Biological Assessment
for
APN 033-271-021

02/12/2020

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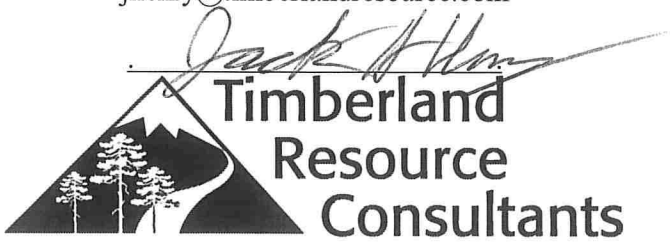

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1.0 Summary and Recommendations

This assessment found moderate risks to biological resources as a result of the proposed project prior to recommended mitigations. Potential risks to biological resources are generally associated with vegetation while wildlife resources are less at risk. Although no significant vegetation removal is proposed, the project proposal risks impacts to special status plant species that may potentially occur on-site. Both project areas also contain invasive plant species that should be removed or managed. Although risks to wildlife resources from the project are minimal, this report contains additional mitigations to further reduce potential. A table of recommendations that will mitigate risks to biological resources has been included below.

CCLUO Mitigation	Activity	Mitigation Type	Method	Season
3.1-18	Mixed-light cultivation	Prevent any light from escaping structures	Cover lit structures 30 minutes before sunset and 30 minutes after sunrise or once lights are powered down	Life of project
3.4-1d	Ground Disturbance/ Construction during raptor breeding season	Prevent impacts to potentially nesting raptors	Either avoid ground disturbance during critical season or perform stand searches for active raptor nests	Feb 1 – Jul 31
3.4-1e	Use of heavy equipment within property boundaries	Prevent potential disturbance impacts to potentially present NSO	Either avoid heavy equipment use from Feb 1st – July 31st OR Survey for NSO per USFWS 2012 protocol	Feb 1 – July 31
3.4-3a	Ground Disturbance/ Construction	Prevent impacts Plant Species of Special Concern	Perform Floristic Surveys	Per CDFW Protocol
3.4-3b	Commercial cannabis cultivation	Invasive Plant Species	Manually remove the small populations of invasive plants present within both project areas. Remain vigilant for resprouts and new invaders.	Life of project

2.0 Introduction

2.1 Purpose and Need

This Biological Assessment has been prepared for APN 033-271-021-00. The following report is being submitted to fulfill Humboldt County Commercial Cannabis Land Use Ordinance (CCLUO) 2.0 requirement 55.4.12.1.10 Mitigation Measure #3.4-1a Biological Reconnaissance Surveys. This report contains descriptions of existing site conditions with additional analysis on their relationship to special status wildlife, special status plants, sensitive natural communities, and potential environmental impacts prepared by a qualified biologist.

2.2 Project Description

The project proposes operating pre-existing and new commercial cannabis cultivation on APN 033-271-021-000. The parcel is located approximately 2.5 miles north of Piercy, California. The project occurs in the SW ¼ of Section 24, T5S, R3E, HB&M in the Garberville, 7.5' USGS quadrangle. The project proposes developing and operating a commercial cannabis operation in a two phase approach.

Phase 1 consists of licensing pre-existing cultivation sites and infrastructure with two new structures proposed to be built within the footprint of existing development. Pre-existing development within the project parcels consists of a flat developed area containing a residence, three Ag exempt structures, four small sheds, and five greenhouse structures. Greenhouse space currently totals 8,840 square feet of mixed-light cultivation. Phase 1 also proposes constructing a 20' by 60' nursery greenhouse and a 20' by 100' Ag exempt structure for drying/curing harvested cannabis. This new construction is proposed to occur on pre-developed ground and will not remove vegetation or require new ground disturbance. This location makes up Project Area #1.

Phase 2 will consist of new proposed cannabis cultivation and infrastructure development along the eastern property boundary. This area consists of a pre-existing flat location directly adjacent to State Route 271. Exact details have yet to be realized for this phase. It is known that new ground disturbance will occur in order to develop new cultivation greenhouses and at least one new structure at the above mentioned location. For now this report assesses the biological resources in the vicinity of this site and only analyzes potential impacts related to ground disturbance. Potential impacts related to operations are less specific at the time this report was completed. This location makes up Project Area #2.

2.3 Biological Assessment Area

Cannabis cultivation operations within the project areas have the potential to indirectly impact species outside of them. These indirect impacts are disturbance based. As a result this report assesses potential presence of protected and/or rare species and potential biological resources within a biological assessment area (BAA). The BAA represents the largest area that disturbance impacts can be reasonably expected per the proposed project in association with potential species. Thus, the BAA reflects the largest territory for potential protected species in this area, 0.25 miles for northern spotted owl (*Strix occidentalis caurina*). The BAA encompasses the project parcel and portions of surrounding private parcels. The entire BAA occurs within Section 24, T5S, R3E, HB&M. Current land uses within the BAA consist of rural residences, a small orchard, and non-industrial timber management.

3.0 Regulatory Background

3.1 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 division 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.

3.2 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.

3.2.1 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 2019-0001-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.

3.2.2 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 2019-0001-DWQ.

3.2.3 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.

3.2.4 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).

3.2.5 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)

4.0 Methods

4.1 Field Observations

All field data was collected by wildlife biologist, Jack Henry, using direct observations, measurements, and ocular estimations during a site visit conducted on December 16, 2020. 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 direct field observations covered terrestrial and aquatic habitat present within the project parcel.

4.2 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.

4.3 Agency Consultation

No agency personal were consulted for this report.

4.4 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, California Natural Diversity Database, 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.

4.4.1 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 (CNDDB) was queried (December 2019) 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 Special Animals List (August 2019). The plant list uses information from the Special Vascular Plants Bryophytes and Lichens List (October 2019) and Endangered Threatened and Rare Plants (October 2019). The above lists were obtained from

https://www.wildlife.ca.gov/Data/CNDDB/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. CNDDB, 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 CNDDB 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)

4.5 Potential Impacts Assessment

This section contains discussion on potential impacts that may occur when natural conditions, pre-existing project conditions, and proposed activities culminate. It also lists potential methods to reduce risks, mitigate, and/or remediate these potential impacts. Potential impacts listed are based off documented impacts in similar conditions or activities as well as the author's professional experience in rural land management and best management practices. Whenever possible these potential impact assessments and their recommended mitigations are based on the best available science in similar settings.

4.5.1 Northern Spotted Owl Assessment

The Northern Spotted Owl Assessment within this report is based on management recommendations presented within published literature. Owl status determinations, data assessment, and habitat mapping are based on: *"Protocol for Surveying Proposed Management Activities that May Impact Northern Spotted Owls"* (USFWS 2012). Disturbance impacts and recommended disturbance buffers were made based on: *"Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California."* (USFWS 2006).

5.0 Results and Discussion

5.1 Terrestrial Habitat

The climate can be characterized by high-intensity rainfall over winter and warm arid summers. Annual mean rainfall is approximately 69.5 inches (Streamstats). Elevations within the BAA range from 440' to 760' above mean sea level. Slopes in the BAA vary from flat riparian terraces to steep montane drainages. The BAA drains into the South Fork Eel River. The project parcels overlaps with three different soil types. They are delineated and mapped within the attached NRCS Web Soil Survey Report (Appendix 4). These soils do not contain unique edaphic characteristics. Terrestrial habitats present within the project parcel are dominated by Montane Hardwood Conifer with small areas displaying Montane Hardwood

forests. Additional terrestrial habitats present within the BAA include Annual Grassland, Redwood, Douglas-fir, Urban, and Barrens.

Montane Hardwood-Conifer (MHC) habitat is the most prominent habitat type within the project parcel and BAA. This habitat varies in species composition but generally displays Douglas-fir – tanoak forest alliance (*Pseudotsuga menziesii – Notholithocarpus densiflorus*) as the dominant overstory community. MHC habitat has increased in northern California as a result of conifer encroachment on oak woodlands due to fire exclusion (Keter 1989; Cocking et al 2015; Schriver et al 2018). Redwood (*Sequoia sempervirens*), California black oak (*Quercus kelloggii*), canyon live oak (*Quercus chrysolepis*), California bay laurel (*Umbellularia californica*), and pacific madrone (*Arbutus menziesii*) can commonly be found as intermediates in the canopy. Understory conditions consists of either bare forests floor covered in leaf litter or dense thickets of evergreen huckleberry (*Vaccinium ovatum*) with some sword fern (*Polystichum munitem*). MHC habitat provides a mosaic of habitat resources capable of providing variable canopy closure, hardwood cavities, large amounts of leaf litter, and mast crops (Anderson 1988).

Montane Hardwood (MHW) habitat is present in the project parcel and BAA. It most often displays in areas where conifers are lacking from MHC habitat as a result of historical harvests or site conditions. MHW habitat has likely been reduced by fire exclusion which has resulted in conifer encroachment of montane hardwood habitat (Keter 1989; Cocking et al 2015; Schriver et al 2018). The overstory of MHW habitat consists of a hardwood dominant overstory most often dominated by tanoak with some small acute areas dominated by a combination of Pacific madrone and California bay laurel. Canyon live oak, Douglas-fir, and California black oak are also present often as intermediates. MHW habitat within the BAA is closely associated with MHC habitat and often occurs as small islands or along the peripheries of the more dominant habitat type. As a result the understory of this habitat often reflects herbaceous species found in MHC.

Douglas-fir (DFR) and Redwood (RDW) habitat make up the pure conifer timberlands present within the BAA. Redwood habitat likely historically dominated the area prior to European settlement. RDW habitat is present along the upper slopes west of both project areas while Douglas-fir is present in small isolated stands along Highway 101. These habitats are dominated by the species they are named after. Pacific madrone, tanoak, California bay laurel, and California black oak are often found as intermediates. The majority of these habitats are relatively young due to historic harvest practices. Understory communities are often dominated by evergreen huckleberry, sword fern, lady fern (*Athyrium filix-femina*), and chain fern (*Woodwardia fimbriata*). North coast coniferous forests support a variety of sensitive species and a higher average bird density than any other forest type in North America (Mayer 1988, Raphael 1988).

Riparian terraces along the South Fork Eel River within the BAA display Annual Grassland (AGS) habitat. This habitat is dominated by nonnative annual grass species and forbs with small areas containing woody shrubs and/or young emergent trees. Grassland habitat in the north coast of California has experienced significant alterations to herbaceous plant community and species composition as a result of European settlement (HilleRisLambers et al 2010, Keter 1989). Nonnative mediterean species have become naturalized such as blue wildrye (*Elymus glaucus*), sweet vernal grass (*Anthoxanthum odoratum*), and Yorkshire fog (*Holcus lanatus*). AGS habitat is most often utilized as foraging for the majority of wildlife and often requires special habitat features to provide shelter or reproductive habitat (Kie 1988). AGS habitat within the BAA is likely grazed by livestock.

Additional terrestrial habitats within the BAA that occur in small amounts consist of Urban and Barren habitats. Urban habitat consists of vegetation (both native and nonnative) in close proximity to anthropogenic structures and/or activities. These areas may structurally provide potential habitat but quality may be impacted by human presence. Urban habitat within the BAA is structurally similar to AGS and MHC habitats. Barren habitat consists of paved or rocked anthropogenic surfaces incapable of growing vegetation as well as gravel bar habitat seasonally exposed by water levels within the South Fork Eel River.

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

- Douglas-fir – tanoak forest – (canyon live oak) / evergreen huckleberry (*Pseudotsuga menziesii – Notholithocarpus densiflorus – (quercus chrysolepis) / vaccinium ovatum*)
- Redwood forest – Douglas-fir / evergreen huckleberry (*Sequoia sempervirens – Pseudotsuga menziesii / vaccinium ovatum*)
- Redwood forest – Douglas-fir – pacific madrone (*Sequoia sempervirens – Pseudotsuga menziesii – Arbutus menziesii*)

5.2 Sensitive Biological Communities

5.2.1 Aquatic Habitats

The BAA is located in the Fish Creek – South Fork Eel River HUC12 watershed (HUC12#:180101060305). Aquatic habitat in the BAA is dominated by riverine habitat. Naturally occurring lacustrine habitat is rare in Humboldt and often a result of anthropogenic activities. Riverine habitats display three hydrologic types consisting of perennial (Class I), intermittent (Class II), and ephemeral (Class III) watercourses. There are no watercourses present within parcel boundaries.

The South Fork Eel River flows along the northern and southern boundaries of the BAA. This perennial watercourse drains areas of northern Mendocino County and southern Humboldt County before feeding into the Main Stem Eel River. Approximately 4,280 feet of stream channel is overlapped by the BAA. The reach of watercourse overlapped by the BAA contains riffle/glide habitat that varies as a result of seasonal flow changes. All watercourses present in the BAA flow into the South Fork Eel River. Although the reach of the South Fork Eel River overlapped by the BAA does not contain high quality fisheries habitat, it is an important corridor for salmonids and native fish to reach breeding habitat in the South Fork Eel River. This watercourse also provides seasonal habitat for western pond turtle (*emys marmorata*) and foothill yellow-legged frog (*rana boylii*). The South Fork Eel River is an important breeding corridor for the northern clade of foothill yellow-legged frogs.

Unnamed watercourses present in the BAA are predominantly intermittent. Intermittent tributaries present in the BAA are valuable cold-water resources/habitat. These watercourses display well-defined stream morphology, moderate to steep gradients, strong canopy cover, coarse sediment substrates, and intermittent hydrology. Cascade and step-pool morphology are the two aquatic habitats most prominent within the BAA. Cold-water watercourses within the BAA provide potential aquatic habitat for yellow-legged foothill frog, southern torrent salamander (*Rhyacotriton variegatus*), coastal tailed frog (*Ascaphus truei*), pacific chorus frog (*Pseudacris regilla*), 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. These ephemeral tributaries provide ecological value by transporting cold water and sediment to higher order streams.

5.2.2 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).

No wetland delineation is known to have previously occurred on the parcel. No potential wetland indicators were observed within parcel boundaries. Project Area #2 does have some sporadic clumps of spreading rush (*Juncus patens*) establishing but no dominant *Juncus* communities were observed. The project as proposed does not risk impacting potential wetland features present within the BAA.

5.2.3 Sensitive Natural Communities

No sensitive natural communities as defined by CDFW and the CNPS occur within any project area. The project does not pose a risk of impacting sensitive natural communities.

5.2.4 Local Policies, Ordinances, and Regulations

The project is located in the Southern Humboldt Biological Resources map. There are no biological resources mapped in the approximate location of the BAA. Humboldt County Ordinance 2.0 contains protections for Environmentally Sensitive Habitat Areas (ESHA) none of which will be altered. New development will not result in any tree removal, will observe setbacks from watercourses, and will occur within pre-existing developed surfaces.

5.3 Sensitive and Protected Species

5.3.1 Bird Species of Special Concern

- **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. Physical structure is very important in Bald Eagles nest most frequently in stands with less than 40% canopy cover. 87% of nest sites within California have been found within 1 mile of perennial surface water (Polite and Pratt 1990a).

  Status within BAA: The CNDDB does not document any bald eagle observations within the BAA. Potential nest trees do occur within the BAA but are rare due to the young average age. Potential nesting quality may be impacted by the closed canopy nature of the surrounding forest lands. Bald eagles have a high potential to be found nesting within the BAA.

- **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. 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. Recent 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 CNDDB does not document any golden eagle observations within the BAA. AGS habitat within the BAA is isolated by timbered slopes and does not provide expansive potential foraging habitat. The timbered slopes reduce habitat quality as they prevent thermal lift. The BAA does contain potential nesting/roosting habitat in the form of conifer timberlands. The young age cohort and lack of foraging habitat greatly reduces the potential for nesting. The potential for golden eagles to be nesting within the BAA is unlikely.

- **Grasshopper Sparrow** (*Ammodramus savannarum*)

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

  Key Habitat: Grasshopper sparrows have shown variability in specific habitat characteristic but always select grasslands with light shrub density (Unitt 2008, Hunter et al 2005). Hunter et al (2005) often encountered grasshopper sparrows on southern slopes that are fully exposed to sunlight. They are thought to prefer sites undisturbed by human activities (Hunter et al 2005).

Status within BAA: There have been no documented observations of grasshopper sparrow within the BAA per queries into the CNDDB and ebird.org. AGS habitat within the BAA does provide potential foraging and nesting habitat for this species, although grazing pressure reduces the potential habitat quality. The potential for this species to be found within the BAA is unlikely.

- **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. Bombay et al (2003) found that percent riparian shrub cover within meadow habitats showed the strongest relation to willow flycatcher nest selection.

  Status within BAA: The CNDDB does not identify any willow flycatcher observations within the BAA. Potential habitat is present as narrow residual bands of riparian vegetation immediately along the South Fork Eel River. Upland shrub habitat similar to that described in Hunter et al (2005) exists in small patches within the BAA. There is a moderate potential for willow flycatcher to be found within the BAA.

- **Marbled Murrelet** (*Brachyramhpus 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. There is only one record of a marbled murrelet nesting in a non-redwood site (Hunter et al 2005).

  Status within BAA: The CNDDB does not display any documented observations of marbled murrelet within the BAA. MHC, RDW, and DFR provides potential habitat for this species within the BAA. However, the young age cohort of conifer trees observed in and around the project parcel significantly reduces potential presence. The potential for marbled murrelet to be found within the BAA is moderate.

- **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 nest in tree or snag cavities, or in broken tops of large trees (Polite 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 Spotted Owl Observations database contains one positive detection of NSO within the BAA. There are no additional notes associated with this 1998 detection. It is unknown if the observation was related to survey efforts in the area or just possibly an incidental

observation. The observation occurs near the southwest boundary of the BAA and it us unknown if the observation detected NSO within the BAA or from outside of it. Potential spotted owl habitat is present within property boundaries and along the slopes travelling west. A large proportion of potential habitat is present in the form of potential nesting/roosting habitat. NSO have a high potential of being found within the BAA.

- **Olive-sided Flycatcher** (*Contopus cooperi*)

  Status: G4, S4, CDFW: Species of Special Concern, IUCN: Near Threatened, NABCL: Yellow Watch List, USFWS: Bird of Conservation Concern

  Key Habitat: Olive-sided flycatcher have been found to prefer late-successional conifer stands with open canopies (>40%) (Verner 1980). They are found significantly less or not at all within areas dominated by oaks or other hardwoods (Hunter et al 2005). Understanding this species is difficult in the lush north coast where mature conifer forests are common but canopy openness is not. It appears a combination of edge proportion and size class ratios are characteristics preferred by olive-sided flycatchers in this region (Hunter et al 2005).

  Status in BAA: There are no observations of this species within the BAA per the CNDDB or ebird.com. This species has been observed north of the BAA in Richardson Grove State Park. The BAA does not contain the above described key habitat and contains a strong hardwood component. The probability of finding this species nesting within the BAA is unlikely.

- **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 1990c). 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. Although they are more abundant in coastal riparian areas, peregrine falcon nests have been documented in Douglas-fir/tanoak forests and oak woodlands in Humboldt County (Hunter et al 2005).

  Status within BAA: There are no documented observations of peregrine falcon in the BAA. The BAA lacks any prominent rock outcroppings or tall anthropogenic structures that could provide potential nesting habitat. Tree diameters are too small to provide potential snag nesting structure. The potential for peregrine falcons to be found nesting within the BAA is unlikely.

- **Yellow-breasted Chat** (*Icteria virens*)

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

  Key Habitat: Yellow-breasted chats have declined in California although Northwestern California is a stronghold for this species. The Klamath and Trinity Rivers contain the highest densities of breeding chats in the state (Comrack 2008). This species has a strong association with riparian vegetation (Hunter et al 2005). Eckerle and Thompson (2001) found vegetation structure is more important than stand maturity in site selection. Chats prefer shrubs species (native and nonnative) for nesting with riparian trees required for singing (Comrack 2008, Hunter et al 2005).

  Status within BAA: There are no documented observations of this species in the BAA per CNDDB and ebird. A small amount of potential habitat is present along the edges of the South Fork Eel River. This habitat is dominated by willows with alders and conifer trees providing potential singing structure. No potential habitat occurs within property boundaries. There is a moderate potential for this species to be encountered nesting within the BAA.

- **Yellow Warbler** (*Setophaga petechia*)

  Status: G5, S3S4, CDFW: Species of Special Concern, USFWS: Bird of Conservation Concern

  Key Habitat: Yellow warblers are generally associated with riparian vegetation (Hunter et al 2005). Willow (*Salix sp.*), alder (*Alnus sp.*), and Oregon ash (*Fraxinus latifolia*) appear to be preferred vegetation for this species in Northern California (Heath 2008, Hunter et al 2005). Due to their widespread distribution, finer scale details that influence nest selection have been difficult to test for this species. Generally regional preferences have been discovered (Heath 2008). At Clear Creek, Shasta County, yellow warblers were found to be most successful when occurring in a dense mature stand of white alder (*Alnus rhombifolia*).

  Status within BAA: The CNDDB does not contain any documented observations of this species within the BAA. eBird does contain one documented observation of this species within the BAA from 1974. Potential marginal riparian habitat is present along the South Fork Eel River in the southern portion of the BAA. No potential habitat occurs within property boundaries. The potential for this species to be found nesting within the BAA is moderate.

5.3.2 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 BAA does not contain any documented observations of American badger. Habitat characteristics within the BAA are dominated by negative correlates of the Apps et al (2002) study. Forested habitat displays strong canopy closure, wet vegetation, and terrain ruggedness. The strong presence of redwood forest indicates wet climate. The potential for badgers to be found within the BAA is unlikely.

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

  Status: G4, S3, CSSC, BLM: Sensitive Species, IUCN: Least Concern, USFS: Sensitive Species, 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 observations of this species within the BAA. Although a potential maternal colony of fringed myotis was observed approximately 3 miles south of the BAA roosting underneath a bridge in 2016. The BAA may not provide natural roosting structure but bridge features across the South Fork Eel River may provide potential habitat. There is a moderate potential for this species to be found roosting 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 and is thought to be the last population in California (Slauson and Zielinski 2004). 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 and mesic sites but lacks mature conifer trees. Given what is known about the current range of Humboldt Marten, there is an unlikely potential for them to occur within the BAA.

- **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 1990a, 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. Although hardwood species are present, they are located within mixed conifer timberlands with closed canopies. No hardwood cavities capable of providing potential roost structure were observed during the site visit. There is a moderate potential for long-eared myotis to be found as small groups or individuals but maternal colonies are unlikely to be encountered 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 one of 12 bat species that are known to occupy Douglas-fir forest in the Pacific Northwest (Ormsbee and McComb 1998, Pierson and Rainey 2007). Like other California bats these species has been found roosting in a number of different structures including rock crevices, buildings, tree bark crevices, snags, mines, and caves (Harris 1990). Although maternal colonies have been found in many of the structures described above, they are most often found within large diameter decayed trees or snags (Harris 1990b, Vonhof and Barclay 1996, Ormsbee and McComb 1998, Pierson and Rainey 2008). Ormsbee and McComb (1998) found that snags which protrude above the canopy or receive ample thermal radiation are the preferred day roosts for individual bats and on occasion small colonies. These findings were similar to Vonhof and Barlcay (1996) who hypothesized because of thermal requirements for reproduction; snags that receive solar heat for some part of the day are better suited for maternal colonies.

Status within BAA: The CNDDB does not contain any documented observations of long-legged myotis within the BAA. Snag structures are rare within the BAA due to managed timberlands and generally do not protrude from the canopy. Small groups or individuals may roost within tree cavities and/or bark crevices within the BAA. There is a high potential for long-legged myotis to be found as small groups or individuals but maternal colonies are unlikely to be encountered within the BAA.

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

  Status: G5, S3, IUCN Least Concern

  Key Habitat: Current and historic distributions of this species are a currently subject of debate (Appel et al 2017). This species is 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. The BAA contains both conifer dominant and hardwood dominant timber stands. RDW and DFR forests within the BAA provide potential habitat for this species while MHW, AGS, and barrens do not. MHC habitat value for porcupine varies with species composition. There is a moderate 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 CNDDB does not document any observations of fisher in the BAA. MHC, DFR, and RDW provide potential habitat for this species. The strong hardwood component increases potential habitat quality. There is a high potential of encountering this species within the BAA.

- **Pallid Bat** (*Antrozous pallidus*)

  Status: G5, S3, CDFW Species of Special Concern, Working Bat Group High Priority, BLM and USFS Sensitive Species, IUCN Least Concern

  Key Habitat: Pallid bats are found in semi-arid and arid climates across western North America. They have been found in deserts, shrub-steppe, grasslands, canyon lands, ponderosa woodlands, mixed conifer forest, oak woodland, and riparian forest (Hayes and Wiles 2013). Pierson and Rainey (2007) conclude that in northern California this species has a strong association with oak woodlands/savannah where it forages and roosts. It is also often found under bridge structures in northern California (Pierson and Rainey 2007). This species roosts in moderate size groups ranging from 20 – 200 individuals and often with other bat species (Vaughan and O'Shea 1976). Gervais (2016) found that oak woodland habitat conservation and preservation of large snag

structures (especially hardwoods) were critical management goals for his species in Oregon.

Status within BAA: This species appears in the CNDDB query due to a historic record from Richardson's Grove that overlaps with the BAA. This specimen collection occurred in 1936 when the area was likely logged over and possibly contained a greater percentage of hardwoods. California black oak does rarely occur within MHC and MHW habitat often as an intermediate. No large oak snags occur within the project parcel. There is a large bridge structure across the South Fork Eel River on Highway 101 that may provide potential roosting structure for this species. Pallid bats have been found roosting underneath bridge structures in multiple locations across the north portion of the state (Pierson and Rainey 2007). Potential habitat structure is present although the area is dominated by conifer species and evergreen hardwoods. There is a moderate potential for this species to be encountered roosting in 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 CNDDB contains no documented observations of Sonoma tree vole in the BAA. DFR, MHC, and RDW forests provide potential habitat for this species in the BAA. Douglas-fir trees present within parcel boundaries were checked for any potential nest structures, none were found. DFR, RDW, and MHC habitat within the BAA is relatively young as a result of historic harvest intensity. The potential for encountering Sonoma tree vole within the BAA is high.

- **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, 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). This species is highly associated with cavern-like structures and does not use bridges that lack some form of cavern/cavity (Sherwin et al 2000a).

  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. 2000b). 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 CNDDB shows no documented observations of Townsend's big-eared bat in the BAA**.** The BAA does not contain any rocky caverns or significant tree hollows that could provide potential roosting habitat for this species. Bridge structures along Highway 101 may

provide potential roosting structure. The potential for Townsend's big-eared bat to be found roosting within the BAA is moderate.

5.3.3. Reptiles and Amphibians of Special Concern

- **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 CNDDB shows no documented occurrences of coastal tailed frog within the BAA. DFR, RDW, and MHC forests could provide potential habitat if perennial hydrology is present. Intermittent watercourses with perennial pools could theoretically provide habitat in these forests. The intermittent watercourse along the northwest corner of the property appeared to lack pool features. There is an unlikely potential for this species to be found given the potential terrestrial habitat but lack of aquatic habitat.

- **Foothill Yellow-legged Frog** (*Rana boylii*)

  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 studied 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 along the South Fork Eel River within the BAA. No potential habitat occurs within property boundaries. This species is known to occur 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: There are no documented observations of this species within the BAA per the CNDDB and iNaturalist. Potential habitat maybe provided by intermittent watercourse in areas where physical conditions limit flow velocity, although these conditions were not observed within the BAA. Ephemeral inundations along roadsides and developed areas provide potential habitat for this species. Northern red-legged frogs have a moderate potential of being found within the BAA.

- **Western 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: The CNDDB does not contain any documented observations of this species within the BAA. The BAA does not contain any pond features identifiable from aerial imagery. No ponds were observed on-site. The South Fork Eel River may provide marginal habitat in the form of perennial pool features. The potential for encountering western pond turtle within the BAA is moderate.

- **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 CNDDB shows no documented occurrences of southern torrent salamander within the BAA. Intermittent watercourses within DFR and MHC habitat within the BAA are morphologically well suited for this species with high gradients, strong canopy cover, and coarse sediments. The potential for southern torrent salamander to be found within the BAA is high.

5.3.4 Fish Species of Special Concern

- **Chinook Salmon – California Coastal ESU** (*Oncorhynchus tshawytscha pop.17*)

  Status: ESA Threatened, G5, S1S2, CDFW Species of Special Concern

  Key Habitat: Chinook salmon spawning adults migrate into rivers in the late fall during increased stream flows. High quality spawning habitat is characterized by coarse substrates of frequently large diameters (cobbles) with adequate stream flow to regularly supply fresh oxygen to the developing embryos. Chinook often choose middle and high order streams for spawning habitat but have been recorded in low order streams that display adequate substrate conditions and hydrology. Ideal water depth for egg laying is 25-100 cm. Once eggs hatch Chinook emerge as

alevin and spend 4-6 weeks within gravels close to the nest site (Moyle et al. 2017). After this period Chinook develop into juvenile frye and spend the summer months in cool (<20°C), shallow, slow flowing streams (Gale et al. 1998). Rearing habitat often contains overhanging riparian vegetation to provide cover, food, and habitat variation (Moyle et al. 2017).

Status within BAA: Chinook salmon are known to occur within the reach of the South Fork Eel River overlapped by the BAA.

- **Coho Salmon – Southern Oregon/Northern California ESU** (*Oncorhynchus kisutch pop. 2*)

  Status: ESA and CESA Threatened, AFS Threatened

  Key Habitat: Coho Salmon utilize a variety of habitat types throughout their life history. Their most important habitat characteristic is water temperature. Juvenile Coho present within stream habitats prefer deep pools with overhead shading during the summer months. As temperatures cool and stream flows increase, they can be found throughout the stream in riffles, runs, and pools. During winter juvenile Coho seek refugia from high velocity peak flows, wintering refuge is one of the most important and least appreciated factors influencing survival. Spawning sites are usually located in fine to coarse gravels and usually in between riffles and pools where oxygen is well circulated through the water column (Moyle 2002).

  Status within BAA: Coho salmon are known to occur within the reach of the South Fork Eel River overlapped by the BAA.

- **Pacific Lamprey** (*Entosphenus tridentatus*)

  Status: G4, S4, CDFW Species of Special Concern, BLM Sensitive Species, USFS Sensitive Species, American Fisheries Society: Vulnerable

  Key Habitat: Pacific lampreys are distributed in fresh water streams throughout coastal California during their breeding season. They spawn in substrates similar to that of salmonid species (Streif 2008). They prefer gravel substrates consisting of both fines and cobbles usually at the head of riffles. Young ammocoetes require sand substrate where they spend 3-7 years maturing into the next life stages. Once matured to the next stage, macropthalmia, they drift downstream and into the ocean where the feed and grow into adults (Stillwater Sciences et al. 2016).

  Status within BAA: Pacific lamprey are known to occur in the Van Duzen River and its tributaries (CNDDB). Substrate within the perennial watercourse present in the BAA is dominated by fine sediment and does not contain sand. There is no potential for this species to be found within the BAA.

- **Summer-run Steelhead Trout – Northern California DPS** (*Oncorhynchus mykiss irideus pop. 36*)

  Status: ESA Threatened, G5T2Q, S2S3, American Fisheries Society: Threatened

  Key Habitat: As many salmonid species, steelhead trout utilize a variety of habitats depending on their life stage. Population 36 consists of steelhead that mature inland and are often landlocked behind fish passage barriers. Summer-run steelhead can jump higher than any other steelhead subspecies and are currently at greater risk than their winter-run cousins (Moyle et al. 2017). Adult steelhead require swift moving water with depths of at least 18 cm (Bjornn and Reiser 1991). Spawning sites are often located at the tail-out of pools with fine gravel substrates (Moyle et al 2017). NCST frye require clear, cool, quick moving water usually located at seeps and stream confluences (Moyle 2002).

  Status within the BAA: Steelhead trout are known to occur within the Van Duzen River and its tributaries (CDFW 2013). Steelhead have been documented in Butte Creek which is directly receives water from the perennial watercourse. There is no documented or foreseeable blockage to fish passage. The perennial watercourse likely provides potential seasonal habitat during high

Key Habitat: As many salmonid species, steelhead trout utilize a variety of habitats depending on their life stage. Population 16 consists of northern California steelhead that mature in the ocean and return to freshwater rivers during the winter run. Adult steelhead require swift moving water with depths of at least 18 cm (Bjornn and Reiser 1991). Spawning sites are often located at the tail-out of pools with fine gravel substrates (Moyle et al 2017). NCST frye require clear, cool, quick moving water usually located at seeps and stream confluences (Moyle 2002).

Status within the BAA: Steelhead trout are known to occur within the South Fork Eel River and its tributaries.

5.3.5 Invertebrates of Special Concern

- **Obscure Bumble Bee** (*Bombus caliginosus*)

Status: S1S2, IUCN: Vulnerable

Key Habitat: Obscure bumble bees are known to occur within coastal areas ranging from Santa Barbara, California up to Washington state. They are known to forage on these genera: *baccharis*, *cirsium*, *lupinus*, *lotus*, *grindelia*, and *phacelia* (CNDDB).

Status within BAA: The BAA does not contain any documented observations of obscure bumble bee. The BAA is dominated by forested habitats that do not support large populations of flowering plants. However ornamental plants within urban habitat may provide potential foraging plant species. There is a moderate potential to find obscure bumble bee in the BAA.

- **Ten Mile Shoulderband** (*Noyo intersessa*)

Status: S2

Key Habitat: Ten mile shoulderband is known from two disjunct populations. These consists of a population present in coastal dunes of Mendocino County and a second population from a riparian redwood forests in Humboldt County. Specimens found in Humboldt County were collected from riparian habitat within an old-growth redwood stand (Stephens Grove) where it was observed to have an association with wild radish (*raphanus sativus*) and salal (Roth 1987).

Status within BAA: The BAA does not overlap with any documented observations of ten mile shoulderband in Humboldt County. The BAA does not contain any old-growth redwood stands. There is no potential for finding this species within the BAA.

- **Western Bumble Bee** (*Bombus occidentalis*)

Status: Candidate for CESA Endangered, S1, USFS: Sensitive, XERCES: Imperiled

Key Habitat: This species was once known to be widespread throughout the western United States from central California up to British Columbia (Evans et al 2008). This species was one of the most common bumble bees on the west coast prior to the mid 1990's (Rao and Stephen 2007). This species relies on year-round flower availability for pollen production. Fragmented or isolated patches of habitat are not sufficient enough to support bumble bee populations (Hatfield and LeBuhn 2007).

Status within BAA: There are no documented observations of western bumble bee in the BAA. AGS and Urban habitats present in the BAA provide potential habitat for this species. This species is experiencing wide ranging population declines. There is a moderate potential for this species to be found within the BAA.

5.3.6 Plant Species of Special Concern

Scientific Name	Common Name	Fed List	State List	State Rank	CNPS Rank	Bloom Period	Habitat	Elevation (ft)	Pot. In BAA
Arabis mcdonaldiana	McDonald's rockcress	E	E	S3	1B.1	May-Jul	Lower montane coniferous forest, upper montane coniferous forest. Rocky outcrops, ridges, slopes and flats on serpentine.	490 - 6000	No Pot. Occurs on serpentine soils
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	None	None	S2	1B.1	Feb-Apr	Chapparral, lower montane coniferous forest. Rocky, serpentine sites, slopes and ridges.	1590 - 3510	No Pot. Area lacks serpentine soils. Plant occurs at high elevations.
Astragalus agnicidus	Humboldt County Milk-vetch	None	E	S2	1B.1	Apr-Sep	Broadleafed upland forest, North coast coniferous forest – openings, disturbed areas	390 - 2625	High. Potential in forest openings, along roads, and disturbed area.
Calamagrostis foliosa	leafy reed grass	None	Rare	S3	4.2	May-Sep	Coastal bluff scrub, north coast coniferous forest. Rocky cliffs and ocean facing bluffs.	15-4290	Unlikely. Potential habitat along rocky slopes and cliffs. BAA is isolated from known populations.
Carex arcta	northern clustered sedge	None	None	S1	2B.2	May-Jul	Meadows and seeps (mesic)	0 - 10500	High. Potential in wet areas
Ceanothus foliosus var. vineatus	Vine Hill ceanothus	None	None	S1	1B.1	Mar-May	Chaparral. Sandy, acidic soil in chaparral.	150-1000	Unlikely. Microhabitat is not present.
Coptis laciniata	Oregon goldthread	None	None	S3?	4.2	(Feb)Mar - May(Sep-Nov)	Meadows and seeps, North Coast coniferous forest – mesic (streambanks)	0 - 3280	High. Potential along streams
Eriogonum kelloggii	Kellogg's buckwheat	None	E	S2?	1B.2	Jun-Aug	Lower montane coniferous forest. Rocky serpentine sites.	2985-3905	No Pot. Area lacks serpentine soils. Plant occurs at higher elevation.
Erythronium oregonum	giant fawn lily	None	None	S2	2B.2	Mar-Jun(Jul)	Cismontane woodland, meadows and seeps – sometimes serpentine, rocky, openings	325-3775	High. Potential along streams and rocky areas in DFR, RDW, and MHC
Erythronium revolutum	coast fawn lily	None	None	S2	2B.2	Mar-Jul(Aug)	Bogs and fens, boradleafed upland forest, North Coast coniferous forest – mesic, streambanks	0-5250	High. Potential along streams and rocky areas in DFR, RDW, and MHC
Gilia capitate	Pacific gilia	None	None	S2	1B.2	Apr-Aug	Coastal bluff	390-3935	Moderate.

ssp. pacifica							scrub, chaparral, coastal prairie, valley and foothill grassland		Potential in AGS, especially rocky areas
Howellia aquatilis	water howellia	T	None	S2	2B.2	Jun	Marshes and swamps (freshwater)	3555-4230	No Pot. Occurs at higher elevations
Iliamna latibracteata	California globe mallow	None	None	S2	1B.2	Jun-Aug	Montane chaparral, Lower montane coniferous forest (mesic), Riparian scrub (streambanks) – often in burned areas	195-6560	Moderate. Potential along streams.
Kopsiopsis hookeri	small groundcone	None	None	S1S2	2B.3	Apr-Aug	North Coast coniferous forest	295-2905	Moderate. Potential in DFR and MHC understory
Montia howellii	Howell's montia	None	None	S2	2B.2	(Jan-Feb)Mar-May	Meadows and seeps, vernal pools, North Coast coniferous forest – vernally mesic, sometimes roadsides	0-2740	High. Potential on roads in DFR, RDW, and MHC
Piperia candida	white-flowered rein orchid	None	None	S3	1B.2	(Mar) May-Sep	Broadleafed upland forest, lower montane coniferous forest, North Coast coniferous forest – sometimes on serpentinite	95-4300	High. Potential along streams, shaded roads, and in forest understory
Sidalcea malachroides	maple-leaved checkerbloom	None	None	S3	4.2	(Mar)Apr -Aug	Broadleafed upland forest, coastal prairie, coastal scru, North Coast coniferous forest, riparian woodland – often in disturbed areas	0-2395	High. Potential along streams and open areas.
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	None	None	S2	1B.2	(Apr)May -Aug	Coastal scrub, coastal prairie, North Coast coniferous forest – often road cuts	45-2885	High. Potential in AGS habitat, open areas, and along roads.
Tracyina rostrata	beaked tracyina	None	None	S2	1B.2	May-Jun	Chaparral, Cismontane woodland, Valley and Foothill grassland	295-2590	Moderate. Potential in AGS habitat
Viburnum ellipticum	Oval-leaved viburnum	None	None	S3?	2B.3	May-Jun	Chaparral, cismontane woodland, lower montane coniferous forest	705-4593	Unlikely. Generally occurs at higher elevations.

5.4 Potential Impacts

5.4.1 Sensitive Natural Communities and Plant Species of Special Concern

The project poses no risk to sensitive natural communities because the project does not propose the removal of any natural communities. The project does propose new ground disturbance and construction, which could potentially present a risk to plant species of special concern.

Construction proposed within Project Area #1 will occur adjacent to existing structures and road surfaces within the footprint of existing impacts. Both proposed construction sites within Project Area #1 will

occur where current temporary structures and materials currently reside. Potential habitat for Humboldt County milk-vetch (*Astragalus agnicidus*) and Howell's montia (*Montia howellii*) exists within both project areas. Proposed construction with Project Area #1 does not pose a risk to special status plant species. Project Area #2 contains potential habitat for giant fawn lily (*Erythronium oregonum*), coast fawn lily (*Erythronium revolutum*), pacific gilia (*Gilia capitate ssp. pacifica*), maple-leaved checkerbloom (*Sidalcea malachroides*) and Siskiyou checkerbloom (*Sidalcea malviflora ssp. patula*). It is recommended that floristic surveys be conducted within Project Area #2 prior to new ground disturbance to assure plant species of special concern do not occur. The project as proposed will not impact plant species of special concern if this mitigation is implemented.

5.4.2 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 are managed through enrollment in the state waste discharge program (Order WQ 2019-0001 DWQ). Enrollment in this program will assure the site is actively managed to mitigate potential water quality impacts through implementation of the Site Management Plan. The project currently meets all minimum watercourse setbacks and the road network appeared in good condition during the site visit. The project as proposed presents an unlikely probability of impacting aquatic habitat, Waters of the United States, or Waters of the State.

5.4.3 Bird Species of Special Concern

Although pre-existing cultivation sites and structures will be utilized for cultivation, the project does propose new ground disturbance and construction within both project areas. These activities will not remove any potential nesting habitat from migratory bird species or any special status species. But these activities do have the potential to disturb potential nearby nesting raptors. Mitigations for this potential impact may either avoid ground disturbance during the nesting season or have a qualified biologist search the area for any potential nest structures prior to ground disturbance during the nesting season. The project as proposed with the recommended mitigation does not risk impacting bird species of special concern.

5.4.4 Northern Spotted Owl Assessment

The project does not propose the removal of any trees or alteration of any potential NSO habitat. Thus, the NSO Assessment Area (NSOAA) is 0.25 miles for disturbance-based impacts (USFWS 2011). The NSOAA contains potential NSO foraging and nesting/roosting habitat. There are no documented activity centers within the NSOAA. The NSO database shows the most recent documented NSO surveys in the area occurred in 1998. Although no ACs are known within the BAA, without current survey data there is potential for an undocumented activity center to exist within the BAA.

Both project areas are located in forests openings, non-habitat, abutted by potential nesting/roosting habitat. The project proposes operating pre-existing and developing new mixed-light cannabis cultivation. Power is supplied by a PG&E grid connection with a generator present for emergency back-up. Black-out tarps were present on greenhouses during the site visit for this report. Light pollution poses a risk of impacting potential NSO within the BAA. It is recommended black-out tarps be implemented 30 minutes before sunset until 30 mins after sunrise or while supplemental lighting is being operated.

USFWS (2006) outlines what conditions may result in potential disturbance impacts to NSO. These conditions are (1) increasing noise levels 20 dB(A) from baseline levels, (2) exceeding 70 dB(A) at the activity center, and (3) activities within line of sight or 40 m from an activity center. Daily cultivation activities consist of light vehicle traffic under 25 mph, conversation, potential shouting, music, light use of handheld power tools, irrigating plants, and the pulling of tarps. These activities produce Ambient [>51 db(A)] to Very Low [51-60 dB(A)] noise levels. Daily activities do not pose a risk of disturbance to

potentially present NSO. There is no potential for daily activities or the power supply for the project to impact potential NSO within the BAA.

The project contains rocked and native surfaced that may require maintenance from heavy equipment. Proposed ground disturbance will likely require heavy equipment as well. The use of heavy equipment within property boundaries may potentially generate noise levels that exceeds 70 dB(A) adjacent to nesting/roosting habitat. Potential noise disturbance impacts can be completely mitigated through the restriction of heavy equipment along this road segment to outside of the critical period for this species (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. Additionally the applicant may also survey for NSO per the USFWS 2012 protocol if heavy equipment use is required during the critical period. This project does not pose a risk of impacting NSO potentially present within the BAA given these recommendations are followed.

5.4.5 Mammal Species of Special Concern

The BAA contains potential habitat for multiple mammal species of special concern. However, the project as proposed does not risk impacting any special status mammal species. Pacific Fisher and Sonoma tree vole are the only special status mammal species that have a high potential of occurring within property boundaries. No potential habitat for either species will be removed. No tree vole nests or potential fisher den sites were found near either project area. The property may provide potential habitat for individual or small groups of tree-roosting bats, but these species are generally less sensitive to disturbance given their low site fidelity. The project as proposed does not pose a risk of impacting mammal species of special concern.

5.4.6 Reptile/Amphibian Species of Special Concern

No potential habitat is present within either project area for reptile/amphibians of special concern. Agricultural operations in close proximity to surface waters do theoretically present potential risks of indirectly impacting aquatic habitat for these species. Implementation of best practicable treatment controls (BPTC) as outlined in the Site Management Plan (SMP) will reduce all risks of indirect impacts to potential habitat within the BAA. Additional conformance with CDFW 1600 code and Humboldt County Stream Management Ordinance will prevent potential impacts to these species. The project does not pose a risk of impacting Reptile/Amphibian Species of Special Concern.

5.4.7 Invertebrate Species of Special Concern

Overall the BAA is not key habitat for invertebrates of special concern. No significant potential bumble bee habitat occurs within the BAA. Regardless, it is recommended the project operator only utilize pesticides approved for use on cannabis by the Humboldt County Agricultural Commissioner's Office, Humboldt County Department of Environmental Health, and the California Department of Pesticide Regulations. Additionally, the application of these substances should be done with care so to not spray if pollinators are present and to prevent drift to plant communities outside of the greenhouses. This project as proposed will not impact invertebrate species of special concern.

5.4.8 Invasive Species

Invasive species were identified within both project areas. Project Area #1 contains small populations of Himalayan blackberry (*Rubus armeniacus*), black fennel (*Foeniculum vulgare*), and Klamath weed (*Hypericum perforatum*). Project Area #2 contains individual occurrences of Klamath Weed. All three of these species can be effectively managed through manual removal methods. The project applicant and/or site operator should take steps to remove these species by hand using tools. Care should be taken if seed heads are present so that treatment does not result in spread. These species will likely resprout after initial treatment due to budding plant matter and potential seed banks. The project area should be monitored for additional treatments and potential invasion of other species.

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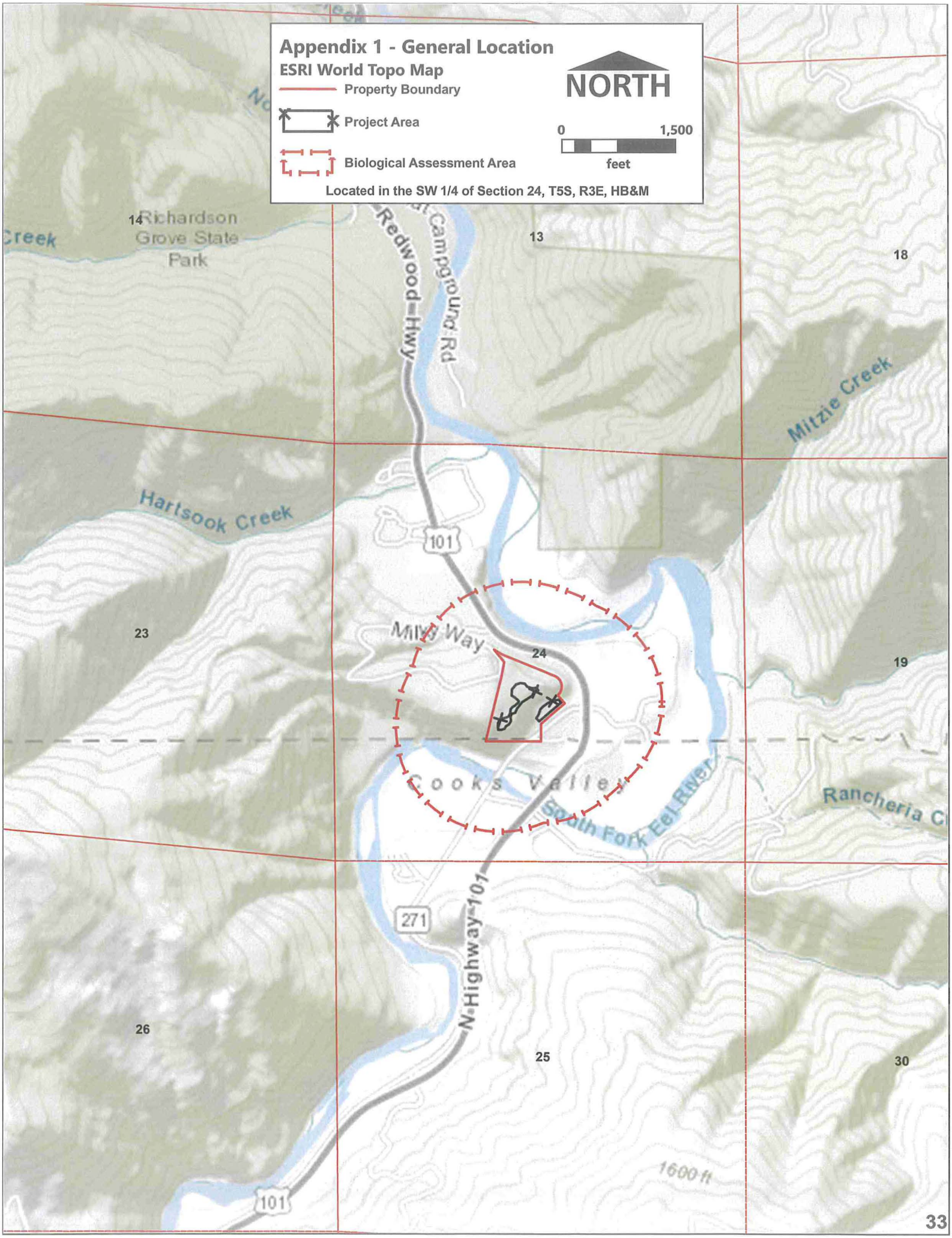
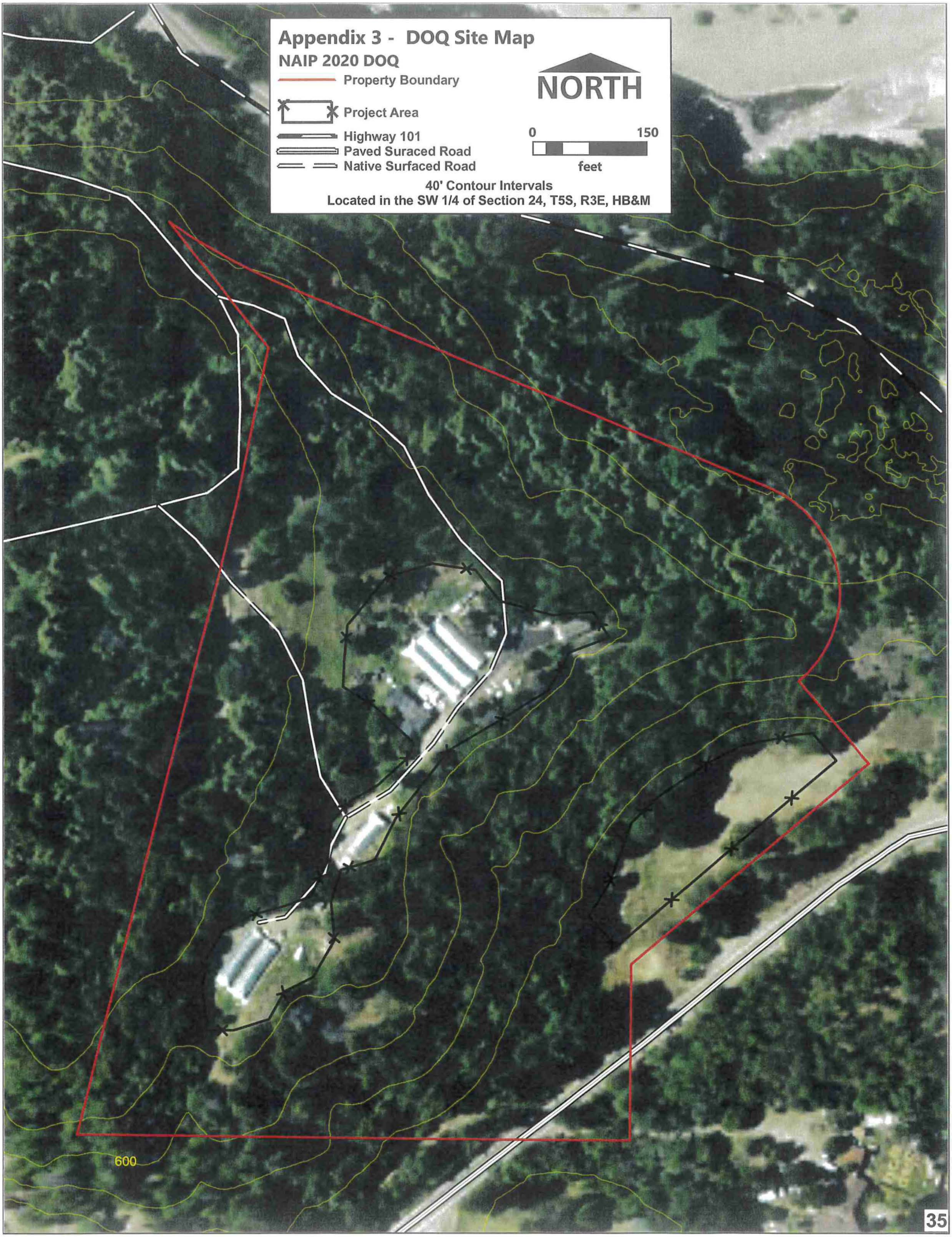
Appendixes

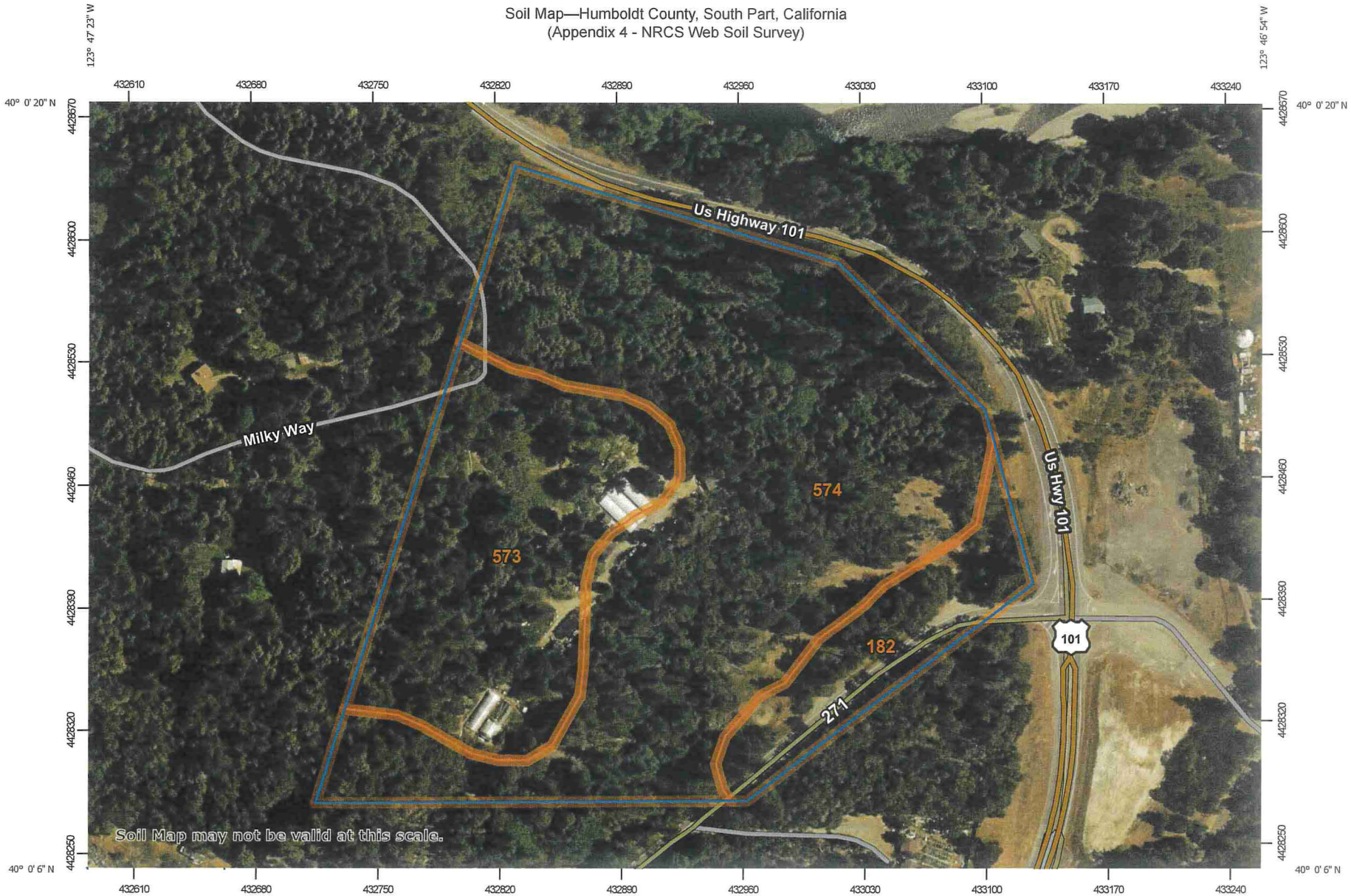

Appendix 1 - General Location
ESRI World Topo Map
Property Boundary
Project Area
Biological Assessment Area
NORTH
0
1,500
feet
Located in the SW 1/4 of Section 24, T5S, R3E, HB&M
Richardson Grove State Park
Redwood Hwy
Campground Rd
Mitzie Creek
Hartsook Creek
Cooks Valley
South Fork Eel River
Rancheria C
N Highway 101
101
271
13
14
18
19
23
24
25
26
30
1600 ft
33

Appendix 2 – Site Photographs

Photo #1: Google Earth image of both project areas. Project Area #1 is the developed area in the left hand side of the image. Project Area #2 is the non-developed flat location adjacent to Highway 271 in the right hand side of the image. Photo date: 04/21/2019.


Appendix 3 - DOQ Site Map
NAIP 2020 DOQ
Property Boundary
Project Area
Highway 101
Paved Suraced Road
Native Surfaced Road
NORTH
0
150
feet
40' Contour Intervals
Located in the SW 1/4 of Section 24, T5S, R3E, HB&M
600

Soil Map—Humboldt County, South Part, California
(Appendix 4 - NRCS Web Soil Survey)



Map Scale: 1:3,080 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

036

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

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: Humboldt County, South Part, California
Survey Area Data: Version 9, Jun 1, 2020

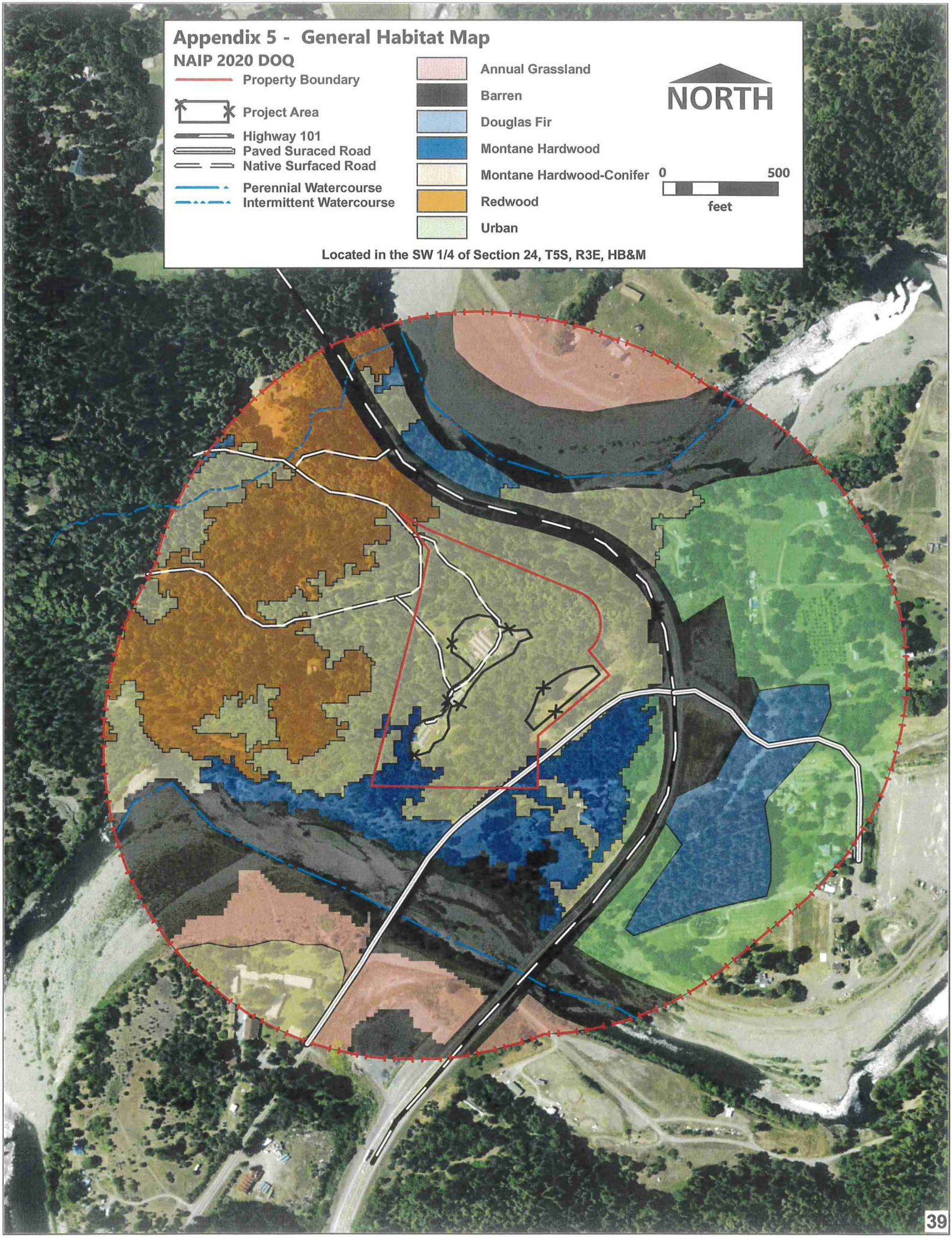
Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 8, 2019—Jun 21, 2019

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.

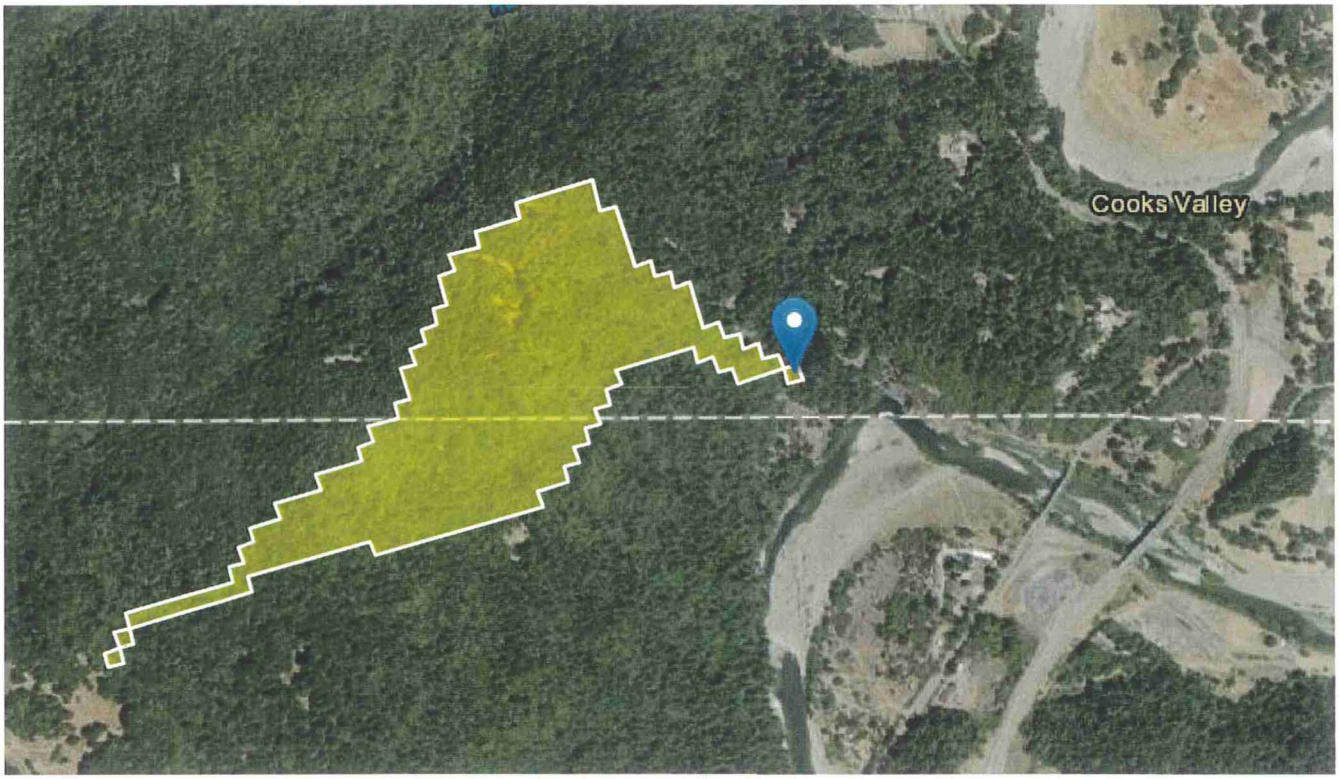
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
182	Gschwend-Frenchman complex, 0 to 9 percent slopes	2.6	10.3%
573	Sproulish-Canoecreek-Redwohly complex, 15 to 30 percent slopes, warm	6.6	26.4%
574	Sproulish-Canoecreek-Redwohly complex, 30 to 50 percent slopes, warm	15.7	63.3%
Totals for Area of Interest		**24.8**	**100.0%**


Appendix 5 - General Habitat Map
NAIP 2020 DOQ
Property Boundary
Project Area
Highway 101
Paved Suraced Road
Native Surfaced Road
Perennial Watercourse
Intermittent Watercourse
Annual Grassland
Barren
Douglas Fir
Montane Hardwood
Montane Hardwood-Conifer
Redwood
Urban
NORTH
0
500
feet
Located in the SW 1/4 of Section 24, T5S, R3E, HB&M

Appendix 6 - StreamStats Report

Region ID: CA
Workspace ID: CA20210209165820975000
Clicked Point (Latitude, Longitude): 40.00262, -123.79315
Time: 2021-02-09 08:58:40 -0800



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	69.5	inches
BASINPERIM	Perimeter of the drainage basin as defined in SIR 2004-5262	2.72	miles
BSLDEM30M	Mean basin slope computed from 30 m DEM	32.2	percent
EL6000	Percent of area above 6000 ft	0	percent
ELEV	Mean Basin Elevation	1136	feet

Parameter Code	Parameter Description	Value	Unit
ELEVMAX	Maximum basin elevation	1807	feet
FOREST	Percentage of area covered by forest	75	percent
JANMAXTMP	Mean Maximum January Temperature	54.35	degrees F
JANMINTMP	Mean Minimum January Temperature	36.63	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	547	feet
OUTLETELEV	Elevation of the stream outlet in feet above NAVD88	547	feet
RELIEF	Maximum - minimum elevation	1261	feet
RELRELF	Basin relief divided by basin perimeter	463	feet per mi

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.1	square miles	0.04	3200
PRECIP	Mean Annual Precipitation	69.5	inches	20	125

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

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

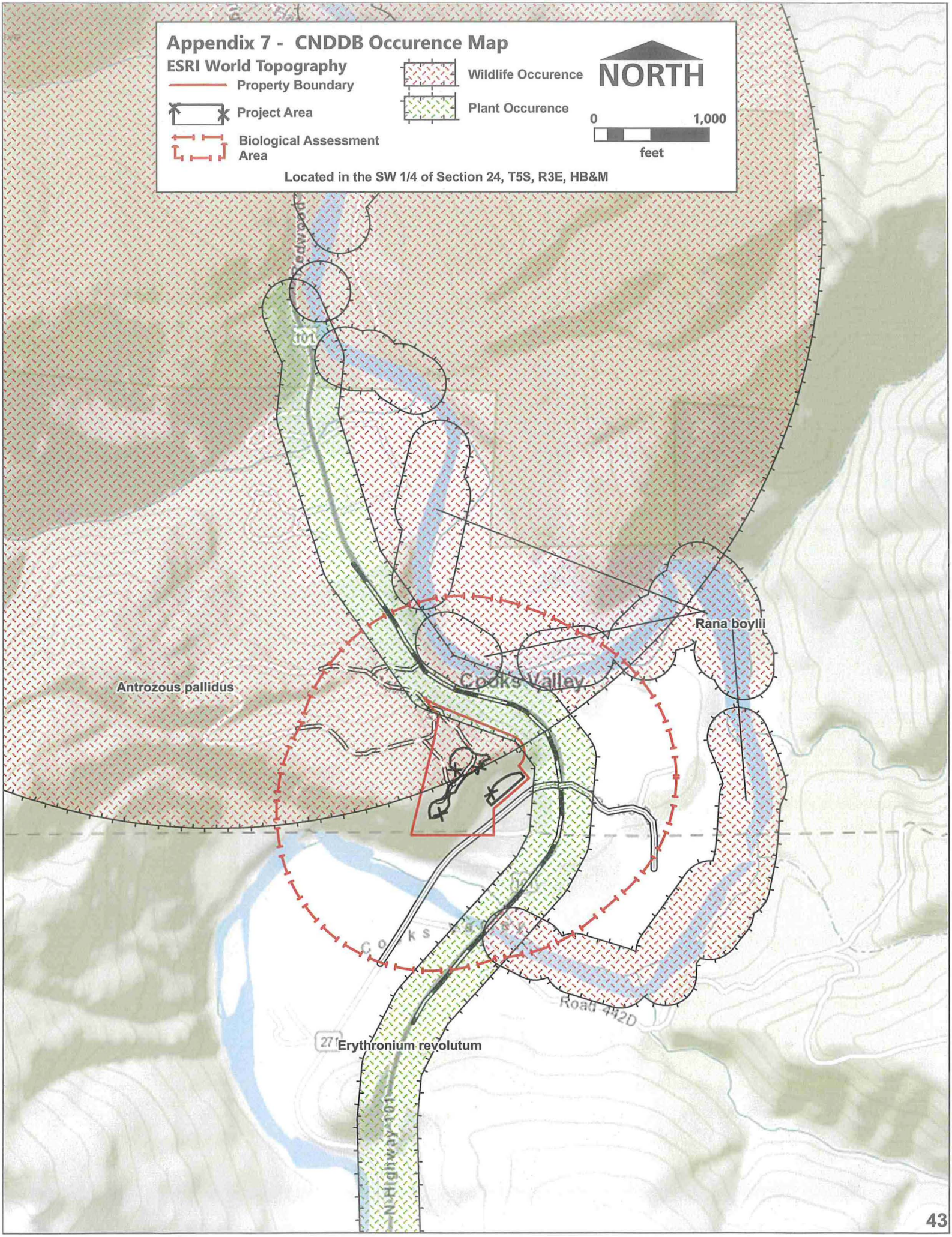
Statistic	Value	Unit	PII	PIu	SEp
50_percent_AEP_flood	14.7	ft^3/s	5.87	36.8	58.6
20_percent_AEP_flood	27.8	ft^3/s	13	59.6	47.4
10_percent_AEP_flood	37.3	ft^3/s	18.1	77.1	44.2
4_percent_AEP_flood	49.9	ft^3/s	24.9	NaN	42.7

Statistic	Value	Unit	PII	Plu	SEp
2_percent_AEP_flood	59.5	ft^3/s	29.6	120	42.7
1_percent_AEP_flood	69.8	ft^3/s	33.8	144	44.3
0_5_percent_AEP_flood	79.5	ft^3/s	38.4	165	44.4
0_2_percent_AEP_flood	92.4	ft^3/s	43.5	196	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/)

Application Version: 4.4.0


Appendix 7 - CNDDB Occurence Map
ESRI World Topography
Property Boundary
Project Area
Biological Assessment Area
Wildlife Occurence
Plant Occurence
NORTH
0
1,000
feet
Located in the SW 1/4 of Section 24, T5S, R3E, HB&M
Rana boylii
Antrozous pallidus
Cooks Valley
Road 412D
Erythronium revolutum
N Highway 101

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Species IS (Antrozous pallidus OR Rana boylii OR Erythronium revolutum)
 AND Quad IS (Garberville (4012317))

Map Index Number: 63231
EO Index: 63323
Key Quad: Garberville (4012317)
Element Code: AAABH01050
Occurrence Number: 435
Occurrence Last Updated: 2019-08-08

Scientific Name: *Rana boylii*
Common Name: foothill yellow-legged frog

Listing Status: **Federal:** None
State: Endangered

CNDDB Element Ranks: **Global:** G3
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened
USFS_S-Sensitive

General Habitat:

PARTLY-SHADED, SHALLOW STREAMS AND RIFFLES WITH A ROCKY SUBSTRATE IN A VARIETY OF HABITATS.

Micro Habitat:

NEEDS AT LEAST SOME COBBLE-SIZED SUBSTRATE FOR EGG-LAYING. NEEDS AT LEAST 15 WEEKS TO ATTAIN METAMORPHOSIS.

Last Date Observed: 2018-10-10
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2018-10-10
Occurrence Rank: Good
Owner/Manager: DPR-RICHARDSON GROVE SP
Trend: Unknown
Presence: Presumed Extant

Location:

NORTH CREEK AND SOUTH FORK EEL RIVER, RICHARDSON GROVE STATE PARK.

Detailed Location:

NORTH CREEK NEAR CONFLUENCE WITH SOURTH FORK EEL RIVER, ALSO ALONG SOUTH FORK EEL RIVER, SOUTH OF PANORAMA POINT AND NORTH OF COOKS VALLEY.

Ecological:

HABITAT CONSISTS OF RIPARIAN / OLD GROWTH REDWOOD FOREST.

Threats:

General:

COLLECTED FROM VICINITY, MOST LIKELY BETWEEN 1950S-1970S. 2 ADULTS OBSERVED ON 7 OCT 2005. 889 EGG MASSES FOUND IN MAY 2012. TISSUE COLLECTED BETWEEN 1992 & 2016 FOR GENETIC ANALYSIS. 6 ADULTS AND 21 SUBADULTS OBSERVED IN OCT 2018.

PLSS: T05S, R03E, Sec. 24 (H)
Accuracy: specific area
Area (acres): 175
UTM: Zone-10 N4429042 E432822
Latitude/Longitude: 40.0089 / -123.7871
Elevation (feet): 433

County Summary:

Humboldt, Mendocino

Quad Summary:

Piercy (3912387), Garberville (4012317)

Sources:

DFW12D0002	VAN HATTEM, M. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE) - NORTH COAST FOOTHILL YELLOW-LEGGED FROG EGGMASS GEODATABASE (2011-2012). 2012-XX-XX
DPR18D0001	CALIFORNIA DEPARTMENT OF PARKS & RECREATION - EXCEL TABLE OF BAILEY BRIDGE MONITORING RESULTS AT STANDISH HICKEY SRA & RICHARDSON GROVE SP 2018-10-11
JOHNDS0007	JOHNSON, M. - PSM #5694, 5695 COLLECTED FROM GARBERVILLE, 10 MI S; RICHARDSON GROVE 19XX-XX-XX
PEE18U0001	PEEK, R. - POPULATION GENETICS OF A SENTINEL STREAM-BREEDING FROG (RANA BOYLII) [PHD DISSERTATION] 2018-XX-XX
REY05F0001	REYNOLDS, C. (CALIFORNIA DEPARTMENT OF TRANSPORTATION) - FIELD SURVEY FORM FOR RANA BOYLII 2005-10-07

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 66495
Key Quad: Garberville (4012317)
Occurrence Number: 151
EO Index: 66610
Element Code: AMACC10010
Occurrence Last Updated: 2006-10-02

Scientific Name: *Antrozous pallidus*
Common Name: pallid bat

Listing Status: **Federal:** None
State: None

CNDDB Element Ranks: **Global:** G4
State: S3

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_LC-Least Concern
USFS_S-Sensitive
WBWG_H-High Priority

General Habitat:

DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS AND FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.

Micro Habitat:

ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.

Last Date Observed: 1936-09-09
Last Survey Date: 1936-09-09
Owner/Manager: DPR-RICHARDSON GROVE SP, UNK
Presence: Presumed Extant

Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

RICHARDSON GROVE.

Detailed Location:

MAPPED ACCORDING TO LAT/LONG COORDINATES GIVEN IN MANIS, WITH UNCERTAINTY OF 2105.022 M.

Ecological:

Threats:

General:

1 MALE SPECIMEN COLLECTED BY WARD C. RUSSELL AND EMANUEL FRITZ ET AL. ON 9 SEP 1936, MVZ #72100.

PLSS: T05S, R03E, Sec. 13 (H)
UTM: Zone-10 N4429876 E432250
Accuracy: 1 mile
Latitude/Longitude: 40.01637 / -123.79387
Area (acres): 0
Elevation (feet): 700

County Summary:

Humboldt

Quad Summary:

Garberville (4012317)

Sources:

MAN04S0028 MAMMAL NETWORKED INFORMATION SYSTEM (MANIS) - PRINTOUT OF ANTROZOUS PALLIDUS SPECIMEN RECORDS FROM MANIS. INCLUDES RECORDS FROM MVZ, CAS, KU, UWBM, UMNH, LACM, MSB, FMNH, TTU, MSU. 2004-12-09

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 47178
EO Index: 47178
Key Quad: Garberville (4012317)
Element Code: PMLIL0U0F0
Occurrence Number: 6
Occurrence Last Updated: 2002-02-05

Scientific Name: *Erythronium revolutum*
Common Name: coast fawn lily

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 2B.2
Other Lists:

CNDDB Element Ranks: **Global:** G4G5
State: S3

General Habitat:
BOGS AND FENS, BROADLEAFED UPLAND FOREST, NORTH COAST CONIFEROUS FOREST.

Micro Habitat:
MESIC SITES; STREAMBANKS. 60-1405 M.

Last Date Observed: 1929-04-14
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1929-04-14
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
SOUTH FORK EEL RIVER, NORTHERN COAST RANGES.

Detailed Location:
HILLSIDE NEAR HUMBOLDT/MENDOCINO COUNTY LINE. EXACT LOCATION UNKNOWN, MAPPED BY CNDDB AS A BEST GUESS.

Ecological:
ON HILLSIDE IN SHADE.

Threats:

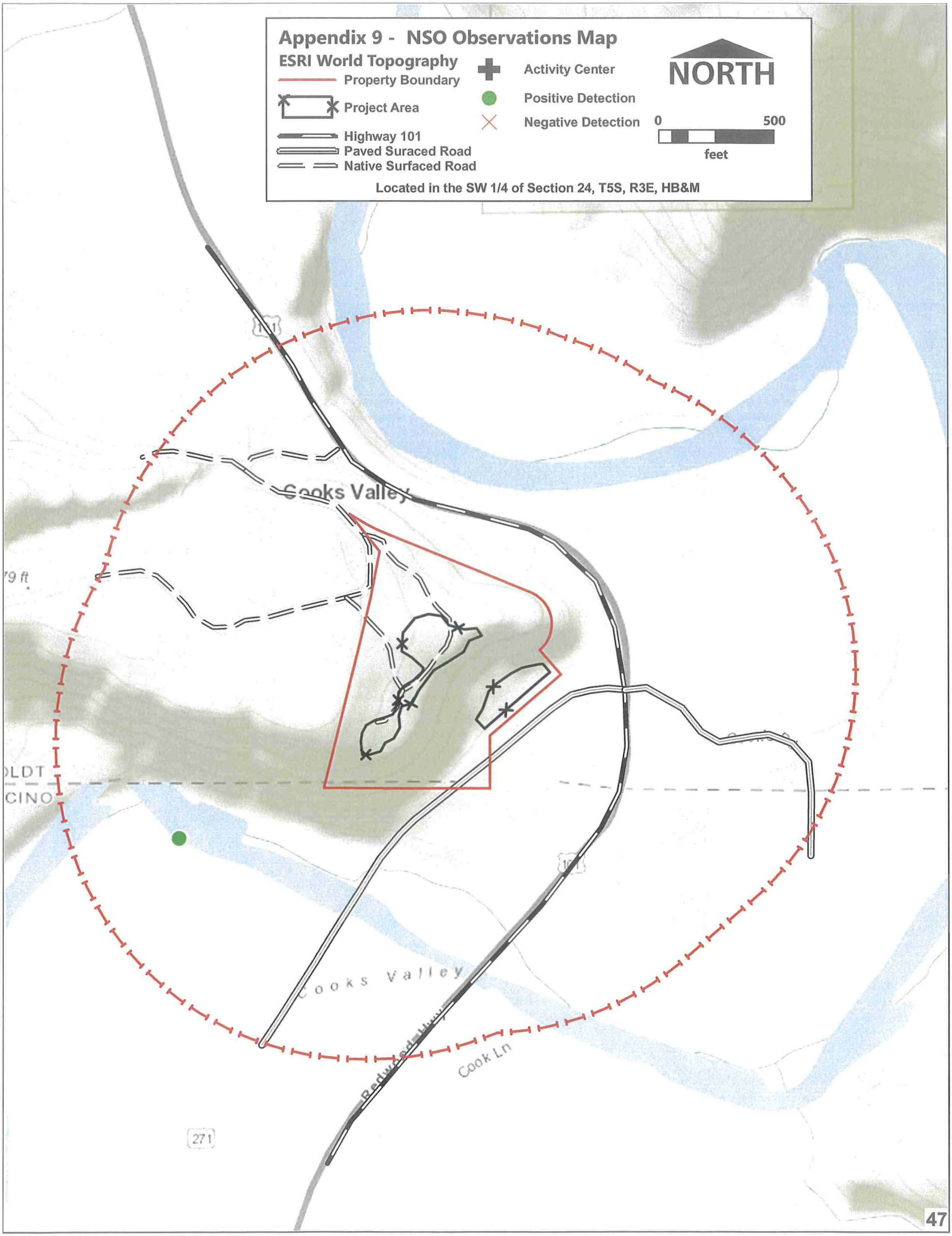
General:
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1929 COLLECTION BY TRACY. NEEDS FIELDWORK.

PLSS: T05S, R03E, Sec. 24 (H)
Accuracy: non-specific area
Area (acres): 137
UTM: Zone-10 N4428251 E433140
Latitude/Longitude: 40.00180 / -123.78329
Elevation (feet): 500

County Summary:
Humboldt, Mendocino

Quad Summary:
Piercy (3912387), Garberville (4012317)

Sources:
TRA29S0002 TRACY, J. - TRACY #8534 UC #1197652 1929-04-14


Appendix 9 - NSO Observations Map
ESRI World Topography
Property Boundary
Project Area
Highway 101
Paved Suraced Road
Native Surfaced Road
Activity Center
Positive Detection
Negative Detection
NORTH
0
500
feet
Located in the SW 1/4 of Section 24, T5S, R3E, HB&M
Cooks Valley
Cooks Valley
Cook Ln
271