 Special Status Natural Communities**

There are no special status natural communities near the project area.

The proposed project will have *no effect* on special status plants.

### **8.3 Riparian Habitat**

There is no riparian habitat in the project area.

The proposed project will have *no effect* on riparian habitat.

## 8.4 Waters of the United States

Replacement or installation of culverts shall not adversely impact the small stream provided work is done under an approved Lake and Streambed Alteration agreement with CDFW.

The proposed project will have *no effect* on Waters of the United States.

## 8.5 Wildlife

### 8.5.1 Direct & Indirect Effects

#### Obscure Bumble Bee and Western Bumble Bee

No disturbance to streambank, riparian areas, prairies or other habitat that could potentially impact bumblebee preferred habitat are expected to occur as a result of the proposed project.

The proposed action will have *no effect* on obscure or western bumble bee.

#### Northern Red-legged Frog

No surveys have been conducted for northern red-legged frog within the action area. However, marginally suitable habitat for the species does occur in association with the ephemeral on site.

No alteration of or disturbance to aquatic habitat suitable for northern red-legged frog is proposed.

The proposed action will have *no effect* on northern red-legged frog.

#### Foothill Yellow-legged Frog

No surveys have been conducted for foothill yellow-legged frog within the action area. However, suitable habitat for the species does occur in association with the streams on site.

No alteration of or disturbance to aquatic habitat suitable for foothill yellow-legged frog is proposed.

The proposed action will have *no effect* on foothill yellow-legged frog.

#### Western Pond Turtle

Western pond turtle is known to occur in the greater project vicinity and could occur at the project site. However, no ground-disturbing activities at the stream banks where western pond turtle habitat occurs are proposed that could result in adverse impacts to individuals or nests.

The proposed action will have *no effect* on western pond turtle.

#### Sharp-shinned Hawk

Forested and edge habitats on site represent suitable habitat for sharp-shinned hawk. However, proposed activities will not degrade or remove any such habitat or result in human or noise disturbance sufficient to result in harassment of the species.

The proposed action will have *no effect* on sharp-shinned hawk.

#### Cooper's Hawk

Forested and edge habitats on site represent suitable habitat for Cooper's hawk. However, proposed activities will not degrade or remove any such habitat or result in human or noise disturbance sufficient to result in harassment of the species.

The proposed action will have *no effect* on Cooper's hawk.

### **Northern Goshawk**

Surveys for northern goshawk were not conducted within the action area as habitat on site is not of a sufficient age/structure to be considered suitable nesting habitat. However, the species is known from the greater project vicinity.

Proposed activities will not degrade or remove any forested habitat or result in human or noise disturbance sufficient to result in harassment of the species.

The proposed action will have *no effect* on northern goshawk.

### **Osprey**

Osprey uses both the Mattole and Eel Rivers, located approximately 3 miles south and 7 miles east of the project area, respectively. However, no osprey nests are known from the immediate project area.

Further, proposed activities will not degrade or remove any forested habitat or result in human or noise disturbance sufficient to result in harassment of the species.

The proposed action will have *no effect* on osprey.

### **American Peregrine Falcon**

This species is known to nest in the greater project vicinity. However, no potentially suitable nest sites occur within the project site proper.

Proposed activities will not degrade or remove any forested habitat or result in human or noise disturbance sufficient to result in harassment of the species.

The proposed action will have *no effect* on northern American peregrine falcon.

### **Northern Spotted Owl**

Direct effects considered include mortality, harm, failed breeding attempts and displacement. The USDI FWS published a guidance document in 2006 (USDI FWS 2006) to address the potential effects of disturbance on northern spotted owl to promote consistent and reasonable determinations of effects for activities that occur in or near suitable habitat and result in elevated human-generated sounds or human activities in close proximity to nest trees.

Through this guidance, the USFWS describes behaviors of the species that reasonably characterize when disturbance effects rise to the level of take (i.e., harassment), as defined in the implementing regulations of the ESA, as amended. These behaviors include:

- Flushing an adult or juvenile from an active nest during the reproductive period;
- Precluding adult feeding of the young for a daily feeding cycle and;
- Precluding feeding attempts of the young during part of multiple feeding cycles.

This guidance attempts to provide objective metrics based on a substantial review of the existing literature, as it pertains to northern spotted owl and appropriate surrogate species. The recommended methodology relies on a comparison of sound levels generated by the proposed action to pre-project ambient conditions. Disturbance may reach the level of take when at least one of the following conditions is met:

- Project-generated sound exceeds ambient nesting conditions by 20-25 decibels (dB).
- Project-generated sound, when added to existing ambient conditions, exceeds 90 dB.
- Human activities occur within a visual line-of-site distance of 130 feet or less from a nest.

Harassment associated with noise disturbance at the site is not expected. The project is proposed for permitting under Humboldt County Ordinance 2.0 and will, therefore, only be allowed to use generators for 20% of its power needs to be in compliance. Further, under a stipulation of Ordinance 2.0, cultivation-related noise shall not exceed 3 decibels at the property line. An initial evaluation of the pre-project ambient noise (no active cultivation) has been measured by Green Road Consulting and will be measured again post-implementation to ensure adherence to the noise ordinance.

Further, no northern spotted owl nests are known within the action area. The proposed action will not remove any suitable northern spotted owl habitat and is not expected to pose a direct danger of mortality, harm, failed breeding attempts or displacement of northern spotted owl individuals.

The intensity of indirect effects on northern spotted owl, suitable northern spotted owl habitat, and northern spotted owl Critical Habitat is classified at three levels derived from the USFWS northern spotted owl baseline tracking system:

- Degraded – a categorical term referring usually to a reduction in some vegetative components such as smaller understory trees, but still functioning at current habitat levels. For example, habitat is impacted by a thinning prescription in foraging habitat that does not reduce the canopy closure below 40%.
- Downgraded – refers to a temporary reduction (e.g., 30 years) in habitat classification. For example, nesting/roosting habitat may be downgraded by thinning and removing a layered canopy, yet the stand still maintains a 40% canopy closure that could be used for foraging.
- Removed – habitat is modified to no longer provide any direct habitat use for northern spotted owl. Some of these habitats may still provide indirect utility to the species. For example, “removed” forest habitats may function as woodrat breeding habitat and increase foraging opportunities for owls in neighboring forested stands.

The proposed action does not fall within Critical Habitat for northern spotted owl.

No indirect effects to northern spotted owl are expected to result from implementation of the proposed action. The proposed action will result in no measurable change to canopy closure or forest fragmentation. No suitable northern spotted owl habitat will be degraded, downgraded, or removed. Further, no adverse impacts to the existing habitat for northern spotted owl prey species, such as woodrats, are expected. Therefore, the proposed action will not result in any short- or long-term indirect effects to northern spotted owl.

The proposed project will have *no effect* on northern spotted owl.



**Vaux's Swift**

Forested habitats on and adjacent to the project site containing large hollow trees and snags represent suitable breeding habitat for Vaux's swift, which is known from the project region. However, proposed activities will not degrade or remove any such habitat or result in human or noise disturbance sufficient to result in harassment of the species.

The proposed action will have *no effect* on Vaux's swift.

**Purple Martin**

Forested and habitats on and adjacent to the project site represent suitable habitat containing large hollow trees and snags and woodpecker cavities represents suitable breeding habitat for purple martin and it is known from the project region. However, proposed activities will not degrade or remove any such habitat or result in human or noise disturbance sufficient to result in harassment of the species.

The proposed action will have *no effect* on purple martin.

**Townsend's Big-eared Bat, Silver-haired Bat, Western Red Bat, Long-eared Myotis, Fringed Myotis, Long-legged Myotis and Yuma Myotis**

Many bat species, especially including those analyzed here, are susceptible to noise disturbance during the rearing of young and roosting periods both seasonally and daily. It is highly unlikely that noise disturbance from equipment (generators, green house fans) utilized within the proposed project area will generate enough noise to disturb or affect these sensitive bat species (see discussion of noise disturbance levels in the previous section on northern spotted owl). Noise levels will remain below critical thresholds due to distance from potential roosting areas and the intensity of the sound relative to current ambient conditions. Also, no snags or other structures that could provide potential roost sites for these species will be disturbed or removed.

The proposed action will have *no effect* on Townsend's big-eared bat, silver-haired bat, western red bat, long-eared myotis, fringed myotis, long-legged myotis or Yuma Myotis.

**Humboldt Mountain Beaver**

Potentially suitable habitat for Humboldt mountain beaver occurs within and adjacent to the project site. However, the soils within the project footprint are too disturbed to provide suitable burrowing habitat for the species.

The proposed action will have *no effect* on Humboldt mountain beaver.

**North American Porcupine**

The current status of North American porcupine in the project vicinity is unknown. However, suitable habitat for the species does occur.

Proposed activities will not degrade or remove any suitable porcupine habitat or result in noise or human disturbance sufficient to negatively impact the species, should it occur at the site.

The proposed action will have *no effect* on North American porcupine.

**Sonoma Tree Vole**

Forested habitat on and adjacent to the project site represents suitable habitat for Sonoma tree vole.

However, proposed activities will not degrade or remove any suitable Sonoma tree vole habitat or result in noise or human disturbance sufficient to negatively impact the species.

The proposed action will have *no effect* on Sonoma tree vole.

### **Pacific Fisher**

Fisher habitat is limited and low quality within the project area thus it is not likely used for reproduction or foraging, but the species may traverse the project area during its movements and there are records of the species in the greater project vicinity (Appendix B). However, this species has a large home range and is known to avoid areas where human disturbance is a factor. All proposed activities will take place in only very small portions of fisher habitat and will be conspicuous enough as to likely be avoided by the species. Further, the project will not modify suitable fisher habitat.

Effects related to exposure to rodenticides and insecticides will not occur as a result of the proposed project as it will adhere to California Department of Pesticide Regulation (CDPR) regulations relative to proper application and storage of pest control substances that will preclude impacts to Pacific fisher and other carnivores.

The proposed action will have *no effect* on Pacific fisher.

## **8.5.2 Cumulative Effects**

Project activities are not expected to produce adverse cumulative effects to sensitive wildlife species due to the small size of the project and lack of significant habitat alteration.

## **8.5.3 Summary of Effects**

A review of the Guergui Mandelov Cannabis Cultivation Project has resulted in the determinations that the Proposed Action, will have *no effect* on any special status species, either because the project is outside of their known range, suitable habitat is lacking or the proposed project will not result in adverse impacts to the species or their suitable habitat.

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## Appendix A. Special-Status Plants Scoping List

2. Scientific Name	Common Name	Listing Status	Blooming Period	Habitat	Potential to Occur in Project Area
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	1B.2	(Apr)Jun-Oct	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides)	No Potential. Occurs in immediate coastal habitat.
<i>Erysimum concinnum</i>	bluff wallflower	1B.2	Feb-Jul	Coastal bluff scrub, Coastal dunes, Coastal prairie	No Potential. Occurs in immediate coastal habitat.
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B.2	Apr-Aug	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland	Moderate. Potential in grasslands.
<i>Gilia millefoliata</i>	dark-eyed gilia	1B.2	Apr-Jul	Coastal dunes	No Potential. Occurs in immediate coastal habitat.
<i>Hesperis matronalis</i> var. <i>brevifolia</i>	short-leaved evax	1B.2	Mar-Jun	Coastal bluff scrub (sandy), Coastal dunes, Coastal prairie	No Potential. Occurs in immediate coastal habitat.
<i>Layia carnosae</i>	beach layia	1B.1, CE, FE	Mar-Jul	Coastal dunes, Coastal scrub (sandy)	No Potential. Occurs in immediate coastal habitat.
<i>Oenothera wolffii</i>	Wolf's evening-primrose	1B.1	May-Oct	Coastal bluff scrub, Coastal dunes, Coastal prairie, Lower montane coniferous forest, sandy, usually mesic	Unlikely. Marginal habitat at best in grasslands and roadcuts.
<i>Piperia candida</i>	white-flowered rein orchid	1B.2	(Mar)May-Sep	Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest, sometimes serpentine	Moderate. Potential along roads and in adjacent forest.
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	1B.2	(Apr)May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest, often roadcuts	Moderate. Potential in grasslands.
<i>Sisyrinchium hitchcockii</i>	Hitchcock's blue-eyed grass	1B.1	Jun	Cismontane woodland (openings), Valley and foothill grassland	Moderate. Potential in grasslands.

## Appendix B. Special-Status Wildlife Scoping List

List compiled from the California Natural Diversity Database, BIOS Northern Spotted Owl Data Viewer and U.S. Fish and Wildlife Service Species Lists.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE**	RECOMMENDATIONS
<i>Invertebrates</i>				
Mountain shoulderband <i>Helminthoglypta arossa monticola</i>	--	Known only from the King Range in Humboldt County. Found in talus slopes and chaparral habitat.	<b>No Potential.</b> Suitable habitat not present.	No further actions are recommended for this species.
obscure bumble bee <i>Bombus caliginosus</i>	--	Occurs in coastal areas from Santa Barbara County to north Washington State. Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	<b>High Potential.</b> Potentially suitable habitat present in the project area. Nearest occurrences reported to the CNDDDB are from between approximately 7-2 miles E of the project area near Myer's Flat and Weott.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
western bumble bee <i>Bombus occidentalis</i>	---	Once common and widespread, the species has declined precipitously from central California to southern British Columbia, perhaps from disease. Generalist foragers on a wide variety of flowering plants. Habitat occurs in open grassy areas, urban parks and gardens, chaparral areas and mountain meadows.	<b>High Potential.</b> Suitable habitat present. Nearest occurrence reported to the CNDDDB are approximately 7 miles NE of the project area near Weott and approximately 6 miles NNE near Albee Creek Campground.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.



<b>Amphibians/Reptiles</b>				
Red-bellied newt <i>Taricha rivularis</i>	SSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Prefers terrestrial habitats, juveniles generally occur underground, adults are active at the surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.	<b>Moderate-High Potential.</b> Suitable habitat present. The species is known from the Mattole River and its tributaries. The nearest occurrence reported to the CNDDDB is 4 miles SW of the project site at the intersection of Mattole Road and an unnamed tributary to the Mattole River.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
southern torrent salamander <i>Rhyacotriton variegatus</i>	SSC	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest. Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.	<b>Unlikely.</b> The small ephemeral stream on site does not represent preferred habitat for this species. The nearest occurrences reported to the CNDDDB are approximately 3 miles N of the project site along Mattole Road, 9 miles N of the project site, and just over 10 miles NE of the project site where Highway 101 crosses Matthew's Creek.	No further actions are recommended for this species.
Pacific tailed frog <i>Ascaphus truei</i>	SSC	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats. Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	<b>Unlikely.</b> The small ephemeral stream on site does not represent preferred habitat for this species. The nearest occurrence reported to the CNDDDB is approximately 2.5 miles NNW of the project site along Mattole Road.	No further actions are recommended for this species.
northern red-legged frog <i>Rana aurora</i>	SSC	Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover. Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	<b>Moderate Potential.</b> The small ephemeral stream at the project site could provide marginally suitable breeding habitat for this species. The nearest occurrence record reported to the CNDDDB is approximately 9 miles NE of the project site near Founder's Tree, 2.5 miles N of Weott.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.

foothill yellow-legged frog <i>Rana boylei</i>	FC, SSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	<b>Moderate-High Potential.</b> The small ephemeral stream on site represents potentially suitable breeding habitat for this species. The nearest occurrence is approximately 5.5 miles NNE of the project site in Bull Creek.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
western pond turtle <i>Emys marmorata</i>	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 feet elevation. Needs basking sites and suitable upland habitat (sandy banks or grassy open fields) up to 0.5 km from water for egg-laying.	<b>Moderate Potential.</b> The species is known to occur along the banks and within tributaries of the He Mattole and Eel Rivers, located approximately 3 miles S and 7 miles E of the project area, respectively. The small ephemeral stream on site could provide habitat for this species. The nearest occurrence reported to the CNDDDB is approximately 9 miles NE of the project site on the Eel River near Weott.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
<b>Birds</b>				
Sharp-shinned hawk <i>Accipiter striatus</i>	--	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas. North-facing slopes with plucking perches are critical requirements. Nests usually within 275 feet of water.	<b>High Potential.</b> Suitable habitat for this species occurs on site. The nearest occurrence reported to the CNDDDB is from approximately 8 miles NNW of the project site.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
Cooper's hawk <i>Accipiter cooperii</i>	--	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	<b>High Potential.</b> Suitable habitat for this species occurs on site. The closest occurrence reported to the CNDDDB is of a nest located on Pacific Lumber Company property in a broken-topped redwood just under 2.5 miles NW of the project site.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.

northern goshawk <i>Accipiter gentilis</i>	SSC	Within, and in vicinity of, coniferous forest. Uses old nests, and maintains alternate sites. Usually nests on north slopes, near water. Readily nest in redwood and Douglas-fir in the project region.	<b>Moderate Potential.</b> Suitable mature and/or old growth habitat is absent at the project site. No CNDDDB records have been recorded from the 9-quad search area. However, records of the species from second growth Douglas-fir forest have been reported in the greater project region.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
golden eagle <i>Aquila chrysaetos</i>	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	<b>Unlikely.</b> Suitable nesting habitat generally lacking and no occurrences have been reported to the CNDDDB within the 9-quad search area although the species is known to nest in the vicinity of both the Mattole and Eel Rivers.	No further actions are recommended for this species.
osprey <i>Pandion haliaetus</i>	--	Large nests built in treetops within 15 miles of a good fish-producing body of water.	<b>High Potential.</b> Osprey uses both the Mattole and Eel Rivers, located approximately 3 miles S and 7 miles E of the project area, respectively. The nearest nest site reported to the CNDDDB is approximately 9 miles NE of the project area, approximately 1 mile SSW of Redcrest.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
American peregrine falcon <i>Falco peregrinus anatum</i>	DL, BCC	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.	<b>Moderate Potential.</b> Although this species is known to nest in the greater project vicinity, no potentially suitable nest sites occur within the project area proper. The nearest occurrence reported to the CNDDDB is from approximately 15 miles NNE of the project site 5 miles SW of Carlotta.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.

marbled murrelet <i>Brachyramphus marmoratus</i>	FT, SE	Feeds near-shore and nests inland along the coast from Eureka to the Oregon border and from Half Moon Bay to Santa Cruz. Nesting occurs in old-growth redwood-dominated forests, usually up to 6 miles inland but with unconfirmed records farther inland. , often in Douglas-fir.	<b>Low Potential.</b> Forest habitat on site is too young and does not exhibit the stand structure characteristics required for suitable marble murrelet nesting habitat. The nearest records reported to the CNDDDB are from just over 7 miles NE of the project site in Humboldt Redwoods State Park along Bull Creek between Miller Creek and the South Fork Eel River and just over 7.5 miles ENE of the project site on private property along a tributary to South Fork Salmon Creek.	No further actions are recommended for this species.
yellow-billed cuckoo <i>Coccyzus americanus</i>	FT, SE, BCC	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	<b>Unlikely.</b> Suitable riparian habitat does not occur on site nor have any records been reported to the CNDDDB within the 9-quad search area.	No further actions are recommended for this species.
northern spotted owl <i>Strix occidentalis caurina</i>	FT, ST, SSC	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.	<b>High Potential.</b> Habitat on site represents suitable foraging and roosting habitat for this species as well as some marginally suitable nesting habitat. There are no historic activity centers known from within 1.3 miles of the project area. The nearest known activity center is 2.3 miles WNW of the project site (HUM0881).	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
Vaux's swift <i>Chaetura vauxi</i>	SSC	Redwood, Douglas-fir and other coniferous forests. Nests in large hollow trees and snags. Often nests in flocks. Forages over most terrains and habitats but shows a preference for foraging over rivers and lakes.	<b>Moderate Potential.</b> Although no occurrences have been reported to the CNDDDB within the 9-quad search area, suitable nesting habitat does occur on-site and the species is known from the region.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.

purple martin <i>Progne subis</i>	SSC	Inhabits woodlands, low elevation coniferous forest of Douglas-fir, ponderosa pine and Monterey pine. Nests primarily in old woodpecker cavities but also in human-made structures. Nest is often located in tall, isolated trees/snags.	<b>Moderate Potential.</b> Although no occurrences have been reported to the CNDDDB within the 9-quadrant search area, the species is known from the region and suitable nesting habitat occurs on-site.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
bank swallow <i>Riparia riparia</i>	ST	Occurs in riparian scrub and riparian woodland. Colonial nester, nesting primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes and oceans to dig nesting holes.	<b>Unlikely.</b> Suitable nesting habitat absent. The nearest occurrence reported to the CNDDDB is from over 12 miles north of the project site on the bank of the Van Duzen River.	
yellow warbler <i>Setophaga petechial</i>	SSC	Inhabits riparian habitat in close proximity to water. Also nests in montane shrubbery in open conifer forests in the Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian species including cottonwoods, sycamores, ash and alders.	<b>Unlikely.</b> Although no occurrences have been reported to the CNDDDB within the 9-quadrant search area, the species is known from the region. However, no suitable riparian habitat occurs on-site.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
<b>Mammals</b>				
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SSC, WBWG:H	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings and basal hollows of large conifers. Roosting sites limiting. Extremely sensitive to human disturbance.	<b>High Potential.</b> Buildings or snags on-site could provide suitable roost sites. The nearest occurrence reported to the CNDDDB is over 8 miles NE of the project area in the attic of an abandoned house near Redcrest surrounded by second-growth redwood and mixed hardwood forest.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.

silver-haired bat <i>Lasionycteris noctivagans</i>	WBWG:M	Primarily a coastal and montane forest dweller, feeding over streams, ponds & open brushy areas. Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	<b>Moderate - High Potential.</b> Suitable roosting habitat occurs in the project area. No occurrences have been reported to the CNDDB within the 9-quad search area.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
western red bat <i>Lasionycteris blossevilliis</i>	SSC, WBWG:H	Roosts primarily in trees, 2-40 feet above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	<b>High Potential.</b> Forest habitat on and adjacent to the project site represents suitable habitat. The nearest occurrences reported to the CNDDB are along Bull Creek, approximately 5.5 miles NNE of the project site within Redwood National and State Parks.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
long-eared myotis <i>Myotis evotis</i>	WBWG:M	Found in all brush, woodland and forest habitats from sea level to about 9,000 feet. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	<b>High Potential.</b> Buildings, bark of live trees and/or snags on-site could provide suitable roost sites. The nearest occurrences reported to the CNDDB are along Bull Creek, approximately 5.5 miles NNE of the project site within Redwood National and State Park.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
fringed myotis <i>Myotis thysanodes</i>	WBWG:H	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.	<b>Moderate-High Potential.</b> Buildings and/or snags on-site could provide suitable roost sites. Although no records have been reported to the CNDDB from the 9-quad search area, this species is known from the greater project vicinity.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.

long-legged myotis <i>Myotis volans</i>	WBWG:H	Most common in woodland and forest habitats above 4,000 feet. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	<b>High Potential.</b> Buildings, bark of live trees and/or snags on-site could provide suitable roost sites. The nearest occurrence reported to the CNDDDB is over 10 miles NE of the project site on Pacific Lumber Company property along Grizzly Creek, adjacent to Grizzly Creek State Park in habitat dominated by redwood and Douglas-fir.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
Yuma myotis <i>Myotis yumanensis</i>	WBWG:LM	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	<b>High Potential.</b> Buildings on-site could provide suitable roost sites. The closest occurrence reported to the CNDDDB is approximately 11 miles N of the project site just E of Jordan Creek in Redwood National and State Park.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
Humboldt mountain beaver <i>Aplodontia rufa humboldtiana</i>	SSC	Occurs within the Coast Range in southwestern Del Norte County and northwestern Humboldt County. Occupies a variety of coastal habitats, including coastal scrub, riparian forests and redwood, typically with an open canopy and thickly vegetated understory.	<b>Moderate Potential.</b> Forested habitat within and adjacent to the project site is marginally suitable for the species. The nearest occurrence reported to the CNDDDB is from approximately 15 miles NNW of the project site along the Eel River in the vicinity of Rio Dell.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
North American porcupine <i>Erethizon dorsatum</i>	--	Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges. Wide variety of coniferous and mixed woodland habitat.	<b>High Potential.</b> Although observations of this species have declined in recent years, the habitat on site is suitable. Historic sighting from 1950's and 1970's have been reported to the CNDDDB from as close as 4 miles from the project site. More recent records from 1995, 2012 and 2014 have been reported from 5-16 miles from the project site.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.



Sonoma tree vole <i>Arborimus pomo</i>	SSC	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood & montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	<b>High Potential.</b> Habitat on-site is suitable for Sonoma tree vole. The nearest occurrence reported to the CNDDB is 3.5 miles NW of the project site on the upper north fork of the Mattole, just downstream of Rattlesnake Creek.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.
Humboldt marten <i>Martes caurina humboldtensis</i>	SC, SSC	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	<b>Unlikely.</b> Habitat on-site does not exhibit sufficient stand structure/late seral characteristics to provide suitable denning sites for this species. The closest historical occurrences reported to the CNDDB are approximately 7.5 miles NE of the project site between in Redwood National and State Park near Weott.	No further actions are recommended for this species.
Fisher <i>Pekania pennanti</i>	SC, SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	<b>Moderate.</b> Habitat on-site does not exhibit sufficient stand structure/late seral characteristics to provide suitable denning sites for this species but the species has a large home range and could traverse the site on its way to or from more suitable habitat in the vicinity. The closest occurrence reported to the CNDDB is just under 8 miles NW of the project site in the vicinity of Burgess Ridge and McGinnis Creek, about 4 miles ESE of Petrolia.	Recommend assuming presence of this species and avoiding or mitigating for any impacts to suitable habitat.

American badger <i>Taxidea taxus</i>	SSC	Most abundant in drier, open stages of moist shrub, forest and herbaceous habitats with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	<b>Unlikely.</b> Although there is one Humboldt County record of American badger from the vicinity of the Mattole River, the open area on-site with the potential to support badger is a flat, previously used for cultivation, that has been graded and rockered and does not contain the friable soils required to support this species.	No further actions are recommended for this species
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**\* Key to status codes:**

BCC	U.S. Fish & Wildlife Service (USFWS) Birds of Conservation Concern
CFP	California Department of Fish & Wildlife (CDFW) Fully Protected Animal
FE	Federal Endangered
FT	Federal Threatened
SE	State Endangered
ST	State Threatened
SSC	CDFW Species of Special Concern
SSI	CDFW Special Status Invertebrate
WBWG	Western Bat Working Group (WBWG) Priority Species
	H – High Priority, M – Medium Priority, Low – Low Priority

**\*\* Potential to Occur:**

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

## Appendix C. Site Photographs



Site Photograph 1: Main residence, shed and parking area at CA1.



Site Photograph 2: Access road to main residence with parked vehicles at CA1.



Site Photograph 3: Flat, trailer and surrounding habitat at CA2.



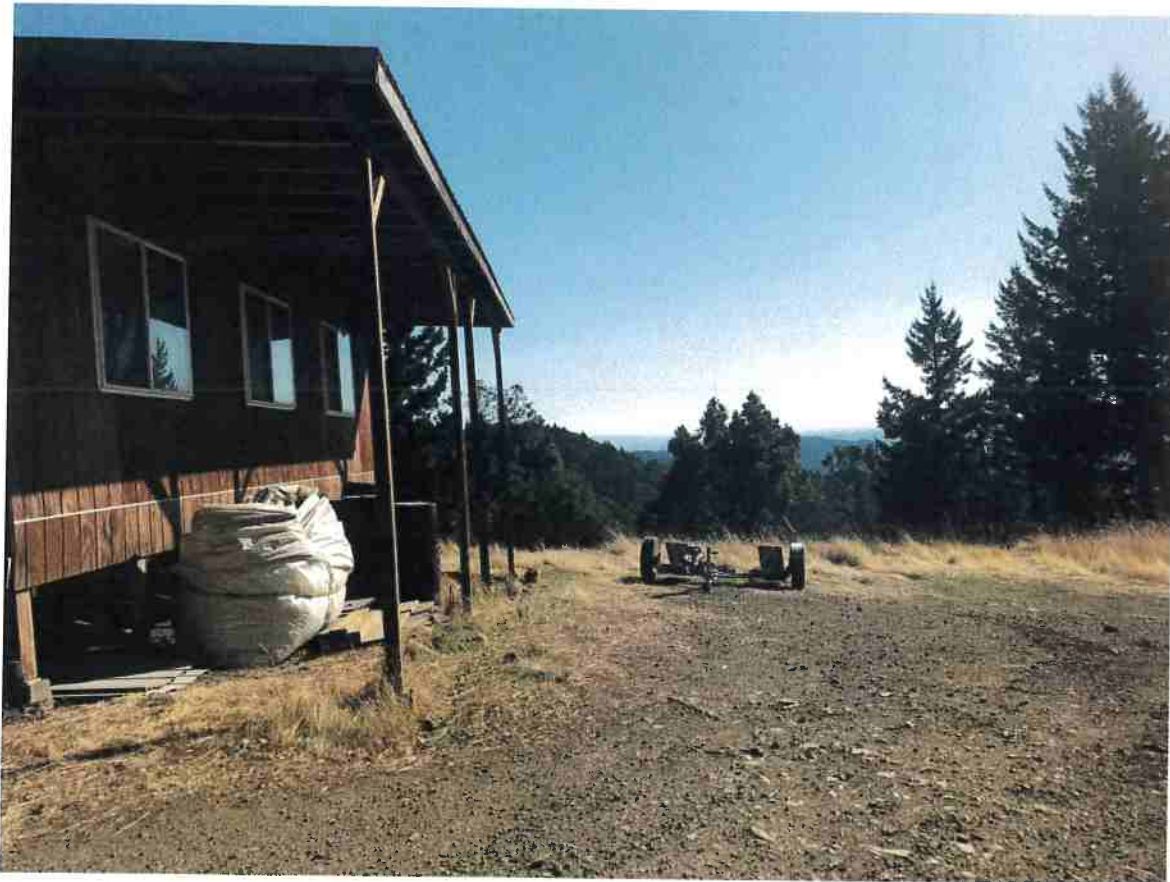


Site Photograph 4: Trailer and parked vehicles at CA3.

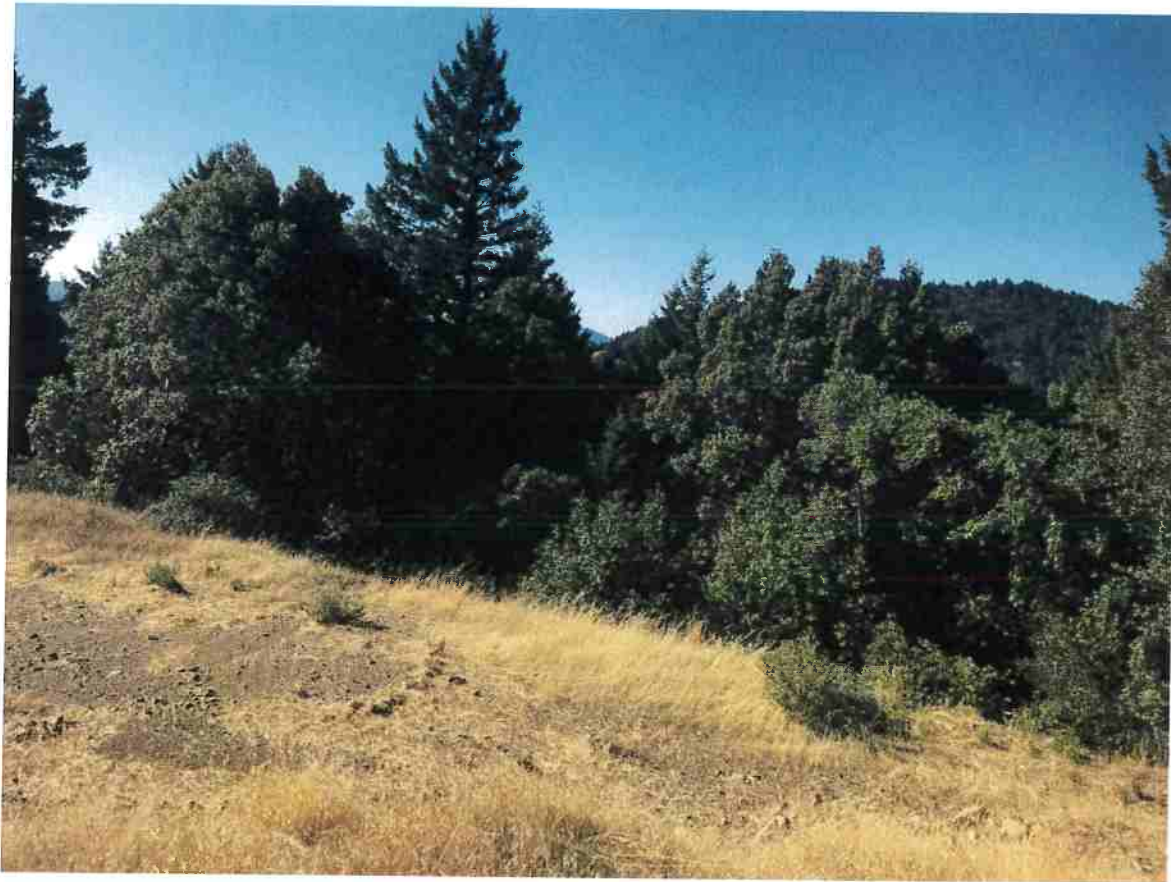


Site Photograph 5: Parked vehicles on flat adjacent to access road at CA3.

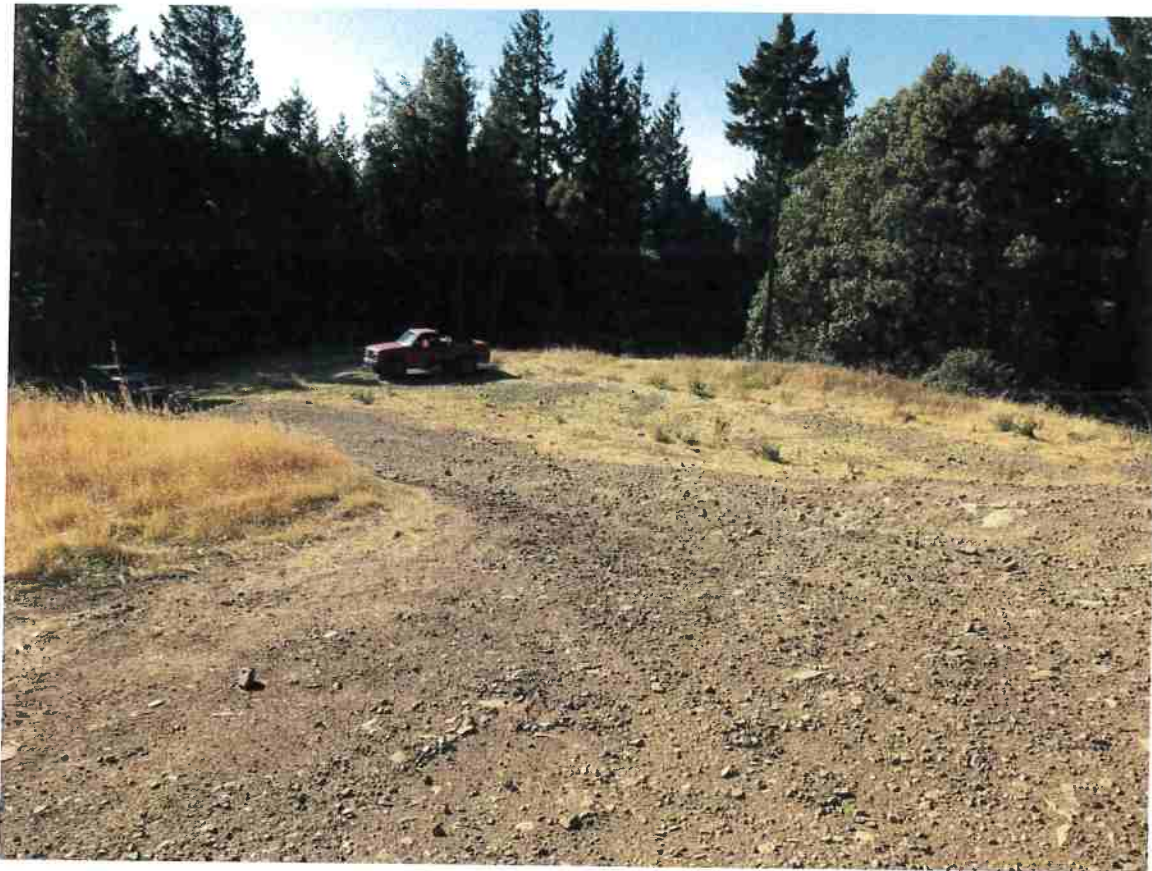




Site Photograph 6: Drying shed above greenhouses at CA4.



Site Photograph 7: Cultivation flat and surrounding habitat at CA4.



Site Photograph 8: Flat near drying shed at CA4.





Site Photograph 9: Flat near drying shed at CA4.