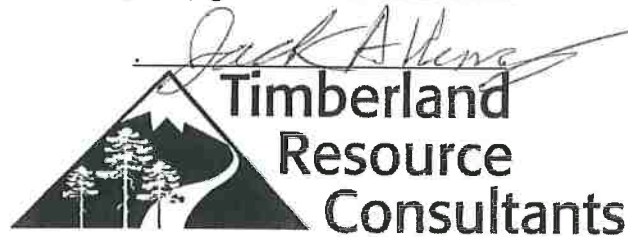


**Biological Assessment
for
Humboldt County Application # 12203**



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Table of Contents

List of Appendixes.....	2
1.0 Introduction.....	3
1.1 Purpose and Need.....	3
1.2 Biological Assessment Area and Project Area.....	3
1.3 Commercial Cannabis Cultivation.....	3
2.0 Regulatory Background.....	3
2.1 Cannabis Cultivation.....	3
2.2 Sensitive Biological Communities.....	3
2.2.1 Aquatic Habitats.....	3
2.2.2 Wetlands.....	4
2.2.3 Sensitive Natural Communities.....	4
2.2.4 Local Policies, Ordinances, and Regulations.....	5
2.2.5 Sensitive and Protected Species.....	5
3.0 Methods.....	6
3.1 Field Observations.....	6
3.2 Review of Scientific Literature.....	6
3.3 Agency Consultation.....	6
3.4 Sensitive Biological Communities.....	6
3.4.1 Sensitive and Protected Species.....	6
4.0 Results and Discussion.....	7
4.1 Terrestrial Habitat.....	7
4.2 Sensitive Biological Communities.....	9
4.2.1 Aquatic Habitats.....	9
4.2.2 Wetlands.....	9
4.2.3 Sensitive Natural Communities.....	10
4.2.4 Local Policies, Ordinances, and Regulations.....	10
4.3 Sensitive and Protected Species.....	10
4.3.1 Bird Species of Special Concern.....	10
4.3.2 Mammal Species of Special Concern.....	12
4.3.3. Reptiles and Amphibians of Special Concern.....	15
4.3.5 Plant Species of Special Concern.....	17
4.5 Potential Impacts.....	23
4.7.1 Water Quality and Aquatic Habitats.....	23
4.7.2 Northern Spotted Owl Assessment.....	23
4.7.3 Rodenticides.....	24
5.0 Recommendations.....	24
6.0 References.....	25

List of Appendixes

1) General Location.....	31
2) Photographs.....	32
3) Web Soil Survey.....	34
4) Streamstats Report.....	37
5) CNDDB Mapped Occurrences.....	40
6) CNDDB Occurrence Reports.....	41
7) NSO Habitat Map.....	43
8) NSO Database Query.....	44

1.0 Introduction

1.1 Purpose and Need

This Biological Site Evaluation has been prepared for Gueren White and APNs 524-153-001-000 and 524-153-002-000. The Humboldt County Planning Department requests the applicant have a qualified professional assess the project for the potential presence of sensitive biological communities as well as sensitive and protected species.

1.2 Biological Assessment Area and Project Area

The Biological Assessment Area (BAA) is defined as the area where potential impacts may occur to sensitive/protected species and/or sensitive biological communities. The project area is defined as the area where direct impacts have the potential to occur. Disturbance impacts associated with this project have the potential to indirectly impact sensitive species outside of the project area. Thus, the BAA reflects the largest disturbance buffer for potential protected species in this area, 0.25 miles for nesting raptors.

The Project Area contains an existing residence and two existing cultivation sites. The BAA encompasses the project parcel, peripheral private properties, and a portion of the USFS Six Rivers National Forest. The assessment area overlaps with Section 13 and 14, T5N, R5E, Humboldt County in the Hennessy Peak 7.5' USGS quad. Current land uses within the BAA consists of rural residential development and USFS public forest.

1.3 Commercial Cannabis Cultivation

The project proposes to permit existing commercial cannabis cultivation on APN 524-153-001-000 and 524-153-002-000. Both of these parcels are zoned Timber Production Zone (TPZ). Existing developments on the property include an access road, a storage structure, a residence, and two cultivation sites.

The project proposes utilizing the existing cultivation areas and relocating cultivation from within riparian buffers. Existing structures on the property consist of an approximately 24' by 66' building and an approximately 24' by 40' residence. Cultivation consists of greenhouse and full-sun cultivation totaling to 6,713 square feet. Plants are cultivated in either above ground fabric pots or in-ground planting holes. Irrigation water is sourced from surface water diversions and stored for use during the low flow season.

2.0 Regulatory Background

2.1 Cannabis Cultivation

Commercial cannabis was recognized as an agricultural crop under the Medical Cannabis Regulation and Safety Act and further legalized for recreational uses under Proposition 64. The California Department of Food and Agriculture (CDFA) implements the CalCannabis program which regulates commercial cannabis licensing from a state level. Humboldt County also regulates commercial cultivation licensing from a local level through the Commercial Cannabis Land Use Ordinance. A cultivator must have both a state and county license to operator commercial cannabis cultivation in the state.

2.2 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the Clean Water Act (CWA); state regulations such as the Porter-Cologne Act, the CDFW Fish and Game Code and the California Environmental Quality Act (CEQA); or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

2.2.1 Aquatic Habitats

Watercourses, waterbodies, and critical hydrologic features have been recognized by federal, state, and local regulatory agencies/bodies as ecologically important biological communities. Under Section 404 of the CWA the U.S. Army Corps of Engineers regulate "Waters of the United States" as defined in the Code of Federal Regulations as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of

hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” and are often characterized by an ordinary high water mark, and herein referred to as non-wetland waters. Non-wetland waters, for example, generally include lakes, rivers, and streams.

Although very similar, the term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The State Water Resources Control Board (SWRCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. SWRCB jurisdiction includes wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the state are further protected from cannabis cultivation impacts through the Order WQ 2017-0023-DWQ General Waste Discharge Requirements and Waiver of Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities. Streams, lakes, and riparian habitat are also subject to jurisdiction by CDFW under Sections 1600-1616 of CDFGC and Humboldt County per §BR-P5 of the Humboldt County General Plan.

2.2.2 Wetlands

Section 404 of the CWA protects wetlands federally. In 1989 George H.W. Bush implemented the national “No-net Loss of Wetlands” policy which either avoids the filling of wetlands or mitigates the destruction and/or degradation of wetlands. U.S. Army Corps of Engineers 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 circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” There is no single accepted definition of wetlands at the state level although CDFW exerts jurisdiction over them through their importance as wildlife habitat. Wetlands are locally protected through setbacks built within the most recent version of the Humboldt County General Plan (2017) and Order WQ 2017-0023-DWQ.

2.2.3 Sensitive Natural Communities

Sensitive Natural Communities have been defined by CDFW and the California Native Plant Society (CNPS) as vegetation types with a state rank of S1-S3 per standards set forth in the NatureServe Heritage Methodology. This system uses the best and most recent scientific information to assess rarity per a community’s range, distribution, and the proportion of occurrences that are of good ecological integrity. Threats and trends are also considered in the overall ranking of a community’s rarity. The use of marsh and/or wetlands in the names of vegetation alliances does not imply or assert regulatory jurisdiction. Although there are no specific protocols for avoiding and/or mitigating impacts to these communities they are afforded consideration during environmental review per CEQA Guidelines checklist IVb.

Sensitive species and communities are ranked per standards set forth in the NatureServe Heritage Methodology. All species are given two ranks that consist of a letter and a number. The letter represents whether the rank is a global rank (G) or a state rank (S). The number corresponds to the subject’s rarity.

1 Critically Imperiled. At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors

2 Imperiled. At risk because of rarity due to the very restricted range, very few populations, (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province

3 Vulnerable. At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent widespread declines, or other factors

4 Apparently Secure. Uncommon but not rare; some cause for long-term concern due to declines or other factors

5 Secure – Common; widespread and abundant

Subspecies receive a T-rank attached to the G-rank and an additional S-rank for state ranking. With subspecies, the initial rank reflects the entire species' risk while the second rank represents just the subspecies' status.

2.2.4 Local Policies, Ordinances, and Regulations

The Humboldt County General Plan and Humboldt County General Code affords considerations to a host of biological communities and resources in relation to existing and proposed developments. These local ordinances contain setback protections for species specific old growth timber stands, coastal oak woodlands, and environmental sensitive habitat areas (ESHAs).

This application will follow specifications detailed in Humboldt County Ordinance No. 2559, Ordinance Making Clarifying and Corrective Amendments to Title III of the Humboldt County Code Relating to the Commercial Cultivation, Processing, Manufacturing and Distribution of Cannabis for Medical Use (Ordinance 1.0). This ordinance contains little in the form of biological protections, relying on additional cannabis programs from other agencies to qualify for a Mitigated Negative Declaration.

2.2.5 Sensitive and Protected Species

Sensitive and protected species include those plants and wildlife species that have been formally listed or are candidates for either listings under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford legal protection to both listed species and species that are candidates for listing. Additionally, CEQA affords special consideration to species ranked as sensitive (S1-2 are considered sensitive), as a CDFW Species of Special Concern, or CDFW Fully Protected. In addition to regulations for special-status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act (MBTA) of 1918. Under this legislation, destroying active nests, eggs, and young is illegal.

Wildlife species are ranked using the same system NatureServe Heritage methodology.

Plant species have an additional ranking system designed by the CNPS. The following alphanumeric codes are the CNPS List, California Rare Plant Ranks (CRPR):

- 1A – Presumed extirpated in California and either rare or extinct elsewhere
- 1B – Rare or Endangered in California and elsewhere
- 2A – Presumed extirpated in California, but more common elsewhere
- 2B – Rare or endangered in California, but more common elsewhere
- 3 – Plants for which more information is needed – Review List
- 4 – Plants of limited distribution – Watch List

The CRPR use a decimal-style threat rank. The threat rank is an extension added onto the CRPR and designates the level of threats by a 1 to 3 ranking with 1 being the most threatened and 3 being the least threatened. Most CRPRs read as 1B.1, 1B.2, 1B.3, etc. Note that some Rank 3 plants do not have a threat code extension due to difficulty in ascertaining threats. Rank 1A and 2A plants also do not have threat code extensions since there are no known extant populations in California. Threat Code extensions and their meanings are as follows:

- 1) Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- 2) Moderately threatened in California (20-80% of occurrences threatened / moderate degree and of threat)
- 3) Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

3.0 Methods

3.1 Field Observations

All field data was collected by wildlife biologist, Jack Henry, using direct observations, measurements, and ocular estimations during a field visit conducted on May 20, 2019. J. Henry has previously visited this site in May 2016 to collect data for the Water Resource Protection Plan associated with WQ Order No. 2015-0023. A 200' Lufkin FE200 HI-VIZ measuring tape and Forestry Pro (Nikon Laser Range Finder) was used for recording distances to the nearest tenth of a foot. Slope percent was measured using a Suunto PM-5/360 PC Clinometer to the nearest degree. The reach of the direct field observations covered terrestrial and aquatic habitat present within the project parcel. Habitats outside of property boundaries but within the BAA were assessed from road easements and accessed if possible.

3.2 Review of Scientific Literature

Scientific literature and data have been sourced from multiple locations. The majority of reference material has been sourced from online journal archives and databases. If hardcopies or pdfs could not be acquired the web url and date of reference is present within the bibliography. Some species data is sourced from agency factsheets such as the U.S. Department of Agriculture (USDA), U.S. Geological Survey (USGS), and U.S. Fish and Wildlife Service (USFWS).

Additional information is sourced whenever possible from agency and non-governmental organization databases. These include the NRCS Web Soil Survey, CALTREES, California Natural Diversity Database, National Wetland Inventory GIS, NOAA Regional Climate Center, CalFlora, California Native Plant Society, Calscape, iNaturalist, eBird, and Streamstats.

3.3 Agency Consultation

No agency personnel were consulted for this report.

3.4 Sensitive Biological Communities

Prior to performing the site visit, the Natural Resources Conservation Service Web Soil Survey (WSS) was reviewed to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present within the BAA. Satellite imagery from the National Agriculture Imagery Project (NAIP), USGS topographic maps, Humboldt County Biological Resources Map, and the National Wetlands Inventory were used to scope for the potential presence of sensitive communities.

Field data collected during the site visit was compared to existing literature and published data in order to classify and identify sensitive biological communities per federal, state, and local jurisdictions. Plant communities are classified using both the California Wildlife Habitat Relationship System published by CDFW and the Natural Communities list published by both CDFW and CNPS. These communities are described below in Section 4.0.

3.4.1 Sensitive and Protected Species

The scoping procedure to generate the plants and animals list noted in this report is as follows: First, the California Natural Diversity Database (CNDDDB) was queried (December 2018) for any species detections within the nine 7.5' USGS quadrangles around the project area. Next, a general habitat assessment was made for the BAA from observations made on property and the surrounding areas. Lastly, given the habitat types present within the BAA, a species list was developed for animals using the Endangered and Threatened Animals List (August 2018) and Special Animals List (August 2018). The plant list uses information from the Special Vascular Plants Bryophytes and Lichens List (August 2018) and Endangered Threatened and Rare Plants (August 2018). The above lists were obtained from

<https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

Each species status within the BAA is evaluated and summarized. A conclusion is made for each species per the following criteria:

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, 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.
- Present. Species is observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

The plant list is generated much the same way but analyzed differently. It recognizes all 7.5' USGS quads the species has been found in either Humboldt or Trinity County and whether potential habitat for the species is present within the BAA. It does not use the above criteria to assess potential presence in further detail because plant species habitat selection. Plant species are included in the list if they meet the following conditions:

1. Documented in one of the 9 quads searched as part of the CNDDDB query
2. Have potential habitat within the BAA

The Interactive Distribution Map v2.02 available through Calflora was utilized as a litmus test to check for potential occurrences within the BAA. This data was matched with the Jepson eflora interactive GIS which utilizes specimen records from the Consortium of California Herbaria (CCH). These two GIS databases coupled with personal experience and knowledge was used to generate the Sensitive Plant Species list. Web urls for these resources are included below:

<http://www.calflora.org/entry/dgrid.html?crn=931> (the final three digits represent the species search)

&

<http://ucjeps.berkeley.edu/eflora/> (CCH specimen record GIS data can be found in the bottom right hand corner of each web page for individual species)

4.0 Results and Discussion

4.1 Terrestrial Habitat

The climate can be characterized by high-intensity rainfall over winter and warm arid summers. Annual mean rainfall is approximately 54 inches (streamstats.usgs.gov). Elevations within the BAA range from 1,200' to 1,600' above mean sea level. Slopes in the BAA vary from gentle to steep and drain towards the South Fork Trinity River. The BAA contains two different soil types: 261 – Holland-Goldridge families association, deep, 5 to 35 percent slopes and 262 – Clallam-Hugo-Holland families association, deep, 35 to 70 percent slopes. See attached NRCS Soil Survey Map.

Terrestrial habitats present within the BAA consists of Douglas-fir forest (DFR) of varying successional stages. Timbered habits display mid to late-seral characteristics. Species composition varies but upland habitats are dominated by Douglas-fir (*pseudotsuga menziesii*) and tanoak (*notholithocarpus densiflorus*). Additional tree species observed within the BAA in smaller proportions include California bay laurel

(*umbellularia californica*), big leaf maple (*acer macrophyllum*), California black oak (*quercus kelloggii*), canyon live oak (*quercus chrysolepis*), incense cedar (*calocedrus decurrens*), Jeffrey pine (*pinus jeffreyi*), golden chinquapin (*chrysolepis chrysophylla*), and pacific madrone (*arbutus menziesii*). The understory of upland timbered habitat is dominated by California hazelnut (*corylus cornuta*), pink honey suckle (*lonicera hispidula* var. *vacillans*), and poison oak (*toxicodendron diversilobum*). There are two historic landslides that display early successional characteristics due to unstable slopes. These areas consist of grassed and bare mineral soil slopes dominated by coyote brush (*baccharis pillularis*) and poison oak with thin ribbons of Douglas-fir and madrone trees where slope stability permits.

Given the perennial and intermittent surface waters present, the BAA does contain riparian dominant plant communities. Most intermittent watercourses within the BAA are dominated by conifer species with high canopy closure resulting in little differential if any in vegetative community. Some of these wet areas beneath the canopy display dense communities of sword fern (*polystichum munitum*) and chain fern (*woodwardia fimbriata*). There are at least two locations where perennial waterbodies and lack of conifer density allows for riparian vegetation to dominate the sites. These areas are generally dominated by either shining willow (*salix lucida*) or white alder (*alnus rhombifolia*). Common herbaceous vegetation at these sites consist of common cattail (*typhus latifolia*), rushes (*juncus spp.*), sedges (*carex spp.*), chain fern, and water parsnip (*sium suave*).

California Natural Community alliances observed within the BAA include but are not limited to:

- Douglas-fir – tanoak forest (*pseudotsuga menziesii* – *notholithocarpus densiflorus*)
- Douglas-fir – tanoak forest – (big leaf maple) / sword fern (*pseudotsuga menziesii* – *notholithocarpus densiflorus* (*acer macrophyllum*) / *polystichum munitum*)
- Douglas-fir – tanoak forest – (canyon live oak, California black oak) / poison oak (*pseudotsuga menziesii* – *notholithocarpus densiflorus* – (*quercus chrysolepis*, *quercus kelloggii*) / *toxicodendron diversilobum*)
- Douglas-fir – tanoak forest – (California black oak) / wood rose (*pseudotsuga menziesii* – *notholithocarpus densiflorus* – (*quercus kelloggii*) / *rosa gymnocarpa*)
- Douglas-fir – tanoak forest – (California bay laurel) / poison oak (*pseudotsuga menziesii* – *notholithocarpus densiflorus* – (*umbellularia californica*) / *toxicodendron diversilobum*)
- Douglas-fir – tanoak forest / iris (*pseudotsuga menziesii* – *notholithocarpus densiflorus* / *iris*)
- Douglas-fir – tanoak forest / vine maple (*pseudotsuga menziesii* – *notholithocarpus densiflorus* / *acer circinatum*)
- Douglas-fir – tanoak forest / vanilla leaf (*pseudotsuga menziesii* – *notholithocarpus densiflorus* / *achlys triphylla*)
- Douglas-fir – tanoak forest / beaked hazelnut (*pseudotsuga menziesii* – *notholithocarpus densiflorus* / *Corylus cornuta*)
- Douglas-fir – tanoak forest / salal (*pseudotsuga menziesii* – *notholithocarpus densiflorus* / *gaultheria shallon*)
- Douglas-fir – tanoak forest / cascade barberry (*pseudotsuga menziesii* – *notholithocarpus densiflorus* / *mahonia nervosa*)
- Douglas-fir – tanoak forest / pacific rhododendron (*pseudotsuga menziesii* – *notholithocarpus densiflorus* / *rhododendron macrophyllum*)
- Douglas-fir – tanoak forest / poison oak – (pink honeysuckle) (*pseudotsuga menziesii* – *notholithocarpus densiflorus* / *toxicodendron diversilobum* – *lonicera hispidula*)
- Douglas-fir – tanoak forest / evergreen huckleberry – (salal) (*pseudotsuga menziesii* – *notholithocarpus densiflorus* / *vaccinium ovatum* – (*gaultheria shallon*))
- Shining willow groves (*salix lucida* ssp. *lasiandra*)
- White alder groves – big leaf maple (*salix lucida* ssp. *lasiandra* – *acer macrophyllum*)
- White alder groves – Douglas-fir (*salix lucida* ssp. *lasiandra* – *pseudotsuga menziesii*)

- White alder groves – Douglas-fir / Himalayan blackberry (*alnus rhombifolia* – *pseudotsuga menziesii* / *rubus armeniacus*)

4.2 Sensitive Biological Communities

4.2.1 Aquatic Habitats

The BAA is located within the Mingo Creek – South Fork Trinity River HUC12 watershed (HUC12#:180102111206). Aquatic habitat in the BAA is dominated by riverine habitat but includes dispersed lacustrine habitats.

Riverine habitats located within the BAA consists of unnamed intermittent (Class II), and ephemeral (Class III) watercourses. Intermittent tributaries present in the BAA can be characterized by well-defined stream morphology, moderate to steep gradients, strong canopy cover, and coarse sediment substrates. There are small local reliefs where intermittent watercourses display gradual slopes but average watercourse slopes range from moderate to steep. Intermittent watercourses provide potential aquatic habitat for northern red-legged frog (*rana aurora*), yellow-legged foothill frog (*rana boylei*), Oregon ensatina (*ensatina eschscholtzii oregonensis*), southern torrent salamander (*rhyacotriton variegatus*), coastal tailed frog (*ascaphus truei*), and coastal giant salamander (*dicamptodon tenebrosus*). Ephemeral watercourses often lack well defined channels or riparian vegetation given their episodic hydrology and they provide no aquatic habitat value.

Naturally occurring lacustrine habitats are uncommon in Humboldt County given the steep topography and well drained soils that dominate the area. However, areas of geologic instability often create unique local topography that can often support lacustrine habitats including emergent wetlands and ponding features. There is a large wetland/pond feature present on the southern property boundary located at the toe of a historic landslide. The feature is approximately 3 acres in size at the ordinary high water mark and varies in depth. At least 50% of the feature is 3' deep or less. The wetland is drained by an intermittent watercourse that flows downslope to the South Fork Trinity River. Given that this feature is less than 6' (2m) it qualifies as a wetland and will be referred to as such from here on. Water is supplied to the wetland by way of an intermittent watercourse and potential emergent groundwater from the landslide. Given the low flow velocity and lack of canopy cover, this wetland provides warm water aquatic habitat. No fish were observed within the wetland and given the shallow characteristics of the pond it's not believed to be fish bearing. Northwestern pond (*emys marmorata marmorata*) turtles were observed within the wetland. The wetland provides high quality basking and foraging habitat while the surrounding upland habitat provides high quality nesting habitat. American bullfrogs (*lithobates catesbeianus*) were heard vocalizing during the site visit from within the wetland. Lacustrine habitat within the BAA provides potential habitat for pacific chorus frog (*pseudacris regilla*), rough-skinned newt (*taricha granulosa*), boreal toad (*anaxyrus boreas boreas*), northern red-legged frog, and northwestern salamander (*ambystoma gracile*).

4.2.2 Wetlands

This project is located within the U.S. Army Corps of Engineers Land Resource Region A (LRR:A) within the Western Mountains, Valleys, and Coast Region. LRR:A or the Northwest Forests and Coast sub region often experiences frequent and heavy rainfall events that create ample opportunities for wetland vegetation to propagate. Although these sites may show a diverse range of wetland vegetation, they often lack proper hydrology and/or hydric soils to meet the definition of a wetland (U.S. Army Corps of Engineers 2010).

Wildlife biologist Jack Henry performed a wetland delineation along the eastern margin of the wetland on May 20, 2019. A freshwater emergent wetland was identified and the eastern boundary was delineated. At the time of the assessment there was cultivation occurring within the 100' setback of the wetland. Additional details about this feature are described above in Section 4.2.1 Aquatic Habitats.

4.2.3 Sensitive Natural Communities

There is one known sensitive natural community present within the BAA.

- Shining Willow Groves (*salix lucida ssp. lasiandra*)

4.2.4 Local Policies, Ordinances, and Regulations

The project is located on the Central Humboldt Biological Resources map. There are multiple sensitive animal resources mapped in the approximate location of the BAA. These species are addressed in Section 4.6 Sensitive and Protected Species.

4.3 Sensitive and Protected Species

4.3.1 Bird Species of Special Concern

- **American Golden Eagle** (*aquila chrysaetos canadensis*)

Status: Federally protected under the Bald and Golden Eagle Act, G5, S3, CDFW Fully Protected, BLM Sensitive Species, CDF Sensitive Species, International Union for Conservation of Nature (IUCN) Least Concern, USFWS Birds of Conservation Concern

Key Habitat: Golden Eagles are a rare to uncommon resident and a locally rare breeder in interior Humboldt County (Harris 2005). When present, they are often located near open grasslands for hunting and within dense forest for nesting (Hunter et al. 2005). Rolling terrain with good thermal lift, and nest sites that are secluded from disturbances are favored by golden eagle. Basic habitat analysis done by Humboldt Redwood Company found their golden eagle nests occur in Douglas-fir trees with 59-98 inch DBH within 1.8 miles of foraging habitat (Chinnicci et al 2012).

Status within BAA: The CNDDDB does not identify any known golden eagle sites within the BAA. The BAA does not contain any potential golden eagle foraging habitat. The BAA does contain potential nest/roost habitat in the form of dense mixed species timberlands that contain Douglas-fir. However, the quality of this habitat is greatly reduced given there is no foraging habitat within the BAA and within a 3 mile radius. There is no potential for golden eagles to be nesting within the BAA.

- **American Peregrine Falcon** (*falco peregrinus anatum*)

Status: CESA de-listed (November 4, 2009), ESA de-listed (August 25, 1999), G4T4, S3S4, CDFW Fully Protected and CDF Sensitive Species

Key Habitat: Peregrine falcons breed near wetlands, lakes, riparian areas, or other water, mostly on high cliffs, ledges and rock outcroppings in woodland, forest, and coastal habitats (Polite and Pratt 1990). There has been recent documentation of peregrine falcon nests in old growth redwood snags (Buchanan et al. 2014). Buchanan et al (2014) found through their review of literature that all documented tree nests are located within 7.6 km of coastal bays, sloughs, and/or marshes.

Status within BAA: The CNDDDB does not document any peregrine falcon observations within the BAA. The historic landslide features within the BAA do contain small rock outcroppings and steep slopes. However, these features are not remote enough and can be accessed by terrestrial mammal species that could predate falcon nests. The South Fork Trinity River provides potential foraging habitat although falcons prefer open slower flowing aquatic features because they support greater concentrations of prey species such as shorebirds and passerines. The potential for peregrine falcons to be found within the BAA is unlikely.

- **Bald Eagle** (*haliaeetus leucocephalus leucocephalus*)

Status: Federally protected under Bald and Golden Eagle Act, De-listed from ESA in 2007, CESA Endangered, G5, S3, BLM Sensitive Species, CDF Sensitive Species, USFS Sensitive Species, CDFW Fully Protected, USFWS Birds of Conservation Concern

Key Habitat: Bald eagles are rare to uncommon residents and locally rare breeders in Humboldt County (Harris 2005). Bald Eagles require large bodies of water, or free flowing rivers with

abundant fish, and adjacent snags or other perches. Nesting/roosting habitat consists of tall trees with either broken tops or stout branches denude of vegetation. Bald Eagles nest most frequently in stands with less than 40% canopy cover (Polite C and Pratt J. 1990).

Status within BAA: The CNDDDB does not document any bald eagle observations within the BAA. South Fork Trinity River provides ample foraging habitat for this species. The BAA also includes potential nesting habitat in the form of large diameter conifer species. Canopy cover is one of the only characteristics that varies within the BAA but adequate levels (< 40%) are present. There is a high potential for bald eagles to be found within the BAA.

- **Little Willow Flycatcher** (*empidonax trailii brewsteri*)

Status: CESA Endangered, G5, S1S2, USFWS Birds of Conservation Concern, USFS Sensitive Species

Key Habitat: Willow flycatcher can be fairly common spring and fall migrants on the northwestern coast. Willow flycatcher prefers dense willow or similar riparian shrub along persistent water (Gaines 1990). Recent bird surveys have found increased evidence that flycatchers have been utilizing young (5-15 years) clearcuts with dense regeneration and a strong hardwood component (Hunter et al 2005). Potentially prefer sights with less brown-headed cowbird (*molothrus ater*) presence.

Status within BAA: The CNDDDB does not identify any willow flycatcher observations within the BAA. Willow flycatchers are only known from three recorded breeding attempts in Humboldt County, all of which are outside the BAA (Hunter et al. 2005). The historic landslide areas contain early-seral vegetation consisting of dense brush dominated by coyote bush (*baccharis pillularis*). Although they lack perennial water these sites do provide potential breeding habitat for little willow flycatcher. The potential for willow flycatcher to be found within the BAA is moderate.

- **Marbled Murrelet** (*brachyramphus marmoratus*)

Status: ESA Threatened, CESA Endangered, G3G4, S1, CDF Sensitive Species, IUCN Endangered, North American Bird Conservation Initiative Red Watch List

Key Habitat: Marbled Murrelet occurs year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal, Santa Barbara Co. (Sowls et al. 1980 cited in Sanders 1990). Roosts/Nests up to 50 miles inland within stands of mature redwood or dense mature conifer forests (USFWS 1997). Murrelets choose timber stand of varying sizes but almost always select stands dominated by coastal redwood suggesting coastal fog influences are important. There is only one record of a marbled murrelet nesting in a non-redwood site (Hunter et al 2005). Marbled murrelets are dependent on existing nesting platforms because they do not construct their own out of materials. Thus, minimum habitat characteristics for marbled murrelets consists of 1) mature or old-growth timber stands and 2) Minimum 4" diameter limbs with dense epiphytic vegetation and less than 10% slope (Evans et al 2003).

Status within BAA: The BAA does contain large diameter mature trees with lateral branches equal or greater than 4" diameter. However, the project is located outside of coastal influence and as a result the timber is relatively devoid of dense epiphytic vegetation that could create a marbled murrelet nest. Although the BAA is dominated by large diameter trees (> 36" DBH) there is no potential marbled murrelet habitat within the BAA. There is no potential for this species to be found within the BAA.

- **Northern Goshawk** (*Accipiter gentilis*)

Status: G5, S3, CDFW Species of Special Concern (CSSC) Priority 3, BOF, CDF, BLM, and USFS Sensitive Species

Key Habitat: Usually nests on north slopes, near water, in densest parts of stands, but close to openings (Polite and Pratt 2005). Northern Goshawk are strongly associated with mature or old-growth forest stands because they often display the preferred characteristics. These include canopy closure, frequently large diameter conifer trees, and relatively open understories (Keane 2008).

Status within BAA: There is one known historic northern goshawk occurrence (HU004) that overlaps with the BAA. This nest observation occurred in 1983 in Section 14. No additional goshawk observations have been recorded in the BAA after this date per the CNDDDB, iNaturalist database, and eBird database. Northern goshawk are known to occur within the BAA.

- **Northern Spotted Owl** (*strix occidentalis caurina*)

Status: ESA and CESA Threatened, G3G4, S1, CDF Sensitive Species, IUCN Endangered, North American Birds of Conservation Initiative Red Watch List

Key Habitat: Humboldt County supports a substantial number of breeding pairs of Northern Spotted Owl (Hunter et al. 2005). Northern spotted owls reside in dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2300m (0 – 7,600'). They usually nests in tree or snag cavities, or in broken tops of large trees (Polite C. 1990). In northwestern California, northern spotted owls also occur in second growth redwood-tanoak stands that retain suitable trees for nests and support high densities of their preferred prey, dusky-footed woodrats (Hunter et al. 2005).

Status within BAA: The BAA contains multiple positive detections of northern spotted owls. A historic activity center is present just south of property boundaries in the southern portion of the BAA, HUM0045. Further northern spotted owl discussion is presented in Section ## of this report. Northern spotted owls are present within the BAA.

4.3.2 Mammal Species of Special Concern

- **American Badger** (*taxidea taxus*)

Status: G5, S3, CDFW Species of Special Concern, IUCN: Least Concern

Key Habitat: Badgers are generalist species often found in drier open stages of most shrub, forest, and herbaceous habitats with sandy soils (Ahlborn 1990). They have historically been found throughout the state except for the northern north coast (Grinnell et al 1937 in Ahlborn 1990). Apps et al (2002) found positive habitat correlations with specific soil parent materials, sandy-loam soil textures, canopy openness, agricultural habitats, and linear disturbances (roads). Badger habitat selection negatively correlated with canopy cover, wet vegetation, and terrain ruggedness (Apps et al. 2002).

Status within BAA: The CNDDDB does not document any observations of American badger within the BAA or 9 quad search. Terrestrial habitat characteristics present in the BAA predominantly align with the negative correlates of the Apps et al (2002) study. The wet winter climate may be a factor why badgers have been historically rare in Humboldt County. The potential for American badger to be present within the BAA is unlikely.

- **California Wolverine** (*gulo gulo*)

Status: ESA Proposed Threatened, CESA Threatened, G4, S1, CDFW: Fully Protected, USFS: Sensitive Species, IUCN: Near Threatened

Key Habitat: Wolverines in the continental United States have a strong association with alpine habitats and climate. However, the CNDDDB contains six recorded observations of potential wolverine sightings in Trinity County from 1966 to 1991. Given the lack of information associated with these observations it is near impossible to authenticate them. A report titled "Using Anecdotal Occurrence Data for Rare or Elusive Species: The Illusion of Reality and a Call for Evidentiary

Standards” concludes many of these northern wolverine observations are possibly incorrect especially once supported by negative survey data from Zeilinski et al’s (2005) study (McKelvey et al 2008). Aubry (2007) concluded because of their affinity for alpine habitat types, California wolverine have likely never occupied the North Coast region of California.

Status within BAA: Given the existing literature it is very unlikely that this species has ever occurred in Humboldt County. The most likely conclusion is that the California Wolverine has been extirpated from the state (McKelvey et al 2008, Moriarty et al 2009). The potential for California wolverine presence within the BAA is unlikely.

- **Fringed Myotis** (*myotis thysanodes*)

Status: G4, S3, BLM: Sensitive Species, IUCN: Least Concern, USFS: Sensitive, Western bat Working Group (WBWG): High Priority

Key Habitat: Fringed myotis are a gleaning bat that usually roost in caves, rock crevices, or anthropogenic structures. Unlike other parts of their range, these bats are known to be an active tree-roosting species in Humboldt County. Weller and Zabel (2001) found that in Pilot Creek (Humboldt County) fringed myotis used snag structures at least 11” DBH as day roosts (not maternal) and displayed low site fidelity which is common in tree-roosting species. They found the greatest predictor of fringed myotis day-use roost was snag density given the low site fidelity and roost size variability (Weller and Zabel 2001). Lacki and Baker (2007) found maternal roosts were always located in rock crevices in the state of Washington with Hayes (2011) concluding similar results in Colorado. There is no literature available on maternal colonies in coastal conifer forests in California.

Status within BAA: There are no documented occurrences of fringed myotis within the BAA. Douglas-fir forest habitat within the BAA provides ample potential day roost habitat in the form of snag structures. The wetland within the BAA provides high quality foraging for this species. However, the BAA lacks any large rock outcroppings capable of providing maternal roost structures. Fringed myotis have a high potential of being found within the BAA.

- **Humboldt Marten** (*martes caurina humboldtensis*)

Status: State Candidate for Threatened, G5T1, S1, CSSC, USFS: Sensitive Species

Key Habitat: Humboldt marten were once thought to be extinct but are now known from three remnant populations in the Pacific Northwest. One population is known from California in the northeastern portion of Humboldt County. Additional survey efforts occurred in 2009 in Mendocino but failed to detect any martens, further strengthening evidence that the Klamath population is the last (Slauson et al. 2009). Slauson et al. (2002) found that Humboldt Martens selected forest stands located in the most mesic aspects with dense shrub cover in close proximity to large diameter mature conifer species.

Status within BAA: There have been no documented observations of Humboldt marten within the BAA. The BAA does contain potential habitat characteristics preferred by martens including a dense shrub layer, mesic sites, and large diameter mature conifer trees. The potential for Humboldt marten to be found within the BAA is moderate.

- **Long-eared Myotis** (*myotis evotis*)

Status: G5, S3, BLM Sensitive Species, IUCN Least Concern

Key Habitat: Long-eared myotis are relatively widespread across California. They are known to roost individually or in small groups of less than 10 individuals (Harris 1990, Kunz and Lumsden 2003). Kunz and Lumsden (2003) described them as tree-roosting bats as well as previous written descriptions in literature (Rancourt et al 2005). Rancourt et al (2005) found in their study that rock crevices were chosen as maternity roosts more often than stump or snag structures. This species

also has a low roost fidelity meaning they often move roost locations with an acute area, <400m (Kunz and Lumsden 2003). It is hypothesized this species would select rock crevices over snag/stump structures because of their potential benefits to reproductive fitness (Rancourt et al 2005). Kalcounis-Rüppel et al (2005) found that tree dwelling bats relative to random trees select trees that are larger diameter, taller, closer to open surface water, and are located in more open canopies.

Status within BAA: There are no documented observations of this species within the BAA. The BAA lacks large rock outcropping that may provide potential roost structure for this species. The BAA does however contain mature large diameter conifer tree species including Douglas-fir and incense cedar. More mature forests have a greater potential of providing large diameter snags or crevice structures within living trees. There is a moderate potential for long-eared myotis to be found within the BAA.

- **Long-legged Myotis (*myotis volans*)**

Status: G5, S3, Western Bat Working Group: High Priority, IUCN Least Concern

Key Habitat: Long-legged myotis are known to use a multitude of roost structures depending on the specific roosting behavior whether it be a day roost, maternal roost, night roost, or hibernacula (hibernation roost) (Christy and West 1993). This species has been observed utilizing buildings, bridge structures, bark crevices, and rock crevices for solitary roosts (night or day roost). For maternal roosting they select buildings, bark crevices, rock crevices, or snag structures (Christy and West 1993). Orsmbee and McComb (1998) found this species primarily selected snag structures that were exposed to sunlight either through canopy openings or elevation above the average canopy height in a Douglas-fir/western hemlock forest in Oregon.

Status within BAA: The CNDDDB does not contain any documented observations of long-legged myotis within the BAA. The BAA does contain potential maternal roosting habitat in the form of snag structures and potential bark crevices in the mature Douglas-fir forest habitat. There is a moderate potential for long-legged myotis presence within the BAA.

- **North American Porcupine (*erethizon dorsatum*)**

Status: G5, S3, IUCN Least Concern

Key Habitat: Most common in montane conifer, Douglas-fir, alpine dwarf-shrub, and wet meadow habitats. Porcupines are less common in hardwood, hardwood-conifer, montane and valley-foothill riparian, aspen, pinyon-juniper, low sage, sagebrush, and bitterbrush. Dens in caves, crevices in rocks, cliffs, hollow logs, snags, burrows of other animals; will use dense foliage in trees if other sites are unavailable. In spring and summer, feeds on aquatic and terrestrial herbs, shrubs, fruits, leaves, and buds. Winter diet consists of twigs, bark, and cambium of trees, particularly conifers, and evergreen leaves (Johnson and Harris 1990).

Status within BAA: There are no documented observations of porcupines within the BAA (CNDDDB). Mature Douglas-fir forest provides potential habitat within the BAA. There is a high potential for porcupine presence within the BAA.

- **Pacific Fisher – West Coast DPS/Northern California ESU (*pekania pennanti*)**

Status: G5T2T3Q, S2S3, CDFW Species of Special Concern Priority 2, BLM Sensitive Species, USFS Sensitive Species

Key Habitat: Fisher occurrence is regularly associated with low- to mid-elevation coniferous and mixed conifer/hardwood forests with mature or late-successional characteristics. Regardless of age class, abundant physical structure is the driving characteristic for habitat selection by Fishers (USFWS 2016). Other studies have found Fishers prefer a strong hardwood component possibly related to prey densities (Lofroth et al 2011). Fishers have also been observed using second growth

and regenerative conifer stands in areas where significant residual structure was left from historic timber management (Mathew et al 2008). Fishers are highly territorial defending 10 square mile territories from one another; as a result, they are inherently rare (Ingles 1965).

Status within BAA: The CNDDDB does not document any observations of fisher in the BAA. The BAA does contain potential fisher habitat in the form of conifer timberlands with large diameter trees and canopy closure. There is a high potential for Pacific fisher to be found within the BAA.

- **Sonoma Tree Vole (*arborimus pomo*)**

Status: G3, S3, CDFW Species of Special Concern, IUCN Near Threatened

Key Habitat: These small arboreal mammals are mainly associated with mature conifer forests. They construct nests of conifer needles often located in trees but seldom found at the base (Brylski and Harris 1990). Chinnici et al. (2011) found that nests were more prominent in mature stands with higher densities of Douglas-fir.

Status within BAA: The CNDDDB contains no documented observations of Sonoma tree vole in the BAA. Douglas-fir forest habitat within the BAA provides high quality habitat for Sonoma tree vole. There is a high potential of finding Sonoma tree vole within the BAA.

- **Townsend's Big-Eared Bat (*corynorhinus townsendii*)**

Status: G3G4, S2, CDFW Species of Special Concern Priority 2, BLM Sensitive Species, USFS: Sensitive Species, IUCN Least Concern, Western Bat Working Group: High Priority

Key Habitat: Townsend's big-eared bat is unequivocally associated with areas containing caves and cave-analogs for roosting habitat. Beyond the constraint for cavernous roosts, habitat associations become less well defined. Generally, Townsend's big-eared bats are found in the dry uplands throughout the West, but they also occur in mesic coniferous and deciduous forest habitats along the Pacific coast (Kunz and Martin 1982). Townsend's big-eared bat requires spacious cavern-like structures for roosting (Pierson 1998) during all stages of its life cycle. Typically, they use caves and mines, but Townsend's big-eared bat have been noted roosting in large hollows of redwood trees, in attics and abandoned buildings (Dalquest 1947), and under bridges (Fellers and Pierson 2002). In coastal California, five of six known maternity colonies were in old buildings; the sixth was in a cave-like feature of a bridge (Fellers and Pierson 2002).

Throughout its western range, Townsend's big-eared bat roosts in a variety of vegetative communities, and at a range of elevations and there appears to be little or no association between local surface vegetative characteristics and selection of particular roosts in either eastern or western populations (Wethington et al. 1997, Sherwin et al. 2000). This suggests that the bats select roosts based on internal characteristics of the structure rather than the surrounding vegetative community. The Critical period for maternity roosts is May 15 - August 15 (Gruver and Keinath 2006).

Status within BAA: The CNDDDB shows no documented observations of Townsend's big-eared bat in the BAA. The BAA does not prominent rock outcroppings. The landslides features do contain steep rocky slopes but unlikely contain any caverns structures that may provide potential roosts. The mature Douglas-fir forest habitat within the BAA does provide high potential for snag structures capable of providing complex structure that could provide roosting habitat. The potential for Townsend's big-eared bat to be found within the BAA is moderate.

4.3.3. Reptiles and Amphibians of Special Concern

- **Del Norte Salamander (*plethodon elongatus*)**

Status: G4, S3, CDFW: Watch List, IUCN: Near Threatened

Key Habitat: Del Norte salamander can be found in a variety of vegetative communities (Marangio 1990). Welsh and Lind (1995) found on the macrohabitat scale these salamanders prefer older aged stands with small hardwoods present. It has been hypothesized this is possibly correlated to broadleaf litter and these trees deciduous characteristics. It was also found that steep slope supports the greatest abundance of salamanders (Welsh and Lind 1995). This species is highly associated with coarse substrates that create subterranean interstitial spaces, they will use downed woody debris but prefer coarse substrates of cobble size (Welsh and Lind 1995).

Status within BAA: There are no documented occurrences of Del Norte salamander within the BAA. The BAA does contain potential habitat in the form of mature conifer dominant forest with hardwoods present in the understory. Although there is potential for small talus pile sites, the BAA does not contain any significant rock features that may produce talus slopes or piles. Landslides within the BAA lack canopy cover and do not provide the microclimate preferred by this species. There is moderate potential for Del Norte salamander presence within the BAA.

- **Foothill Yellow-legged Frog (*rana boylei*)**

Status: Candidate for CESA Threatened, G3, S3, CDFW Species of Special Concern Priority 1, USFS Sensitive Species, BLM Sensitive Species, IUCN Near Threatened

Key Habitat: Foothill yellow-legged frog's habitat selection as many frogs, depends on their life stage. This species is primarily found in and around streams with shallow, flowing water with some cobble-sized substrate (Hayes and Jennings 1988). Egg masses require low flowing stream locations with some form of anchor and protection such as behind or under a rock (Thomson et al. 2016). Not much is known about foothill yellow-legged frog terrestrial habitat selection. Bourque (2008) found adult foothill yellow-legged frog an average distance from water of 3 m but also found select individuals up to 40 m from any surface water. This study evaluated an inland population in Tehama County and coastal populations in more mesic timberlands may disperse farther distances more regularly. The best indicator for adult foothill yellow-legged frog presence is canopy openness (Welsh and Hodgson 2011).

Status within BAA: Foothill yellow-legged frogs have been documented within the BAA. J. Arnold identified 5 adults within the neighboring private parcel along the western boundary of the BAA. Intermittent watercourses within the BAA do provide potential habitat for foothill yellow-legged frog. Foothill yellow-legged frogs are present within the BAA.

- **Northern Red-Legged Frog (*rana aurora aurora*)**

Status: CDFW Species of Special Concern Priority 2, USFS Sensitive Species, IUCN Least Concern

Key Habitat: Northern red-legged frog (northern red-legged frog) is relatively terrestrial for a ranid frog (Thomson et al. 2016). Adult individuals are common in terrestrial habitats especially over winter or wet periods but they commonly prefer shorelines or stream banks with vegetative cover. Individuals have been observed up to 80 m away from surface water in rainy conditions (Haggard 2000). Reproductive sites require persistent water at least 6" deep with emergent vegetation required to anchor egg masses (Morey and Basey 1990). Jennings et al. (1993) found that intermittent streams chosen by northern red-legged frog for breeding retained surface water year-round.

Status within BAA: The CNDDDB does not identify any northern red-legged frog observations within the BAA. Potential habitat is present in the form of intermittent slow flowing watercourses with pool features as well as the wetland feature. The wetland on property provides high quality breeding habitat for this species. Northern red-legged frogs have a high potential of being found within the BAA.

- **Northwestern Pond Turtle** (*emys marmorata*)

Status: G3G4, S3, CDFW Species of Special Concern Priority 1, BLM Sensitive Species, USFS Sensitive Species, IUCN Vulnerable

Key Habitat: Northwestern pond turtles are aquatic habitat generalist and can be found in a variety of waterbodies including rivers, streams, lakes, ponds, and marshes. Northwestern pond turtle have even been observed using ephemeral water features such as vernal pools or settling ponds. These turtles require upland habitat with adequate soil conditions for excavating nests that also lack disturbance. Studies have shown females prefer nesting sites within 100 m of a waterbody. Northwestern pond turtle prefer quiet and undisturbed water features with adequate basking substrate such as emergent woody debris or relatively unshaded shorelines (Thomson et al. 2016). They can persist in unfavorable conditions for some period of time (Spinks et al. 2003).

Status within BAA: Northwestern pond turtles were observed basking within the wetland during the site assessment. Northwestern pond turtles are present within the BAA.

- **Coastal Tailed Frog** (*ascaphus truei*)

Status: G4, S3S4, CDFW Species of Special Concern Priority 2 and IUCN Least Concern

Key Habitat: Coastal tailed frog is regarded to be an uncommon inhabitant of Humboldt County but has been shown to be quite common in the correct habitat characteristics. Coastal tailed frogs occur in permanent streams and are highly dependent on water temperature (Morey 1990). Welsh and Hodgson (2011) found that canopy cover is the best predictor of this species' presence. Pacific tailed frogs were never observed within streams with less than 83% canopy cover (Welsh and Hodgson 2011). Aside from cold water temperature tailed frogs select habitat with coarse substrate (cobbles and boulders) and steep gradients (Thomson et al. 2016).

Status within BAA: The CNDDDB shows no documented occurrences of coastal tailed frog within the BAA. Watercourses within the BAA are well suited for this species with high gradients, strong canopy cover, and coarse sediments. There is a high potential for coastal tailed frog to be found within the BAA.

- **Southern Torrent Salamander** (*rhyacotriton variegatus*)

Status: G3G4, S2S3, CDFW Species of Special Concern Priority 1, USFS Sensitive Species, IUCN Least Concern

Key Habitat: Southern torrent salamander prefers habitat characteristics that correlate with late-seral forests. Coastal coniferous forests that may not be mature enough may be productive enough to create these conditions which include clear, cold waters with loose, coarse substrates that lack overall sediments loads (Welsh and Lind 1996). Interstitial spacing between gravels and cobbles is very important for low flow periods within intermittent low-order streams occupied by southern torrent salamander. This may be why southern torrent salamanders also prefer high gradient streams capable of flushing out sediment loads and maintaining coarse substrates. Torrent salamander presence is also highly associated with canopy cover due to its strong correlation with temperature control and hydrologic period (Thomson et al 2016).

Status within BAA: The CNDDDB shows no documented occurrences of coastal tailed frog within the BAA. Watercourses within the BAA are well suited for this species with high gradients, strong canopy cover, and coarse sediments. There is a high potential for southern torrent salamander to be found within the BAA.

4.3.5 Plant Species of Special Concern

<i>Astragalus umbraticus</i>		Bald mountain milk-vetch	
Fed List: None	State List: None	CNPS List: 2B.3	State Rank: S2
USGS 7.5' Quad (CNDDDB): Bald Hills, Fish Lake, French Camp Ridge, Holter Ridge, Hupa Mountain, Johnsons, Lord-Ellis Summit, Maple Creek, Showers Mtn, Tish Tang Point, Weitchpec, Willow Creek			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Cismontane woodland, lower montane coniferous forest (CNNDDB). Dry open woodland (Jepson eflora). Foothill woodland (Calflora).			
<i>Bensoniella oregona</i>		Bensoniella	
Fed List: None	State List: Rare	CNPS Rank: 1B.1	State Rank: S2
USGS 7.5' Quad (CNNDDB): Deny, Salyer, Maple Creek, Mad River Buttes, and Board Camp Mountain			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Chaparral, Lower montane coniferous forest, North coast coniferous forest, Riparian scrub (CNNDDB). Wet meadows and bogs (Jepson eflora). Yellow pine forest, freshwater wetlands, wetland-riparian (Calflora).			
<i>Botrypus virginianus</i>		Rattlesnake fern	
Fed List: None	State List: None	CNPS Rank: 2B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Hennessey Peak			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Bog & fen, lower montane coniferous forest, meadow & seep, riparian forest, upper montane coniferous forest, wetland (CNDDDB). Moist shaded valleys along small streams (Jepson eflora).			
<i>Buxbaumia viridis</i>		Buxbaumia moss	
Fed List: None	State List: None	CNPS Rank: 2B.2	State Rank: S1
USGS 7.5' Quad (CNDDDB): Board Camp Mountain, Hayfork Bally			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Lower montane coniferous forest, subalpine coniferous forest, upper montane coniferous forest (CNDDDB).			
<i>Carex arcta</i>		Northern clustered sedge	
Fed List: None	State List: None	CNPS Rank: 2B.2	State Rank: S1
USGS 7.5' Quad (CNDDDB): Board Camp Mountain, Hayfork Bally			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Bog & fen, North coast coniferous forest, Wetland (CNDDDB). Wet places, especially sphagnum bogs (Jepson eflora). North Coastal Coniferous Forest, Douglas-Fir Forest, wetland-riparian (Calflora).			
<i>Carex praticola</i>		Northern meadow sedge	
Fed List: None	State List: None	CNPS Rank: 2B.2	State Rank: S2
USGS 7.5' Quad (CNNDDB): Arcata South, Bark Shanty Gulch, Eureka, French Camp Ridge, Grouse Mtn., Holter Ridge, Orick			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Meadow & seep, wetland (CNDDDB) Moist to wet meadows, riparian edges, open forest (Jepson eflora) Coastal prairie, north coastal coniferous forest, meadows (Calflora)			
<i>Epilobium oreganum</i>		Oregon fireweed	

Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Board Camp Mountain, Denny, Grouse Mountain, Maple Creek, Trinity Mountain			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Bog & fen, Lower montane coniferous forest, Meadow & seep, Ultramafic, Upper montane coniferous forest, Wetland (CNNDDB). Bogs and small streams (Jepson eflora). Yellow pine forest, Red fir forest, lodgepole forest, subalpine forest, freshwater wetlands, wetland-riparian (Caflora).			
Eriastrum tracyi		Tracy's eriastrum	
Fed List: None	State List: Rare	CNPS List: 3.2	State Rank: S3
USGS 7.5' Quad (CNDDDB): Dubakella Mtn, Hayfork, Hyampom, Hyampom Mountain			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Chaparral, cismontane woodland, valley and foothill grassland (CNNDDB). Open areas on shale or alluvium, open woodland, chaparral (Jepson eflora).			
Erigeron maniopotamicus		Mad river fleabane daisy	
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2?
USGS 7.5' Quad (CNDDDB): Board Camp Mountain, Dinsmore			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Lower montane coniferous forest, Meadow & seep (CNNDDB). Bogs and small streams (Jepson eflora). Yellow pine forest, Red fir forest, lodgepole forest, subalpine forest, freshwater wetlands, wetland-riparian (Calflora).			
Erythranthe trinitensis		Pink-margined monkeyflower	
Fed List: None	State List: None	CNPS List: 1B.3	State Rank: S2
USGS 7.5' Quad (CNDDDB): Grouse Mountain, Willow Creek			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Cismontane woodland, Lower montane coniferous forest, Meadow & seep, Ultramafic, Upper montane coniferous forest (CNNDDB). Moist, generally clay soils in +/- full sun (Jepson eflora).			
Erythronium oregonum		Giant Fawn Lily	
Fed List: None	State List: None	CNPS List: 2B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Blue Creek Mtn, Ettersburg, Fish Lake, Grouse Mtn, Hennessey Peak, Hoopa, Hupa Mountain, Panther Creek, Iaqua Buttes, Johnsons, Lord-Ellis Summit, Myers Flat, Scotia, Somes Bar, Taylor Peak, Tish Tang Point			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Cismontane woodland, Meadow & seep, Ultramafic (CNNDDB). Openings in woodlands (Jepson eflora). Mixed Evergreen Forest (Calflora).			
Erythronium revolutum		Coast fawn lily	
Fed List: None	State List: None	CNPS Rank: 2B.2	State Rank: S3
USGS 7.5' Quad (CNDDDB): Bald Hills, Blue Lake, Board Camp Mtn., Bridgeville, Buckeye Mtn., Dinsmore, Ettersburg, Eureka, French Camp Ridge, Garberville, Grouse Mtn., Holter Ridge, Hupa Mountain, Iaqua Buttes, Johnsons, Korbel, Lord-ellis Summit, Mad River Buttes, Maple Creek, Miranda, Myers Flat, Owl Creek, Piercy, Scotia, Taylor Peak, Weitchpec, Yager Junction			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Bogs and fens, broadleafed upland forest, north coast coniferous forest. Mesic sites, streambanks (CNDDDB). Streambanks, wet places in woodlands (Jepson eflora). Redwood forest, mixed evergreen forest, wetland-riparian (Calflora).			

<i>Eucephalus vialis</i>	Wayside aster		
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S1
USGS 7.5' Quad (CNDDDB): Willow Creek			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Lower montane coniferous forest, Upper montane coniferous forest (CNNDDB). Meadows, open oak or conifer woodland (Jepson eflora).			
<i>Gilia capitata ssp pacifica</i>	Pacific gilia		
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5' Quads (CNDDDB): Bridgeville, Larabee Valley, Board Camp Mountain, and Mad River Buttes			
Documented in BAA: Yes		Potential Habitat in BAA: Yes	
Habitat: Chaparral, Coastal bluff scrub, Coastal prairie, Valley and foothill grasslands (CNDDDB). Steep slopes, ravines, open flats, or coastal bluffs, grassland, dunes (Jepson eflora).			
<i>Hosackia yollabollensis</i>	Yolla Bolly Mtns. bird's-foot trefoil		
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5" Quad (CNDDDB): Blake Mountain, Dinsmore, Sims Mountain			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Meadow & seep, Upper montane coniferous forest (CNDDDB). Open, dry slopes, fir forest (Jepson eflora).			
<i>Iliamna latibracteata</i>	California globe mallow		
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Board Camp Mountain, Denny, Fern Canyon, French Camp Ridge, Grouse Mountain, Hopkins Butte, Korbel, Lord-ellis Summit, Maple Creek, Orick, Salyer, Sims Mountain, Tish Tang Point, Willow Creek			
Documented in BAA: No		Potential Habitat Present: Yes	
Habitat: Chaparral, Lower montane coniferous forest, North coast coniferous forest, Riparian scrub (CNDDDB). Conifer forest, streamsides (Jepson eflora).			
<i>Kopsiopsis hookeri</i>	Small groundcone		
Fed List: None	State List: None	CNPS List: 2B.3	State Rank: S1S2
USGS 7.5" Quad (CNDDDB): Bald Hills, Fish Lake, French Camp Ridge, Holter Ridge, Johnsons, Miranda, Salyer, Weitchpec			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: North coast coniferous forest (CNDDDB). Open woodland, mixed conifer forest, generally on <i>Gaultheria shallon</i> , occasionally on <i>Arbutus menziesii</i> , <i>Arctostaphylos</i> (Jepson eflora).			
<i>Lewisia cotyledon var. heckneri</i>	Heckner's lewisia		
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S3
USGS 7.5' Quad (CNDDDB): Denny, Weitchpec			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Lower montane coniferous forest, rocky places (CNNDDB). Crevices in cliffs, rocky slopes of granite or basalt, conifer forest (Jepson eflora). Yellow pine forest, north coast coniferous forest (Caflora).			
<i>Lupinus elmeri</i>	South Fork Mountain lupine		

Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Blake Mountain, Sims Mountain			
Documented in BAA: No		Potential Habitat Present: Yes	
Habitat: Lower montane coniferous forest (CNDDB). Open areas in conifer forest (Jepson eflora).			
<i>Lycopodium clavatum</i>		Running-pine	
Fed List: None	State List: None	CNPS List: 4.1	State Rank: S3
USGS 7.5' Quad (CNDDB): Arcata North, Arcata South, Bald Hills, Blue Lake, Crannell, Hydesville, Iaqua Buttes, Korbel, Maple Creek, McWhinney Creek, Orick, Owl Creek, Panther Creek, Redcrest, Rodger's Peak, Scotia, Sims Mountain, Trinidad, Weott			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Lower montane coniferous forest, north coast coniferous forest, marshes and swamps; Forest understory, edges, openings, roadsides; mesic sites with partial shade and light (CNDDB). Moist ground, swamps, on trees (Jepson eflora). Freshwater-marsh (Calflora).			
<i>Montia howellii</i>		Howell's montia	
Fed List: None	State List: None	CNPS List: 2B.2	State Rank: S2
USGS 7.5' Quad (CNDDB): Arcata North, Bald Hills, Blocksburg, Briceland, Bridgeville, Buckeye Mountain, Bull Creek, Capetown, Eureka, Ferndale, Fields Landing, Fort Seward, Fortuna, Hupa Mountain, Hydesville, Iaqua Buttes, Korbel, Larabee Valley, Lord-ellis Summit, Mad River Buttes, Maple Creek, McWhinney Creek, Miranda, Myers Flat, Orick, Owl Creek, Panther Creek, Redcrest, Salyer, Scotia, Taylor Peak, Weitchipee, Willow Creek, Yager Junction			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Meadow & seep, North coast coniferous forest, vernal pool, wetland (CNDDB). Vernally wet sites, often compacted soils (Jepson eflora). Redwood forest, Freshwater wetlands, Wetland-riparian (Calflora)			
<i>Oenothera wolfii</i>		Wolf's evening primrose	
Fed List: None	State List: None	CNPS List: 1B.1	State Rank: S1
USGS 7.5' Quad (CNDDB): Arcata North, Cape Mendocino, Capetown, Crannell, Eureka, Orick, Orleans, Salyer, Willow Creek			
Documented in BAA: No		Potential Habitat in BAA: No	
Habitat: Sandy substrates on Coastal bluffs, Coastal dunes, Prairie, Lower montane coniferous forest (CNDDB). Coastal sand, including dunes, bluffs, roadsides, generally moist places, perhaps also inland (Jepson eflora). Dunes, coastal strand, coastal prairie, yellow pine forest, northern coastal scrub (Calflora)			
<i>Piperia candida</i>		White-flowered rein orchid	
Fed List: None	State List: None	CNPS Rank: 1B.2	State Rank: S3
USGS 7.5' Quad (CNDDB): Bald Hills, Blake Mountain, Board Camp Mtn., Briceland, Bridgeville, Buckeye Mtn., Bull Creek, Crannell, Fish Lake, French Camp Ridge, Holter Ridge, Honeydew, Hoopa, Hupa Mountain, Iaqua Buttes, Johnsons, Larabee Valley, Lord-ellis Summit, Mad River Buttes, Maple Creek, Miranda, Myers Flat, Scotia, Showers Mtn., Sims Mountain, Weitchipee, Weott, Willow Creek			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: North coast coniferous forest, lower montane coniferous forest, broadleafed upland forest. Sometimes on serpentine, forest duff, mossy banks, rocky outcrops, and muskeg. (CNDDB). Open to shady spots, conifer and mixed-evergreen forest (Jepson eflora). Yellow Pine Forest, north coast coniferous forest (Calflora).			
<i>Ramalina thrausta</i>		Angel's hair lichen	

Fed List: None	State List: None	CNPS List: 2B.1	State Rank: S2?
USGS 7.5' Quad (CNDDDB): Grouse Mtn.			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: North coast coniferous forest (CNDDDB).			
<i>Rosa gymnocarpa var. serpentine</i>		Gasquet rose	
Fed List: None	State List: None	CNPS List: 1B.3	State Rank: S2
USGS 7.5' Quad (CNDDDB): Grouse Mtn., Willow Creek			
Documented in BAA: No		Potential Habitat in BAA: Yes	
Habitat: Chaparral, Cismontane woodland, Ultramafic (CNDDDB). Full sun in chaparral, dwarf forest on ultramafic substrates (Jepson eflora).			
<i>Sedum laxum spp. flavidum</i>		Pale yellow stone crop	
Fed List: None	State List: None	CNPS List: 4.3	State Rank: S3
USGS 7.5' Quad (CNDDDB): Black Lassic, Board Camp Mountain, Dinsmore, Dubakella Mountain, Fish Lake, Forest Glen, Grouse Mtn, Hennessy Peak, Hyampom, Mad River Buttes, Naufus Creek, Pony Buck Peak, Sims Mountain, Smoky Creek, Swim Ridge, Weitchpec, Wildwood			
Documented in BAA: Yes		Potential Habitat in BAA: No	
Habitat: Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Ultramafic, Upper montane coniferous forest (CNDDDB). Serpentine or basalt outcrops (Jepson eflora). Chaparral, Foothill Woodland, Yellow Pine Forest, Mixed Evergreen Forest (Calflora).			
<i>Sidalcea malviflora ssp. patula</i>		Siskiyou checkerbloom	
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S1
USGS 7.5' Quad (CNDDDB): Arcata North, Bald Hills, Board Camp Mountain, Bridgeville, Capetown, Denny, Eureka, Ferndale, Fields Landing, Fortuna, Grouse Mountain, Hydesville, Iaqua Buttes, Korb, Maple Creek, Myers Flat, Orick, Owl Creek, Petrolia, Salyer, Scotia, Taylor Peak, Weitchipec, Yager Junction			
Documented in BAA: Yes		Potential Habitat in BAA: Yes	
Habitat: Coastal bluff scrub, coastal prairie, north coast coniferous forest (CNDDDB). Open coastal forests, bluffs (Jepson eflora). Occurs usually in wetlands (Calflora).			
<i>Sidalcea oregana ssp. eximia</i>		Coast checkerbloom	
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S1
USGS 7.5' Quad (CNDDDB): Arcata North, Board Camp Mountain, Cannibal Island, Eureka, Fields Landing, Grouse Mountain, Iaqua Buttes, Maple Creek, Tish Tang Point, Trinity Mountain, Weitchipec			
Documented in BAA: Yes		Potential Habitat Present: Yes	
Habitat: Lower montane coniferous forest, Meadow & seep, North coast coniferous forest, Wetland (CNDDDB). Meadows (Jepson eflora). Yellow Pine Forest, North Coast Coniferous Forest, Wetland-riparian (Calflora).			
<i>Streptanthus oblancheolatus</i>		Trinity River jewelflower	
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S1
USGS 7.5' Quad (CNDDDB): Ironside Mountain			
Documented in BAA: No		Potential Habitat Present: Yes	
Habitat: Broadleaved upland forest, north coast coniferous forest, old growth, redwood (CNDDDB). Cliffs and canyon walls in conifer forest (Jepson eflora).			

<i>Vaccinium scoparium</i>		Little-leaved huckleberry	
Fed List: None	State List: None	CNPS List: 2B.2	State Rank: S3
USGS 7.5' Quad (CNDDDB): Willow Creek			
Documented in BAA: No		Potential Habitat Present: No	
Habitat: Subalpine conifer forest, rocky, subalpine woods. Sometimes serpentine (CNDDDB). Rocky subalpine woodland (Jepson eflora). Subalpine forest (Calflora).			

4.7 Potential Impacts

4.7.1 Water Quality and Aquatic Habitats

The use and maintenance of the native surfaced road network, the upkeep of other unvegetated surfaces (landings, terraces, cut banks, etc.), and general operations in steep rugged terrain increases the risk of erosion and sediment transportation. Additionally, the storage and use of agricultural nutrients, pesticides, herbicides, and fuels in steep rugged terrain also presents risks of pollutant discharge to surface waters. With pre-existing sites these impacts generally are indirect. Potential water quality impacts associated with this project were managed through enrollment in the regional cannabis waste discharge program (RWQ Order No. 2015-0023). The project has transferred into the state waste discharge program (Order WQ 2017-0023 DWQ) and will continue to actively manage potential water quality impacts through implementation of a Site Management Plan.

There is one project area where cultivation occurs within 100' of the perennial wetland. Order WQ 2017-0023 and Humboldt County General Plan BR-S5 states no cultivation or development shall occur within 100' of a perennial wetland. The existing riparian buffer is densely vegetated with upland and riparian plant species. Wetlands have been shown to be capable of significantly influencing sediment and nutrients loads within surface waters (Randerson 2006). However, a literature review of multiple studies has shown that natural wetlands often have too much variation in order to accurately conclude if they will result in a net loss or gain of nutrient or sediment levels (Fisher and Acreman 2004). In its current configuration the project presents an increased risk of pollutant discharge given the reduced riparian buffer. The project operator can either relocate cultivation with county approval, or file for an exemption from the Humboldt County General Plan. This process would require approval from Humboldt County and California Department of Fish and Wildlife.

4.7.2 Northern Spotted Owl Assessment

The Biological Assessment Area (BAA) contains both foraging and nesting/roosting northern spotted owl habitat in the form of Douglas-fir forest. The CNDDDB reveals there are no known northern spotted owl (NSO) activity centers within the BAA. The nearest activity center is approximately 0.19 miles south of the BAA in the NW ¼ of Section 24, T5N, R5E, Humboldt County. NSO surveys have been historically conducted on USFS lands in this area by the Willow Creek Demographic Study. There have been no detections within this owl territory since 2013, when an NSO pair was detected at night but never found during daytime follow up searches (Peter Carlson, email message, July 23, 2019). This project does not propose any modifications to NSO habitat. Potential impacts associated with this project and NSO are disturbance based.

Northern spotted owls are sensitive to noise and light disturbance. This project does not propose utilizing any supplemental lighting for cultivating purposes. Daily project generated noise consists of occasional light-vehicle traffic, use of power tools, and music. Generally, these noise levels are very low [51-60 dB(A)] to low [61-70 dB(A)]. The project utilizes a solar array to produce power for daily activities. A Honda EU2000i gasoline generator is present on-site for back-up use. Manufacturer's specifications state this generator produces 59 dB(A) with a full load measured at 7 m (23'). Potential generator noise levels at this site are low [51-60 dB(A)]. These expected daily activities will not produce noise levels great enough to impact potential northern spotted owls within the BAA (USFWS 2006).

Given the natural setting and road conditions of this project there are additional risks of noise impacts to northern spotted owls due to the potential for heavy equipment use. Heavy equipment may be required for additional proposed actions on-site (e.g. road maintenance, stream crossing work, earthwork, general construction). Heavy equipment produces noise levels that vary from high [81-90 dB(A)] to very high [91-100 dB(A)] (USFWS 2006). These noise levels present a high risk of impacted northern spotted owls potentially present within nesting/roosting habitat along the road network. In order to mitigate this risk, the project should either:

- 1) Restrict the use of heavy equipment within the mapped northern spotted owl nesting/roosting habitat to outside of the critical period (February 1st through July 31st). Heavy equipment is defined as road graders, dozers, dump trucks, excavators, back-hoes, or any mechanical equipment that generates greater than 70 dB(A) at 23' or 7 meters.
- 2) Survey for northern spotted owls per the Protocol for Surveying Proposed Management Activities that May Impact Northern Spotted Owls, USFWS 2012. Surveys should be conducted per Section 9.0 Surveys for Disturbance Only Projects.

4.7.3 Rodenticides

Given the potential presence of northern spotted owl, Pacific fisher, and Humboldt marten there are biological concerns related to human activities and rodenticide use. Recent studies have found evidence cannabis cultivation operations are a source of secondary poisoning in northern spotted owls, Pacific fisher, and Humboldt marten (Thompson et al 2013, Franklin et al 2018, Gabriel et al 2018). Historic studies have shown a trend of anticoagulant rodenticide use associated with human activities in wild/urban interface settings (Alterio 1996, Shore 2002, Albert et al 2009, Thomas et al 2011). The site operator has stated they do not use any form of chemical or ingestible rodenticide and rely solely on trapping techniques. Proper collection and storage of trash and cultivation waste will also aid in preventing human-rodent conflict. As long as the operator of these cultivation sites does not use chemical rodenticides this should reduce risk of this project poisoning potentially present northern spotted owls and/or Pacific fisher.

5.0 Recommendations

- Adhere to all conditions in applicable management plans and monitoring reports as required by Order WQ 2017-0023.
- Apply for Special Permit through Humboldt County per 14CCR 1104.1(a)(2)(F) if cultivation remains within the riparian buffer or confirm cultivation relocation with County personal.
- Adhere to all conditions within the CDFW Lake and Streambed Alteration Agreement
- Perform floristic survey if any additional ground disturbance or habitat conversion is proposed.
- If operations with the potential to significantly disturb (e.g. heavy equipment operations) northern spotted owl are proposed during the critical period, February 1st – July 31st. Northern Spotted owl surveys should be performed per specifications stated in Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls (2012) before operations occur. Surveys should be performed per Section 9.0 Surveys for Disturbance-Only Projects.
- Continue implementation of non-chemical based strategies for the management of nuisance rodent interactions

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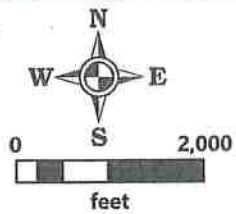
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Appendixes

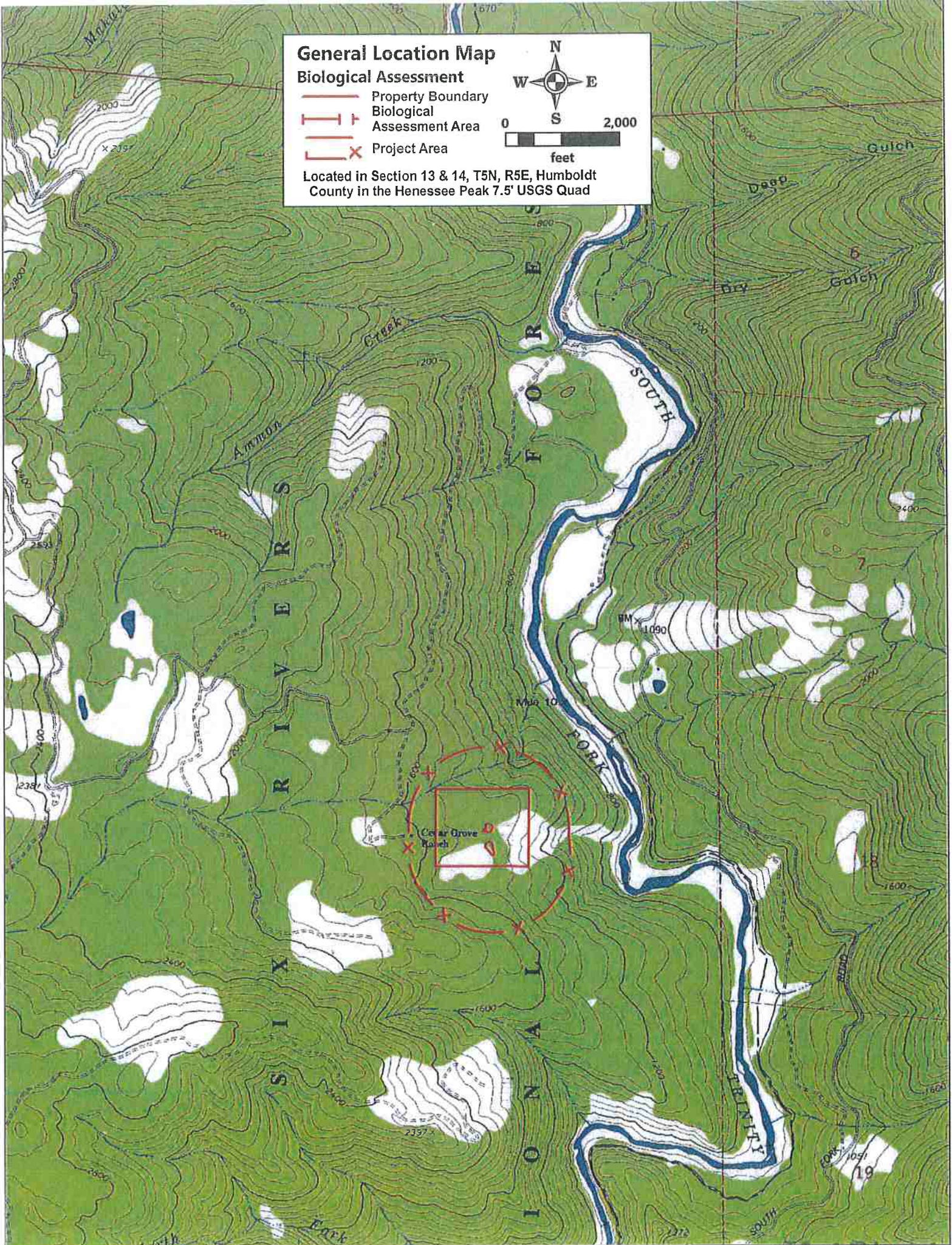
General Location Map

Biological Assessment

- Property Boundary
- Biological Assessment Area
- Project Area



Located in Section 13 & 14, T5N, R5E, Humboldt County in the Hennessee Peak 7.5' USGS Quad



Photographs



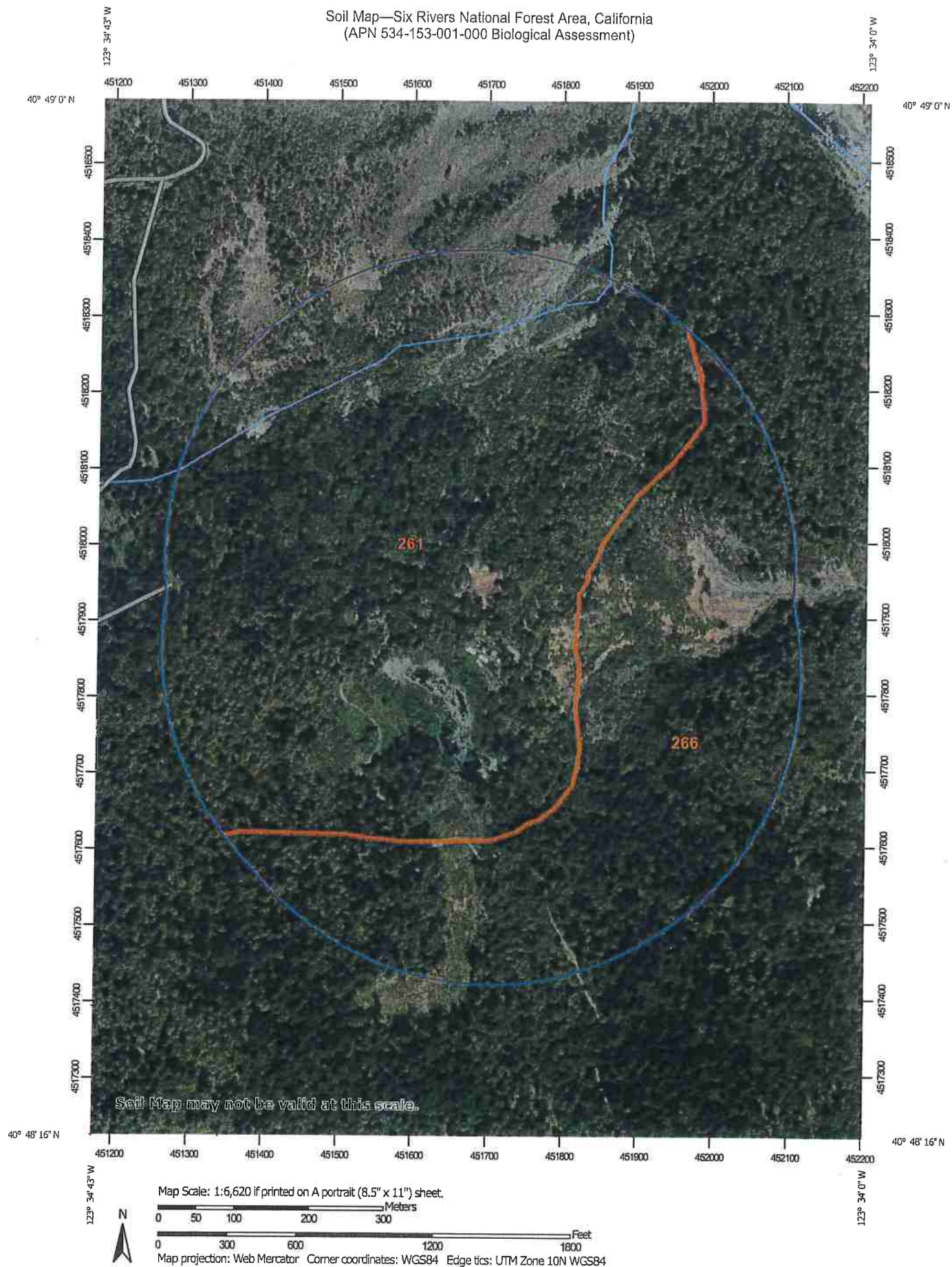
Picture 1: Aerial image of the southern Project Area. Edge of wetland can be seen in bottom left corner of image. Photo date: 05/20/2019

Photographs



Picture 2: Aerial image of the northern Project Area. Photo date: 05/20/2019

Soil Map—Six Rivers National Forest Area, California
(APN 534-153-001-000 Biological Assessment)











































Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

7/9/2019
Page 1 of 3

34

MAP LEGEND

 Area of Interest (AOI)	 Area of Interest (AOI)
 Soils	 Soil Map Unit Polygons
 Soil Map Unit Lines	 Soil Map Unit Lines
 Soil Map Unit Points	 Soil Map Unit Points
Special Point Features	Special Line Features
 Blowout	 Blowout
 Borrow Pit	 Borrow Pit
 Clay Spot	 Clay Spot
 Closed Depression	 Closed Depression
 Gravel Pit	 Gravel Pit
 Gravelly Spot	 Gravelly Spot
 Landfill	 Landfill
 Lava Flow	 Lava Flow
 Marsh or swamp	 Marsh or swamp
 Mine or Quarry	 Mine or Quarry
 Miscellaneous Water	 Miscellaneous Water
 Perennial Water	 Perennial Water
 Rock Outcrop	 Rock Outcrop
 Saline Spot	 Saline Spot
 Sandy Spot	 Sandy Spot
 Severely Eroded Spot	 Severely Eroded Spot
 Sinkhole	 Sinkhole
 Slide or Slip	 Slide or Slip
 Sodic Spot	 Sodic Spot
 Water Features	 Water Features
 Streams and Canals	 Streams and Canals
 Transportation	 Transportation
 Ralls	 Ralls
 Interstate Highways	 Interstate Highways
 US Routes	 US Routes
 Major Roads	 Major Roads
 Local Roads	 Local Roads
 Background	 Background
 Aerial Photography	 Aerial Photography
 Spot Area	 Spot Area
 Stony Spot	 Stony Spot
 Very Stony Spot	 Very Stony Spot
 Wet Spot	 Wet Spot
 Other	 Other

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Six Rivers National Forest Area, California
Survey Area Data: Version 12, Sep 13, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 18, 2015—Oct 24, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
261	Holland-Goldridge families association, deep, 5 to 35 percent slopes	105.2	63.9%
266	Clallam-Hugo-Holland families association, deep, 35 to 70 percent slopes	59.5	36.1%
Totals for Area of Interest		164.8	100.0%

StreamStats Report for Biological Assessment

Region ID: CA

Workspace ID: CA20190711173639018000

Clicked Point (Latitude, Longitude): 40.81004, -123.57089

Time: 2019-07-11 10:37:14 -0700



Biological Assessment for Humboldt County Application #12203

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.1	square miles
PRECIP	Mean Annual Precipitation	53.9	inches
BASINPERIM	Perimeter of the drainage basin as defined in SIR 2004-5262	1.72	miles
BSLDEM30M	Mean basin slope computed from 30 m DEM	25.1	percent

Parameter Code	Parameter Description	Value	Unit
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	-2274998.2	feet
CENTROIDY	Basin centroid vertical (y) location in state plane units	2309929.7	feet
EL6000	Percent of area above 6000 ft	0	percent
ELEV	Mean Basin Elevation	1669	feet
ELEVMAX	Maximum basin elevation	1930	feet
FOREST	Percentage of area covered by forest	69.5	percent
JANMAXTMP	Mean Maximum January Temperature	49.48	degrees F
JANMINTMP	Mean Minimum January Temperature	32.55	degrees F
LAKEAREA	Percentage of Lakes and Ponds	0	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	0	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0	percent
LFPLENGTH	Length of longest flow path	1	miles
MINBELEV	Minimum basin elevation	1363	feet
OUTLETELEV	Elevation of the stream outlet in thousands of feet above NAVD88.	1363	feet
RELIEF	Maximum - minimum elevation	567	feet
RELRELF	Basin relief divided by basin perimeter	304	feet per mi

General Disclaimers

This watershed has been edited, computed flows may not apply.

Peak-Flow Statistics Parameters[2012 5113 Region 1 North Coast]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
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Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.1	square miles	0.04	3200
PRECIP	Mean Annual Precipitation	53.9	inches	20	125

Peak-Flow Statistics Flow Report (2012 5113 Region 1 North Coast)

Pll: Prediction Interval-Lower, Plu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	Pll	Plu	SEp
2 Year Peak Flood	11.4	ft ³ /s	4.57	28.6	58.6
5 Year Peak Flood	22.8	ft ³ /s	10.7	48.9	47.4
10 Year Peak Flood	31.3	ft ³ /s	15.2	64.6	44.2
25 Year Peak Flood	42.5	ft ³ /s	21.2	85.2	42.7
50 Year Peak Flood	51.3	ft ³ /s	25.5	103	42.7
100 Year Peak Flood	60.6	ft ³ /s	29.4	125	44.3
200 Year Peak Flood	69.5	ft ³ /s	33.5	144	44.4
500 Year Peak Flood	81.3	ft ³ /s	38.3	173	46

Peak-Flow Statistics Citations

Gotvald, A.J., Barth, N.A., Veilleux, A.G., and Parrett, Charles, 2012, Methods for determining magnitude and frequency of floods in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012-5113, 38 p., 1 pl. (<http://pubs.usgs.gov/sir/2012/5113/>)

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

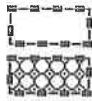
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CNDDDB Mapped Occurrences

Biological Assessment

- Property Boundary
- Biological Assessment Area
- Project Area

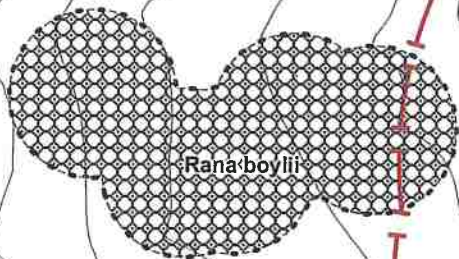


- Northern Goshawk Occurrence
- Foothill Yellow-legged Frog Occurrence



0 600
feet

Located in Section 13 & 14, T5N, R5E, Humboldt County in the
Henessee Peak 7.5' USGS Quad



Rana boylii

Accipiter gentilis



2,000

1,800

1,600

1,400



Occurrence Report
California Department of Fish and Wildlife
California Natural Diversity Database



Map Index Number: 07336 EO Index: 26661
Key Quad: Hennessy Peak (4012375) Element Code: ABNKC12060
Occurrence Number: 147 Occurrence Last Updated: 1999-08-04

Scientific Name: *Accipiter gentilis* Common Name: northern goshawk
Listing Status: Federal: None Rare Plant Rank:
State: None Other Lists: BLM_S-Sensitive
CNDDB Element Ranks: Global: G5 CDF_S-Sensitive
State: S3 CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive

General Habitat: Micro Habitat:
WITHIN, AND IN VICINITY OF, CONIFEROUS FOREST. USES OLD USUALLY NESTS ON NORTH SLOPES, NEAR WATER. RED FIR,
NESTS, AND MAINTAINS ALTERNATE SITES. LODGEPOLE PINE, JEFFREY PINE, AND ASPENS ARE TYPICAL NEST
TREES.

Last Date Observed: 1983-XX-XX Occurrence Type: Natural/Native occurrence
Last Survey Date: 1983-XX-XX Occurrence Rank: Unknown
Owner/Manager: USFS-SIX RIVERS NF Trend: Unknown
Presence: Presumed Extant

Location:
CEDAR GROVE RANCH.
Detailed Location:

Ecological:

Threats:

General:

EYRIE NUMBER HU004. ACTIVE NEST WITH 2 YOUNG IN 1983. NEST LOCATED IN UNSURVEYED AREA, BUT SOURCE SAYS SEC 14. (MATTISON).

PLSS: T05N, R05E, Sec. 14 (H) Accuracy: 2/5 mile Area (acres): 0
UTM: Zone-10 N4517921 E451279 Latitude/Longitude: 40.81086 / -123.57765 Elevation (feet): 1,750

County Summary: Quad Summary:
Humboldt Hennessy Peak (4012375)

Sources:

DFG84U0002 CALIFORNIA DEPARTMENT OF FISH & GAME - PRINTOUT FROM RON SCHLORFF (DFG) FOR NORTHERN GOSHAWK (ACCIPITER
GENTILIS) NEST CODES. 1984-10-XX



Occurrence Report
California Department of Fish and Wildlife
California Natural Diversity Database



Map Index Number: A5594 EO Index: 107336
Key Quad: Hennessy Peak (4012375) Element Code: AAABH01050
Occurrence Number: 1080 Occurrence Last Updated: 2017-07-31

Scientific Name: *Rana boylei* Common Name: foothill yellow-legged frog
Listing Status: Federal: None Rare Plant Rank:
State: Candidate Threatened Other Lists:
CNDDDB Element Ranks: Global: G3 BLM_S-Sensitive
State: S3 CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened
USFS_S-Sensitive

General Habitat: Micro Habitat:
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.

Last Date Observed: 2011-09-26 Occurrence Type: Natural/Native occurrence
Last Survey Date: 2011-09-26 Occurrence Rank: Unknown
Owner/Manager: PVT Trend: Unknown
Presence: Presumed Extant

Location:
CEDAR GROVE RANCH, ABOUT 2.5 MI W OF HENNESSY PEAK, 10 MILES SOUTH OF THE TOWN OF WILLOW CREEK.

Detailed Location:
MAPPED TO COORDINATES PROVIDED.

Ecological:
CLASS I STREAM. RIPARIAN HABITAT WITH ALDERS, DOUGLAS-FIR AND MADRONE. SURROUNDING LAND USE NOTED AS AGRICULTURE, TIMBER, AND RECREATION.

Threats:
HABITAT HAS BEEN ALTERED, WHICH MAY CAUSE INCREASED SEDIMENTATION OF STREAM.

General:
5 ADULTS FOUND ON 26 SEP 2011.

PLSS: T05N, R05E, Sec. 14, E (H) Accuracy: specific area Area (acres): 17
UTM: Zone-10 N4518005 E451105 Latitude/Longitude: 40.8116 / -123.57974 Elevation (feet): 1,650

County Summary: Quad Summary:
Humboldt Hennessy Peak (4012375)

Sources:
ARN11F0008 ARNOLD, J. - FIELD SURVEY FORM FOR RANA BOYLII 2011-09-26
ARN11F0009 ARNOLD, J. - FIELD SURVEY FORM FOR RANA BOYLII 2011-09-26
ARN11F0010 ARNOLD, J. - FIELD SURVEY FORM FOR RANA BOYLII 2011-09-26
ARN11F0011 ARNOLD, J. - FIELD SURVEY FORM FOR RANA BOYLII 2011-09-26
ARN11F0012 ARNOLD, J. - FIELD SURVEY FORM FOR RANA BOYLII 2011-09-26

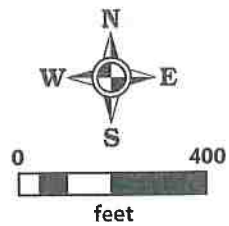
NSO Habitat Map

Biological Assessment

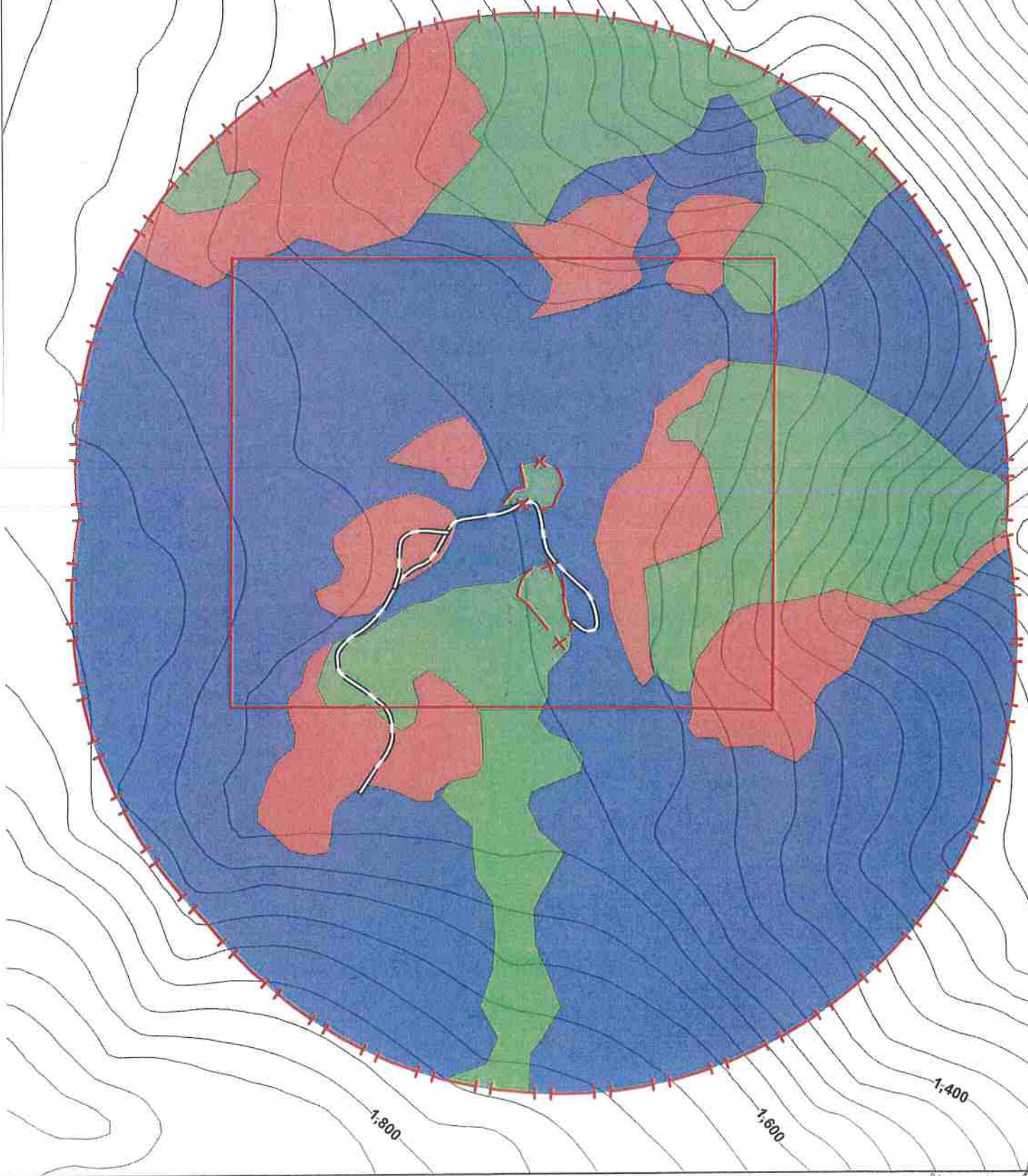
- Property Boundary
- Biological Assessment Area
- Project Area

Access Road

- Nesting/Roosting Habitat
- Foraging Habitat
- Non Habitat



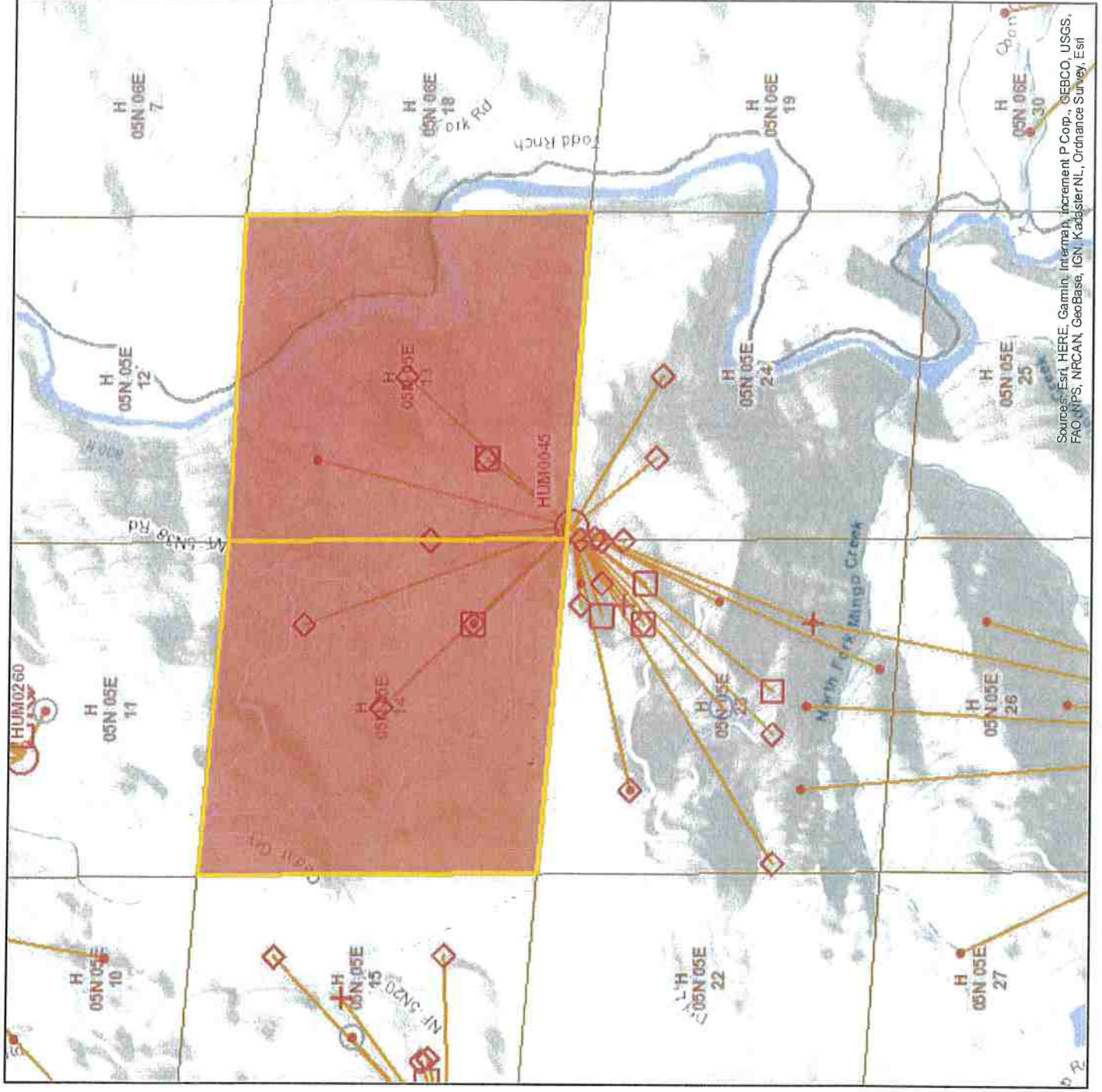
Located in Section 13 & 14, T5N, R5E, Humboldt County in the Hennessee Peak 7.5' USGS Quad



Northern Spotted Owl Observations

Spotted Owl Observations
[ds704]

- Nest
- Young
- Pair
- Other Positive Observation
- Negative Observation
- Activity Center
- Abandoned Activity Center
- Not Valid Activity Center
- Spotted Owl Observations Spider Diagram [ds705]



July 29, 2019

Data Version Date:
06/26/2019
Report Generation Date:
7/29/2019

Report #1 - Spotted Owl Sites Found
Known Spotted Owl sites having observations
within the search area.



Meridian, Township, Range, Section (MTRS) searched:

H_05N_05E Sections(13,14);

<i>Masterowl</i>	<i>Subspecies</i>	<i>LatDD NAD83</i>	<i>LonDD NAD83</i>	<i>MTRS</i>	<i>AC Coordinate Source</i>
HUM0045	NORTHERN	40.803835	-123.575400	H 05N 05E 24	Contributor

Data Version Date:
06/26/2019
Report Generation Date:
7/29/2019

Report #2 - Observations Reported

List of observations reported by site.



Meridian, Township, Range, Section (MTRS) searched:
H_05N_05E Sections(13,14);

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
Masterowl: HUM0045 Subspecies: NORTHERN											
POS	1976-07-01		2	UMUF	Y	Y		40.807898	-123.580759	H 05N 05E 14	Quarter-section centroid
POS	1976-07-01		1	UU				40.814555	-123.571782	H 05N 05E 13	Quarter-section centroid
POS	1980		2	UMUF	Y			40.810794	-123.567232	H 05N 05E 13	Section centroid
POS	1980		2	UMUF	Y			40.811730	-123.585405	H 05N 05E 14	Section centroid
POS	1982	0000	1	AU			0	40.801276	-123.589841	H 05N 05E 23	Quarter-section centroid
POS	1982-05-22		2	UMUF	Y			40.801276	-123.589841	H 05N 05E 23	Quarter-section centroid
POS	1982-06-23		2	UMUM				40.807898	-123.580759	H 05N 05E 14	Quarter-section centroid
POS	1982-08-04		2	UMUF	Y			40.807898	-123.580759	H 05N 05E 14	Quarter-section centroid
POS	1983		2	UMUF	Y			40.815005	-123.580857	H 05N 05E 14	Quarter-section centroid
POS	1983		2	UMUF	Y	Y		40.807421	-123.571673	H 05N 05E 13	Quarter-section centroid
NEG	1983		0			Y	0	40.807421	-123.571673	H 05N 05E 13	Quarter-section centroid
POS	1983-05-25		2	UMUF	Y			40.807898	-123.580759	H 05N 05E 14	Quarter-section centroid
POS	1983-06-15		2	UMUF	Y			40.810794	-123.567232	H 05N 05E 13	Section centroid
POS	1983-07-01		2	UMUF	Y			40.800048	-123.567105	H 05N 05E 24	Half-section centroid
POS	1984-04-25		2	UMUF	Y	Y		40.807421	-123.571673	H 05N 05E 13	Quarter-section centroid
POS	1985		2	UMUF	Y	Y		40.807421	-123.571673	H 05N 05E 13	Quarter-section centroid

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
POS	1985		2	UMUF	Y			40.807898	-123.580759	H 05N 05E 14	Quarter-section centroid
POS	1986		2	UMUF	Y			40.807421	-123.571673	H 05N 05E 13	Quarter-section centroid
POS	1987		2	UMUF	Y			40.807898	-123.580759	H 05N 05E 14	Quarter-section centroid
POS	1988		2	UMUF	Y	Y		40.802514	-123.580261	H 05N 05E 23	Contributor
POS	1989		2	UMUF	Y			40.811730	-123.585405	H 05N 05E 14	Section centroid
POS	1989		2	UMUF	Y			40.800764	-123.580673	H 05N 05E 23	Quarter-section centroid
POS	1990		2	UMUF	Y	Y		40.800764	-123.580673	H 05N 05E 23	Quarter-section centroid
POS	1992-07-09	0346	1	AM	Y		0	40.795238	-123.593830	H 05N 05E 23	Contributor
POS	1992-07-09	0346	1	AF	Y		0	40.795274	-123.586718	H 05N 05E 23	Contributor
POS	1993-05-05	0822	2	AMUF	Y	Y	0	40.795286	-123.584347	H 05N 05E 23	Contributor
POS	1993-06-10		0				1	40.793594	-123.580575	H 05N 05E 23	Quarter-section centroid
POS	1995-08-11	0419	1	UM			0	40.790788	-123.583122	H 05N 05E 23	Contributor
POS	1996		2	UMUF	Y	N	0	40.801276	-123.589841	H 05N 05E 23	Quarter-section centroid
POS	1996-07-18	0403	2	SMSF	Y			40.802523	-123.578483	H 05N 05E 23	Contributor
POS	1997		2	SMSF	Y	N	0	40.803418	-123.579677	H 05N 05E 23	Contributor
NEG	1998		0					40.797435	-123.585220	H 05N 05E 23	Section centroid
POS	1999		2	UMUF	Y	N	0	40.800278	-123.571588	H 05N 05E 24	Quarter-section centroid

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
POS	1999-05-17		2	AMAF	Y			40.809741	-123.576175	H 05N 05E 13	Contributor
POS	2000		2	UMUF	Y			40.807421	-123.571673	H 05N 05E 13	Quarter-section centroid
POS	2000-04-19		2	AMAF	Y			40.803435	-123.576120	H 05N 05E 23	Contributor
POS	2001		2	UMUF	Y	Y	2	40.800721	-123.578468	H 05N 05E 23	Contributor
POS	2001-06-07		2	AMAF	Y		2	40.801616	-123.579661	H 05N 05E 23	Contributor
POS	2002		2	UMUF	Y			40.807898	-123.580759	H 05N 05E 14	Quarter-section centroid
POS	2002-04-03		1	UM				40.803423	-123.578491	H 05N 05E 23	Contributor
POS	2003-04-07		2	SMAF	Y			40.802565	-123.576156	H 05N 05E 23	Contributor
POS	2003-04-07		2	SMAF	Y			40.802845	-123.576016	H 05N 05E 24	Contributor
POS	2004-04-05		2	AMAF	Y			40.802565	-123.576156	H 05N 05E 23	Contributor
POS	2004-05-17		2	AMAF	Y			40.801665	-123.576148	H 05N 05E 23	Contributor
AC	2005-04-19		2	UMUF	Y	Y		40.803835	-123.575400	H 05N 05E 24	Contributor
POS	2007-08-08		1	AM				40.797581	-123.579471	H 05N 05E 23	Contributor