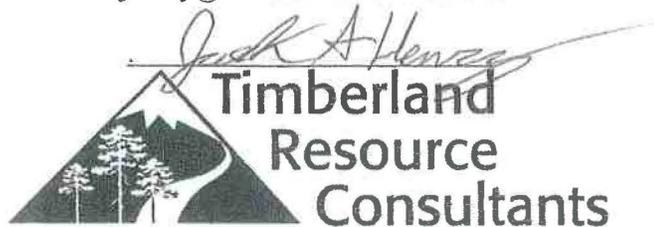


Biological Assessment
for
APNs 107-103-014 & 107-103-015
05/20/2020



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1.0 Introduction

1.1 Purpose and Need

This Biological Assessment has been prepared for VZ Farms, LLC. 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 animal species of special concern, plant species of special concern, sensitive natural communities, and potential environmental impacts prepared by a qualified biologist.

1.2 Project Description

The project proposes permitting and developing pre-existing and new commercial cannabis cultivation on APNs 107-103-014 & -015 along the Mattole River in Honeydew, California. The combined size of both parcels is approximately 39 acres in size. Zoning for APN 107-103-014 is Unclassified (U). Zoning for APN 107-103-015 is combined Agricultural Exempt (AE). The project proposes two licenses, one for 7,088 sq. ft. pre-existing commercial outdoor cultivation on APN 107-103-015 (Project Area #1) and a second license for new commercial outdoor cultivation. Details regarding how much cultivation will be proposed are still being considered by the applicant. The applicant could potentially apply for a maximum increase of 36,472 square feet. This cultivation space can be developed without tree removal by expanding cultivation at Project Area #1 and/or developing new cultivation at Project Areas #2-#4. All project areas meet setbacks relevant for commercial cannabis cultivation.

1.3 Project and Biological Assessment Area

This report assesses potential presence of protected and/or rare species and potential impacts to biological resources within a Biological Assessment Area (BAA). The BAA is defined as the area where as a result of the proposed project potential impacts may occur to sensitive/protected species and/or sensitive biological communities.

Project Area is defined as the area where only direct impacts have the potential to occur. Given the preliminary phases of project planning, four project areas have been identified. Project Area #1 contains the pre-existing 7,088 sq. ft. of commercial cannabis. The applicant may propose to expand this site, or propose new development at any of three project areas identified. Project areas #2-#4 are located in a small meadow bisected by an ephemeral drainage. These proposed locations have been mapped using all associated setbacks including watercourse, wetlands, and property line setbacks. Development of these sites would not remove any trees. Development will impact annual grassland habitat dominated by nonnative grasses and weeds.

The BAA is buffered 0.5 miles around the project areas. The project areas are located within the SW ¼ of Section 02, T3S, R1W, HB&M. The BAA encompasses the project parcel and portions of surrounding private parcels. The BAA overlaps with Sections 02, 03, 10, 11, T3S, R1W, Humboldt County within the Shubrick Peak 7.5' USGS quad. Current land uses within the BAA consists of rural residences, commercial livestock grazing, nonindustrial timber management, and commercial cannabis cultivation.

2.0 Regulatory Background

2.1 Cannabis Cultivation

Commercial cannabis was recognized as an agricultural crop under the Medical Cannabis Regulation and Safety Act and further legalized for recreational uses under Proposition 64. The California Department of Food and Agriculture (CDFA) implements the CalCannabis 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.

2.2 Sensitive Biological Communities

Sensitive biological communities include habitats that fulfill special functions or have special values, such as wetlands, streams, or riparian habitat. These habitats are protected under federal regulations such as the

Clean Water Act (CWA); state regulations such as the Porter-Cologne Act, the CDFW Fish and Game Code and the California Environmental Quality Act (CEQA); or local ordinances or policies such as city or county tree ordinances, Special Habitat Management Areas, and General Plan Elements.

2.2.1 Aquatic Habitats

Watercourses, waterbodies, and critical hydrologic features have been recognized by federal, state, and local regulatory agencies/bodies as ecologically important biological communities. Under Section 404 of the CWA the U.S. Army Corps of Engineers regulate “Waters of the United States” as defined in the Code of Federal Regulations as waters susceptible to use in commerce, including interstate waters and wetlands, all other waters (intrastate waterbodies, including wetlands), and their tributaries (33 CFR 328.3). Areas that are inundated at a sufficient depth and for a sufficient duration to exclude growth of hydrophytic vegetation are subject to Section 404 jurisdiction as “other waters” and are often characterized by an ordinary high water mark, and herein referred to as non-wetland waters. Non-wetland waters, for example, generally include lakes, rivers, and streams.

Although very similar, the term “Waters of the State” is defined by the Porter-Cologne Act as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The State Water Resources Control Board (SWRCB) protects all waters in its regulatory scope and has special responsibility for wetlands, riparian areas, and headwaters. These waterbodies have high resource value, are vulnerable to filling, and are not systematically protected by other programs. SWRCB jurisdiction includes wetlands and waters that may not be regulated by the Corps under Section 404. Waters of the state are further protected from cannabis cultivation impacts through the Order WQ 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.

2.2.2 Wetlands

Section 404 of the CWA protects wetlands federally. In 1989 George H.W. Bush implemented the national “No-net Loss of Wetlands” policy which either avoids the filling of wetlands or mitigates the destruction and/or degradation of wetlands. U.S. Army Corps of Engineers defines wetlands as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” There is no single accepted definition of wetlands at the state level although CDFW exerts jurisdiction over them through their importance as wildlife habitat. Wetlands are locally protected through setbacks built within the most recent version of the Humboldt County General Plan (2017) and Order WQ 2019-0001-DWQ.

2.2.3 Sensitive Natural Communities

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

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

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

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

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

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

5 Secure – Common; widespread and abundant

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

2.2.4 Local Policies, Ordinances, and Regulations

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

2.2.5 Sensitive and Protected Species

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

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

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

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

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

- 1) Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)

2) Moderately threatened in California (20-80% of occurrences threatened / moderate degree and of threat)

3) Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

3.0 Methods

3.1 Field Observations

All field data was collected by wildlife biologist, Jack Henry, using direct observations, measurements, and ocular estimations during site visits conducted on March 05, 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.

3.2 Review of Scientific Literature

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

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

3.3 Agency Consultation

No agency personal were consulted for this report.

3.4 Sensitive Biological Communities

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

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

3.4.1 Sensitive and Protected Species

The scoping procedure to generate the plants and animals list noted in this report is as follows: First, the California Natural Diversity Database (CNDDDB) was queried (December 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/CNDDDB/Plants-and-Animals>.

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

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- Present. Species is observed on the site or has been recorded (i.e. CNDDDB, other reports) on the site recently.

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

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

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

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

&

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

3.5 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.

3.5.1 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).

4.0 Results and Discussion

4.1 Terrestrial Habitat

The climate can be characterized by high-intensity rainfall over winter and warm arid summers. Annual mean rainfall is approximately 77.2 inches (streamstats.usgs.gov). Elevations within the BAA range from 280' to 1,120' above mean sea level. Slopes in the BAA vary from gradual riparian terraces to steep montane drainages. The entire BAA drains into the Mattole River and its tributaries. The BAA contains 14 different soil types. They are delineated and mapped within the attached NRCS Web Soil Survey Report (Appendix 4). Terrestrial habitats present within the project parcel consists of Montane Hardwood-Conifer, Douglas-fir, Annual Grassland, and Montane Hardwood. Coastal Oak Woodland, Cropland, and Barren habitats are present within the BAA but outside of the parcel boundaries.

Montane Hardwood-Conifer (MHC) habitat is the most prominent terrestrial habitat within the BAA. Species composition is highly variable but often consists of conifer and hardwood codominants with acute areas showing single species dominance. Dominant tree species observed within MHC habitat consists of Douglas-fir (*pseudotsuga menziesii*), tanoak (*notholithocarpus densiflorus*), and California bay laurel (*umbellularia californica*). Oregon white oak (*quercus garryana*), California black oak (*quercus kelloggii*), redwood (*sequoia sempervirens*), pacific madrone (*arbutus menziesii*), California buckeye (*aesculus californica*), and canyon live oak (*quercus chrysolepis*) are present as intermediates. Understory vegetation varies due to canopy closure and species variation. Closed canopy areas are often dominated by bare ground and thick layers of leaf litter. Some areas that intergrade with DFR habitat contain dense evergreen huckleberry (*vaccinium ovatum*) understory vegetation. MHC habitat with canopy closure <50% displays more herbaceous plants often with some annual grasses. Forest openings in MHC habitat are often dominated by shrub species such as blue blossom (*ceanothus thyrsiflorus*), ironwood (*holodiscus discolor*), and coyote brush (*baccharis pillularis*).

Douglas-fir (DFR) habitat is the second most prominent terrestrial habitat type within the BAA and the most common within property boundaries. This habitat is generally dominated by Douglas-fir but may contain small stands dominated by either Tanoak or Redwood. Other trees present as intermediates include canyon live oak, California black oak, and pacific madrone. Stands dominated by Douglas-fir with dominant closed canopy often display dense evergreen huckleberry understory with bare ground and sword fern (*polystichum munitum*). Areas with less canopy covers or forest openings contain annual grasses with dense shrub layer consisting of coyote brush, blue blossom, California coffeeberry (*frangula californica*), poison oak (*toxicodendron diversilobum*), and willow (*salix spp.*). DFR intergrades with AGS habitat where the forest edge meets grasslands resulting in more herbaceous understory vegetation including nonnative annual grasses and dense communities of bracken fern (*pteridium aquilinum*).

Annual grassland (AGS) habitat is present within the BAA in the form of forest openings. This habitat is dominated by nonnative annual and perennial grass species with small areas containing woody shrubs and/or young emergent tree stands. The most common tree species found within AGS habitat include California black oak, Douglas-fir, Oregon white oak, and canyon live oak. Historic grazing practices resulted in the dominance of nonnative species (HilleRisLambers et al 2010). The most dominant grass species observed within the BAA is sweet vernal grass, orchard grass, and oatgrass (*avena spp.*). Additional species observed within AGS habitat include wood rose, coyote brush, blue blossom, bracken fern, silver hairgrass (*aira caryophylla*), and Yorkshire fog (*holcus lanatus*).

Montane hardwood (MHW) habitat is present in the BAA in the form of residual oak woodlands and has likely been reduced through fire exclusion (Cocking et al 2015, Schriver et al 2018). The overstory of MHW habitat consist of a hardwood dominant overstory. MHW habitat within the BAA is dominated by tanoak, California black oak, Oregon white oak, and California bay laurel. Canyon live oak, pacific

madrone, big leaf maple (*acer macrophyllum*), Douglas-fir, and redwood are also present as intermediates. The understory vegetation varies in composition. Areas with closed canopies support less dense understories with more shade tolerant species such as evergreen huckleberry, poison oak, pink honey suckle (*lonicera hispidula*), sword fern, and pacific dewberry (*rubus ursinus*). MHW habitat with more open canopy display understories containing nonnative perennial grasses such as sweet vernal grass (*anthoxanthum odoratum*) and orchard grass (*dactylis glomerata*) intermixed with native species including coyote brush, wood rose, rushes (*juncus spp.*), pennyroyal (*mentha pulegium*), western columbine (*aguilegia formosa*), and firecracker flower (*dichelostemma ida-maia*).

The three additional terrestrial habitats are present in relatively small proportions and outside of property boundaries within the BAA. Coastal Oak Woodland (COW) is present in the southeast 1/3 of the BAA. This habitat was not directly observed by TRC staff but is likely dominated by California black oak and Oregon white oak with herbaceous understory vegetation likely dominated by grass species. Cropland habitat is present just north of the property boundary along the banks of the Mattole River. Satellite imagery appears to show dry farmed grain crops and residual orchard trees. The areas appear to contain both active agriculture and fallow fields. Fallow sites contain nonnative annual and perennial grass species and act relatively analogous to AGS habitat. The final terrestrial habitat type present in the BAA is Barren (BAR). This habitat consists of seasonally exposed gravel bars within the Mattole River channel migration zone. This habitat type is most often devoid of any vegetation. There are some locations where vegetation has persisted through annual high flow events. This vegetation most often consists of willow species (*salix spp.*).

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

- California bay forest – Douglas-fir (*umbellularia californica – pseudotsuga menziesii*)
- California bay forest – tanoak (*umbellularia californica – notholithocarpus densiflorus*)
- California bay forest / sword fern (*umbellularia californica / polystichum munitum*)
- California bay forest / poison oak (*umbellularia californica / toxicodendron diversilobum*)
- California black oak forest – Douglas-fir (*quercus kelloggii – pseudotsuga menziesii*)
- California black oak forest – Douglas-fir – California bay laurel (*quercus kelloggii – pseudotsuga menziesii – umbellularia californica*)
- California black oak forest / annual grass – herb (*quercus kelloggii / annual grass - herb*)
- California black oak forest / poison oak / grass (*quercus kelloggii / toxicodendron diversilobum / grass*)
- Common velvet grass – sweet vernal grass meadows (*holcus lanatus – anthoxanthum odoratum*)
- Douglas-fir forest – California black oak (*pseudotsuga menziesii – quercus kelloggii*)
- Douglas-fir forest – California bay laurel (*pseudotsuga menziesii – umbellularia californica*)
- Douglas-fir forest – California bay laurel / California coffeeberry (*pseudotsuga menziesii – umbellularia californica / frangula californica*)
- Douglas-fir forest – California bay laurel / poison oak (*pseudotsuga menziesii – umbellularia californica / toxicodendron diversilobum*)
- Douglas-fir forest / coyote brush (*pseudotsuga menziesii / baccharis pillularis*)
- Douglas-fir forest / salal (*pseudotsuga menziesii / gaultheria shallon*)
- Douglas-fir forest / Oregon grape (*pseudotsuga menziesii / mahonia nervosa*)
- Oregon white oak woodland – California black oak / poison oak (*quercus garryana – quercus kelloggii / toxicodendron diversilobum*)
- Oregon white oak woodland – cat grass (*quercus garryana – dactylis glomerata*)

4.2 Sensitive Biological Communities

4.2.1 Aquatic Habitats

The BAA is located within the Lower Mattole River HUC12 watershed (HUC12#:180101070209). Aquatic habitat in the BAA consists of riverine habitats. There is at least one pond present in the BAA

that is lined and does not provide lacustrine habitat. Riverine habitats display multiple hydrologic types including perennial (Class I), intermittent (Class II), and ephemeral (Class III) watercourses. The Mattole River also flows through the eastern half of the BAA.

The BAA overlaps with approximately 1 mile of the Mattole River. This perennial watercourse drains approximately 184 square miles before entering the BAA. The reach of watercourse overlapped by the BAA contains riffle/glide habitat that varies as a result of seasonal flow changes. The majority of the BAA drains into tributaries that directly flow into the Mattole River. Woods Creek is a perennial tributary of the Mattole River present in the southeast corner of the BAA. Baier (2005) found that Woods Creek is one of the few remaining lower river tributaries where temperatures were still suitable for salmonid survival. Surveys conducted in 1982 documented juvenile coho salmon present in Woods Creek (Berg and Halligan 2011). Although present within the BAA, the project parcel does not interact with Woods Creek.

The "California Native Fish Species by Watershed" CNDDDB GIS layer documents these species as native to the Lower Mattole River watershed: Humboldt sucker (*catostomus occidentalis humboldtianus*), coastrange sculpin (*cottus aleuticus*), prickly sculpin (*cottus asper*), inland threespine stickleback (*gasterosteus aculeatus microcephalus*), pacific lamprey (*entospheus tridentata*), western brook lamprey (*lampetra richardsoni*), coastal rainbow trout (*oncorhynchus mykiss irideus*), Northern California coast winter steelhead (*oncorhynchus mykiss irideus pop.16*), Northern California coast summer steelhead (*oncorhynchus mykiss irideus pop. 36*), Southern Oregon/Northern California Coast ESU coho salmon (*oncorhynchus kisutch pop. 2*), and California coast fall chinook salmon (*oncorhynchus tshawytscha pop. 17*). Potential habitat for these species is present in Mattole River and Woods Creek within the BAA. These perennial watercourses also provide potential habitat for amphibian species including: red-bellied newt (*taricha rivularis*), yellow-legged foothill frog (*rana boylli*), coastal giant salamander (*dicamptodon tenebrosus*), and western pond turtle (*emys marmorata*).

Intermittent tributaries present in the BAA can be characterized by well-defined stream morphology, steep gradients, strong canopy cover, and coarse sediment substrates. Cascade and step-pool morphology are the two aquatic habitats most prominent in the BAA but watercourses within property boundaries generally display pool-riffle habitat. Intermittent watercourses provide potential aquatic habitat for northern red-legged frog (*rana aurora*), yellow-legged foothill frog, southern torrent salamander (*rhyacotriton variegatus*), coastal tailed frog (*ascaphus truei*), red-bellied newt, rough-skinned newt (*taricha granulosa*), and coastal giant salamander. 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.

4.2.2 Wetlands

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

Potential wetland parameters were observed on site and a delineation was performed by Timberland Resource Consultants. The boundaries of a seasonal wetland were identified by Jack Henry on 03/05/2020. There is no cultivation or associated infrastructure within 150' of the delineated feature. Proposed Project Areas (#2-#4) are setback 100' (SWRCB wetland buffer) from the delineated boundary.

4.2.3 Sensitive Natural Communities

California Department of Fish and Wildlife and the California Native Plant Society identify these natural communities within the BAA as sensitive.

- California bay forest – Douglas-fir (*umbellularia californica* – *pseudotsuga menziesii*)
- California bay forest – tanoak (*umbellularia californica* – *notholithocarpus densiflorus*)
- California bay forest / sword fern (*umbellularia californica* / *polystichum munitum*)
- California bay forest / poison oak (*umbellularia californica* / *toxicodendron diversilobum*)
- California black oak forest – Douglas-fir (*quercus kelloggii* – *pseudotsuga menziesii*)
- California black oak forest – Douglas-fir – California bay laurel (*quercus kelloggii* – *pseudotsuga menziesii* – *umbellularia californica*)
- Douglas-fir forest – California black oak (*pseudotsuga menziesii* – *quercus kelloggii*)
- Douglas-fir forest – California bay laurel (*pseudotsuga menziesii* – *umbellularia californica*)
- Douglas-fir forest – California bay laurel / California coffeeberry (*pseudotsuga menziesii* – *umbellularia californica* / *frangula californica*)
- Douglas-fir forest / salal (*pseudotsuga menziesii* / *gaultheria shallon*)
- Douglas-fir forest / Oregon grape (*pseudotsuga menziesii* / *mahonia nervosa*)
- Oregon white oak woodland – California black oak / poison oak (*quercus garryana* – *quercus kelloggii* / *toxicodendron diversilobum*)
- Oregon white oak woodland – cat grass (*quercus garryana* – *dactylis glomerata*)

4.2.4 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 and will occur within nonnative annual grassland.

4.3 Sensitive and Protected Species

4.3.1 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. Bald Eagles nest most frequently in stands with less than 40% canopy cover (Polite and Pratt 1990a).

Status within BAA: The CNDDDB does not document any bald eagle observations within the BAA. The Mattole River does provide potential foraging habitat for this species within the BAA. Conifer timberlands provide potential nesting habitat within the BAA. There is a high potential for bald eagles 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 (Harris 2005). When present, they are often located near open grasslands for hunting and within dense forest for nesting (Hunter et al. 2005). Rolling terrain with good thermal lift, and nest sites that are secluded from disturbances are favored by golden eagle. 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 CNDDDB does not document any golden eagle observations within the BAA. AGS habitat is present in the form of large meadows providing potential foraging habitat for this species. Conifer trees are present in the BAA, large diameter trees are unlikely to be found given the historical harvest practices. The potential for golden eagles to be nesting within the BAA is moderate due to the ample amount of foraging habitat but lack of high quality nesting habitat.

- **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 the CNDDDB query. AGS habitat within the BAA does provide potential foraging and nesting habitat for this species. Anthropogenic activities within the BAA may impact habitat quality, including the mowing of vegetation associated with fire prevention and the grazing of cattle. There is a high potential for this species to be found within the BAA.

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

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

Key Habitat: Willow flycatcher can be fairly common spring and fall migrants on the northwestern coast. Willow flycatcher prefers dense willow or similar riparian shrub along persistent water (Gaines 1990). Recent bird surveys have found increased evidence that flycatchers have been utilizing young (5-15 years) clearcuts with dense regeneration and a strong hardwood component (Hunter et al 2005). Potentially prefer sights with less brown-headed cowbird (*molothrus ater*) presence. 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 CNDDDB does not identify any willow flycatcher observations within the BAA. Willow flycatchers are only known from three recorded breeding attempts in Humboldt County, all of which are outside the BAA (Hunter et al. 2005). Dense shrub vegetation is present in the BAA but is often dominated by upland species such as coyote brush, poison oak, and blue blossom. There are some areas that contain willows. Although potential habitat is available in the BAA the historic breeding record in Humboldt County makes the potential for willow flycatcher to be found within the BAA moderate.

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

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

Key Habitat: Marbled Murrelet occurs year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal, Santa Barbara Co. (Sowls et al. 1980 cited in Sanders 1990). Roosts/Nests up to 50 miles inland within stands of mature redwood or dense mature conifer forests (USFWS 1997). Murrelets choose timber stand of varying sizes but almost always select stands dominated by coastal redwood. There is only one record of a marbled murrelet nesting in a non-redwood site (Hunter et al 2005).

Status within BAA: The CNDDDB does not display any documented observations of marbled murrelet within the BAA. Conifer timberlands within the BAA do not provide suitable marbled murrelet habitat due to small average diameter limbs. There is no potential for marbled murrelet to be found within the BAA.

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

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

Key Habitat: Humboldt County supports a substantial number of breeding pairs of Northern Spotted Owl (Hunter et al. 2005). Northern spotted owls reside in dense, old-growth, multi-layered mixed conifer, redwood, and Douglas-fir habitats, from sea level up to approximately 2300m (0 – 7,600'). They usually 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 NSO database shows no spotted owl activity centers or night time detections documented within the BAA. Positive night time NSO detections are present just outside of the BAA in Kendall Gulch. NSO potential nesting/roosting habitat is present within the BAA. NSO have a high potential of being found within the BAA.

- **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 1990b). 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: The CNDDDB does not contain any documented observations of peregrine falcon. Mattole River does provide marginal foraging habitat for this species. There are no rock outcroppings or steep rocky features that could provide potential nesting structure within the BAA. The potential for peregrine falcons to be found nesting within the BAA is unlikely.

4.3.2 Mammal Species of Special Concern

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

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

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

Status within BAA: The CNDDDB does not document any observations of American badger within the BAA. Terrestrial habitat characteristics present in the BAA include both positive and negative correlates of the Apps et al (2002) study. The Mattole River provides a boundary between positive and negative correlates. Higher quality potential habitat is present north of the Mattole while habitat south of the Mattole is less suitable for badgers. The potential for American badger presence within the BAA is high.

- **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. 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 1990, Kunz and Lumsden 2003). Kunz and Lumsden (2003) described them as tree-roosting bats as well as previous written descriptions in literature (Rancourt et al 2005). Rancourt et al (2005) found in their study that rock crevices were chosen as maternity roosts more often than stump or snag structures. This species also has a low roost fidelity meaning they often move roost locations with an acute area, <400m (Kunz and Lumsden 2003). It is hypothesized this species would select rock crevices over snag/stump structures because of their potential benefits to reproductive fitness (Rancourt et al 2005). Kalcounis-Rüppel et al (2005) found that tree dwelling bats relative to random trees select trees that are larger diameter, taller, closer to open surface water, and are located in more open canopies.

Status within BAA: There are no documented observations of this species within the BAA. The BAA lacks any rock outcroppings or bridge structures that would likely be utilized as maternal roost sites. Conifer and hardwood trees within the BAA may provide potential individual or small group roost sites. There is a high potential for long-eared myotis to be found within the BAA.

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

Status: G5, S3, IUCN Least Concern

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

Status within BAA: There are no documented observations of porcupines within the BAA. The BAA contains both potential wintering and summering habitat for this species. There is a high potential for porcupine presence within the BAA.

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

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

Key Habitat: Fisher occurrence is regularly associated with low- to mid-elevation coniferous and mixed conifer/hardwood forests with mature or late-successional characteristics. Regardless of age class, abundant physical structure is the driving characteristic for habitat selection by Fishers (USFWS 2016). Other studies have found Fishers prefer a strong hardwood component possibly related to prey densities (Lofroth et al 2011). Fishers have also been observed using second growth and regenerative conifer stands in areas where significant residual structure was left from historic timber management (Mathew et al 2008). Fishers are highly territorial defending 10 square mile territories from one another; as a result, they are inherently rare (Ingles 1965).

Status within BAA: The CNDDDB does not document any observations of fisher in the BAA. The BAA contains both hardwood dominant timber and coniferous timber with ample residual hardwood structure. There is a high potential for this species to be found 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: The CNDDDB does not contain any documented observations of this species in the BAA. The BAA does provide potential marginal habitat in the form of black oak woodlands that have slowly converted to conifer dominant habitats due to fire exclusion. The BAA lacks any bridge structures that could provide potential roosting sites. Wet winter climate may potentially limit this species range in Humboldt County. There is a moderate potential for pallid bats to be found roosting within the BAA.

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

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

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

Status within BAA: The CNDDDB contains no documented observations of Sonoma tree vole in the BAA. Douglas-fir occurs within the BAA in varying degrees of density and age cohort, providing potential habitat for Sonoma tree vole. Douglas-fir within property boundaries was assessed for Sonoma tree vole nests or sign, none were observed although potential habitat is present. The potential for Sonoma tree vole to be found 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 CNDDDB shows no documented observations of Townsend's big-eared bat in the BAA. The BAA does not contain any rocky outcroppings or bridge structures that could theoretically provide potential roosting habitat for this species. The potential for Townsend's big-eared bat to be found roosting within the BAA is unlikely.

- **Western Red Bat (*lasiorus blossevillii*)**

Status: G5, S3, CDFW Species of Special Concern, IUCN Least Concern, Western Bat Working Group: High Priority

Key Habitat: Western red bats in California are associated with mature riparian forests at low elevations (<200 m). They were most often found in association with mature stands of cottonwood/sycamore. This bat is one of the only foliage roosting species of bat in California thus they rely on riparian habitats for roost and forage habitat (Pierson et al 2006).

Status within BAA: The CNDDDB shows no documented observations of western red bat within the BAA. The BAA does not contain the two hardwood species western red bats are most often found in association with, cottonwood (*poplar spp.*) and sycamore (*platanus spp.*). The BAA does contain some remnant riparian vegetation along the Mattole River. The potential for western red bat to be found within the BAA is unlikely.

4.3.3. 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 CNDDDB shows no documented occurrences of coastal tailed frog within the BAA. Intermittent watercourses within the BAA are morphologically well suited for this species with high gradients, strong canopy cover, and coarse sediments. The potential for coastal tailed frog to be found within the BAA is high.

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

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

Key Habitat: Foothill yellow-legged frog's habitat selection as many frogs, depends on their life stage. This species is primarily found in and around streams with shallow, flowing water with some cobble-sized substrate (Hayes and Jennings 1988). Egg masses require low flowing stream locations with some form of anchor and protection such as behind or under a rock (Thomson et al. 2016). Not much is known about foothill yellow-legged frog terrestrial habitat selection. Bourque (2008) found adult foothill yellow-legged frog an average distance from water of 3 m but also found select individuals up to 40 m from any surface water. This 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: The BAA does not contain any documented observations of foothill yellow-legged frog. However, documented observations exist up stream and down stream of the BAA and the Mattole River displays potential habitat for this species. Foothill yellow-legged frog have a high potential of being found within the BAA.

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

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

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

Status within BAA: The BAA does not contain any documented observations of northern red-legged frogs. Perennial watercourses like Kendall Gulch and Woods Creek provide potential habitat for this species. Seasonal backwater and flooding along the Mattole River may potentially increase habitat availability in wet years. Northern red-legged frogs have a moderate probability 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 BAA does not contain any documented observations of western pond turtle. The Mattole does provide potential habitat in the form of perennial hydrology with nearby basking and breeding habitat. No perennial surface water is present within property boundaries. The potential of finding western pond turtle within the BAA is high.

- **Red-bellied Newt (*taricha rivularis*)**

Status: G4, S2, CDFW Species of Special Concern, IUCN Least Concern

Key Habitat: Red-bellied newts have the smallest range of their genus. The Mattole River marks the approximate northern boundary of their range. Very little is known about their terrestrial habitat use either as adults or juveniles. Juveniles are believed to use subterranean burrows for the first five years of their life or until sexual maturity, although this is only based off low juvenile capture rates in the few studies that exist (Marks and Doyle 2005). Mature adults have been found in a multitude of vegetation compositions including redwood (*sequoia sempervirens*), California bay laurel (*umbellularia californica*), tanoak (*notholithocarpus densiflorus*), madrone (*arbutus menziesii*), and Douglas-fir (*pseudotsuga menziesii*). Twitty et al. (1966) as well as Licht and Brown (1967) found adult red-bellied newts on heavily wooded slopes that rise from the south bank (north facing slope) of their breeding stream. These slopes often have high densities of large woody debris and leaf litter (Packer 1960). Red-bellied newts only select water features with swift flowing water and coarse substrates. They do not utilize ponds or other standing water habitats. Red-bellied newts display a unique homing instinct that returns individuals to the same reach of stream channel every breeding migration (Twitty et al. 1966, Packer 1960). Breeding occurs from March through May with March and April being the peak months. Eggs are deposited on the bottom side of flat rocks often located in the center of the stream (Twitty et al. 1966).

Status within BAA: The BAA does not contain any documented observations of red-bellied newt. The Mattole River is a known breeding corridor for this species and the northern limit of their range. Documented observations are present outside of the BAA upstream and downstream of the BAA. Red-bellied newts have a high probability of being found within the BAA.

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

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

Key Habitat: Southern torrent salamander prefers habitat characteristics that correlate with lateral 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 sediment loads (Welsh and Lind 1996). Interstitial spacing between gravels and cobbles is very important for low flow periods within intermittent low-order streams occupied by southern torrent salamander. This may be why southern torrent salamanders also prefer high gradient streams capable of flushing out sediment loads and maintaining coarse substrates. Torrent salamander presence is also highly associated with canopy cover due to its strong correlation with temperature control and hydrologic period (Thomson et al 2016).

Status within BAA: The CNDDDB shows no documented occurrences of southern torrent salamander within the BAA. Intermittent watercourses 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.

4.3.4 Reptiles and Amphibians of Special Concern

- **Chinook Salmon – California Coast ESU (*oncorhynchus tshawytscha pop.17*)**

Status: 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. 2015). 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. 2015).

Status within BAA: Chinook Salmon are known to occur within the Mattole River (Berg and Halligan 2011).

- **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 Mattole River (Berg and Halligan 2011).

- **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, macrophthalmia, they drift downstream and into the ocean where they feed and grow into adults (Stillwater Sciences et al. 2016).

Status within BAA: Although the CNDDDB does not contain any documented observations of Pacific lamprey within the BAA, the CNDDDB does identify this species as a native fish of the Lower Mattole watershed. Potential lamprey breeding habitat is present within the BAA in Mattole River and potentially in Woods Creek. Pacific lamprey have a high probability of being present within the BAA.

- **Winter-run Steelhead Trout – Northern California DPS (*oncorhynchus mykiss irideus pop. 16*)**

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 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 2015). NCST frye require clear, cool, quick moving water usually located at seeps and stream confluences (Moyle 2002).

Status within the BAA: Winter-run steelhead are known to occur within the Mattole River in the BAA (Berg and Halligan 2011).

- **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 2015). NCST frye require clear, cool, quick moving water usually located at seeps and stream confluences (Moyle 2002).

Status within the BAA: Although considered rare, summer-run steelhead have been documented within the Mattole River (Berg and Halligan 2011).

- **Western Brook Lamprey (*lampetra richardsoni*)**

Status: CDFW Fish Species of Special Concern

Key Habitat: Western brook lamprey are less studied in California and most information is known from Washington and Oregon studies. Young ammocoetes prefer sand/silt substrates in low velocity areas of the stream (pool or backwater). Adults make nest in gravel substrates located in riffles (Moyle 2002). Reproductive behavior is similar to pacific lamprey (Moyle et al 2015).

Status within the BAA: Although the CNDDB does not contain any documented observations of western brook lamprey within the BAA, the CNDDB does identify this species as a native fish of the Mattole River watershed. Potential lamprey breeding habitat is present within the BAA in Mattole River and potentially in Woods Creek. Western brook lamprey have a high probability of being present within the BAA.

4.3.5 Invertebrates of Special Concern

- **Mountain Shoulderband (*helminthoglypta arrosa monticola*)**

Status: S1

Key Habitat: This species is only known from observations in the King Range of Humboldt County. Roth(1982) discovered the snail in two locations both consisting of shaded talus slopes.

Status within BAA: The BAA does not overlap with the King Range of Humboldt County. Additionally, the BAA does not contain shaded talus slope. There is no potential for this species to be found within the BAA.

- **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: There are no documented observations of this species within the BAA. The BAA does occur within this species known range. The BAA also contains food genera known to be associated with this species. There is a high potential for obscure bumble bee to be found within 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. The potential for finding this species within the BAA is unlikely.

- **Wawona Riffle Beetle (*atractelmis wawona*)**

Status: S1S2

Key Habitat: Wawona riffle beetle prefers cool, clear mountain streams with rapids and aquatic mosses (CNDDDB). This species was poorly understood until in 1988 morphological similarities with another genus of Nearctic riffle beetle led to the discovery of its preferred microhabitat, submerged aquatic mosses (Shepard and Barr 1991). This species is only known in Humboldt County from specimens collected in the Van Duzen River near Dinsmore, California (CNDDDB).

Status within the BAA: The CNDDDB does not contain any documented observations of this species within the BAA. Mattole River and Woods Creek do contain clear, cool, perennial surface water with rapids present. It is unknown at what densities, if any, aquatic submerged mosses occur within these watercourses. There is a moderate potential for Wawona riffle beetle to be found 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 habitat and herbaceous flowering plants present in the BAA provide potential habitat for this species. This species is experiencing wide ranging population declines. There is a high potential for this species to be found within the BAA.

4.3.6 Plant Species of Special Concern

<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>		Coastal marsh milk-vetch	
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Capetown, Cape Mendocino, Eureka, Petrolia			
Documented in BAA: No	Potential Habitat in BAA: No	Potential Habitat on Property: No	

Habitat: Coastal dunes, marshes, and swamps, coastal scrub. Mesic sites in dunes or along streams or coastal salt marshes (CNDDDB). Coastal marshes, seeps, adjacent to sand (Jepson eflora). Wetland-riparian (California).			
<i>Calamagrostis foliosa</i>		Leafy reed grass	
Fed List: None	State List: None	CNPS List: 2B.2	State Rank: S3
USGS 7.5' Quad (CNDDDB): Buckeye Mtn., Bull Creek, Cooskie Creek, Petrolia, Shelter Cove, Shubrick Peak			
Documented in BAA: No	Potential Habitat in BAA: No	Potential Habitat on Property: No	
Habitat: Coastal bluff scrub, North coast coniferous forest. Rocky cliffs and ocean-facing bluffs (CNDDDB). Coastal scrub, forest rock outcrops, crevices, cliffs (Jepson eflora). North coast coniferous forest, North coast scrub (California).			
<i>Castilleja litoralis</i>		Oregon coast paintbrush	
Fed List: None	State List: None	CNPS List: 2B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Capetown, Cape Mendocino, Eureka, Petrolia			
Documented in BAA: No	Potential Habitat in BAA: No	Potential Habitat on Property: No	
Habitat: Coastal bluff scrub, coastal dunes, coastal scrub, sandy sites (CNDDDB). Generally dry sea bluffs (Jepson eflora). Coastal strand, north coastal scrub (California).			
<i>Clarkia amoena ssp. whitneyi</i>		Whitney's farewell-to-spring	
Fed List: None	State List: None	CNPS Rank: 1B.1	State Rank: S1
USGS 7.5' Quad (CNDDDB): Fortuna, Shelter Cove			
Documented in BAA: No	Potential Habitat in BAA: No	Potential Habitat on Property: No	
Habitat: Coastal bluff scrub, coastal scrub (CNDDDB). Open coastal scrub (Jepson eflora).			
<i>Erysimum conchnum</i>		Bluff wallflower	
Fed List: None	State List: None	CNPS Rank: 1B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Petrolia			
Documented in BAA: No	Potential Habitat in BAA: No	Potential Habitat on Property: No	
Habitat: Coastal dunes, coastal bluff scrub, coastal prairie. More or less a coastal generalist within coastal habitat types (CNDDDB). Cliffs, coastal bluffs, dunes, prairies (Jepson eflora). Northern coastal scrub (California).			
<i>Erythronium revolutum</i>		Coast fawn lily	
Fed List: None	State List: None	CNPS Rank: 2B.2	State Rank: S3
USGS 7.5' Quad (CNDDDB): Bald Hills, Blue Lake, Board Camp Mtn., Bridgeville, Buckeye Mtn., Dinsmore, Ettersburg, Eureka, French Camp Ridge, Garberville, Grouse Mtn., Holter Ridge, Hupa Mountain, Iaqua Buttes, Johnsons, Korbel, Lord-ellis Summit, Mad River Buttes, Maple Creek, Miranda, Myers Flat, Owl Creek, Piercy, Scotia, Taylor Peak, Weitchpec, Yager Junction			
Documented in BAA: No	Potential Habitat in BAA: Yes	Potential Habitat on Property: No	
Habitat: Bogs and fens, broadleaved upland forest, north coast coniferous forest. Mesic sites, streambanks (CNDDDB). Streambanks, wet places in woodlands (Jepson eflora). Redwood forest, mixed evergreen forest, wetland-riparian (California).			
<i>Gilia capitata ssp. pacifica</i>		Pacific gilia	
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5' Quads (CNDDDB): Bridgeville, Larabee Valley, Board Camp Mountain, and Mad River Buttes			
Documented in BAA: No	Potential Habitat in BAA: Yes	Potential Habitat on Property: Yes	
Habitat: Chaparral, Coastal bluff scrub, Coastal prairie, Valley and foothill grasslands (CNDDDB). Steep slopes, ravines, open			

flats, or coastal bluffs, grassland, dunes (Jepson eflora).			
<i>Gilia millefoliata</i>	Dark-eyed gilia		
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5' Quads (CNDDDB): Crannell, Eureka, Fields Landing, Petrolia, Trinidad, Tyee City			
Documented in BAA: No	Potential Habitat in BAA: No	Potential Habitat on Property: No	
Habitat: Coastal dunes (CNDDDB). Stabilized coastal dunes (Jepson eflora). Coastal strand (California).			
<i>Hesperevax sparsiflora var. brevifolia</i>	Short-leaved evax		
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5" Quad (CNDDDB): Cannibal Island, Captetown, Eureka, Ferndale, Petrolia, Taylor Peak			
Documented in BAA: No	Potential Habitat in BAA: No	Potential Habitat on Property: No	
Habitat: Coastal bluff scrub, coastal dunes, coastal prairie. Sandy bluffs and flats, 0 – 640m (CNDDDB). Sandy, grassy or wooded coastal bluffs, terraces, dunes (Jepson eflora). Dunes, coastal strand, northern coastal scrub (California).			
<i>Lasthenia californica ssp. macrantha</i>	Perennial goldfields		
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Eureka, Shelter Cove			
Documented in BAA: No	Potential Habitat in BAA: No	Potential Habitat on Property: No	
Habitat: Coastal bluff scrub, coastal dunes, coastal scrub (CNDDDB). Grassland, dunes along immediate coast (Jepson eflora). North coastal scrub (California).			
<i>Lathyrus palustris</i>	Marsh pea		
Fed List: None	State List: None	CNPS List: 2B.2	State Rank: S2
USGS 7.5" Quad (CNDDDB): Eureka, Shelter Cove, Trinidad			
Documented in BAA: No	Potential Habitat in BAA: Yes	Potential Habitat on Property: Yes	
Habitat: Bogs & fens, lower montane coniferous forest, marshes and swamps, north coast coniferous forest, coastal prairie, coastal scrub; moist coastal areas (CNDDDB). Moist or wet coastal areas (Jepson eflora). Freshwater-marsh, bogs/fens (California).			
<i>Layla carnosu</i>	Beach layla		
Fed List: Endangered	State List: Endangered	CNPS List: 1B.1	State Rank: S2
USGS 7.5' Quad (CNDDDB): Cannibal Island, Crannell, Eureka, Fields Landing, Orick, Petrolia, Tyee City			
Documented in BAA: No	Potential Habitat in BAA: No	Potential Habitat on Property: No	
Habitat: Coastal dunes, coastal scrub; on sparsely vegetated, semi-stabilized dunes, usually behind foredunes (CNDDDB). Coastal dunes (Jepson eflora). Dunes, coastal (California).			
<i>Montia howellii</i>	Howell's montia		
Fed List: None	State List: None	CNPS List: 2B.2	State Rank: S2
USGS 7.5' Quad (CNDDDB): Arcata North, Bald Hills, Blocksburg, Briceland, Bridgeville, Buckeye Mountain, Bull Creek, Capetown, Eureka, Ferndale, Fields Landing, Fort Seward, Fortuna, Hupa Mountain, Hydesville, Iaquia Buttes, Korbel, Larabee Valley, Lord-ellis Summit, Mad River Buttes, Maple Creek, McWhinney Creek, Miranda, Myers Flat, Orick, Owl Creek, Panther Creek, Redcrest, Salyer, Scotia, Taylor Peak, Weitchipee, Willow Creek, Yager Junction			
Documented in BAA: No	Potential Habitat in BAA: Yes	Potential Habitat on Property: Yes	
Habitat: Meadow & seep, North coast coniferous forest, vernal pool, wetland (CNDDDB). Vernal wet sites, often compacted soils (Jepson eflora). Redwood forest, Freshwater wetlands, Wetland-riparian (California).			

<i>Piperia candida</i>		White-flowered rein orchid	
Fed List: None	State List: None	CNPS Rank: 1B.2	State Rank: S3
USGS 7.5' Quad (CNDDDB): Bald Hills, Blake Mountain, Board Camp Mtn., Briceland, Bridgeville, Buckeye Mtn., Bull Creek, Crannell, Fish Lake, French Camp Ridge, Holter Ridge, Honeydew, Hoopa, Hupa Mountain, Iaqua Buttes, Johnsons, Larabee Valley, Lord-ellis Summit, Mad River Buttes, Maple Creek, Miranda, Myers Flat, Scotia, Showers Mtn., Sims Mountain, Weitchpec, Weott, Willow Creek			
Documented in BAA: No		Potential Habitat in BAA: Yes	Potential Habitat on Property: Yes
Habitat: North coast coniferous forest, lower montane coniferous forest, broadleaved upland forest. Sometimes on serpentine, forest duff, mossy banks, rocky outcrops, and muskeg. (CNDDDB). Open to shady spots, conifer and mixed-evergreen forest (Jepson eflora). Yellow Pine Forest, north coast coniferous forest (Calflora).			
<i>Sidalcea malachroides</i>		Maple-leaved checkerbloom	
Fed List: None	State List: None	CNPS Rank: 4.2	State Rank: S3
USGS 7.5' Quad (CNDDDB): Arcata North, Arcata South, Blue Lake, Bridgeville, Cape Mendocino, Eureka, Fern Canyon, Ferndale, Fields Landing, Hydesville, Iaqua Buttes, Korbel, Maple Creek, McWhinney Creek, Myers Flat, Owl Creek, Petrolia, Redcrest, Scotia, Taylor Peak			
Documented in BAA: No		Potential Habitat in BAA: Yes	Potential Habitat on Property: Yes
Habitat: Broadleaved upland forest, coastal prairie, coastal scrub, north coast coniferous forest, riparian forest. Woodland and clearings near coast, often in disturbed areas (CNDDDB). Coastal prairie, mixed evergreen forest, redwood forest (Jepson eflora).			
<i>Sidalcea malviflora ssp. patula</i>		Siskiyou checkerbloom	
Fed List: None	State List: None	CNPS List: 1B.2	State Rank: S1
USGS 7.5' Quad (CNDDDB): Arcata North, Bald Hills, Board Camp Mountain, Bridgeville, Capetown, Denny, Eureka, Ferndale, Fields Landing, Fortuna, Grouse Mountain, Hydesville, Iaqua Buttes, Korbel, Maple Creek, Myers Flat, Orick, Owl Creek, Petrolia, Salyer, Scotia, Taylor Peak, Weitchipee, Yager Junction			
Documented in BAA: No		Potential Habitat in BAA: Yes	Potential Habitat on Property: Yes
Habitat: Coastal bluff scrub, coastal prairie, north coast coniferous forest (CNDDDB). Open coastal forests, bluffs (Jepson eflora). Occurs usually in wetlands (Calflora).			

4.4 Potential Impacts

4.4.1 Sensitive Natural Communities and Plant Species of Special Concern

The proposed project consists of one pre-existing site and potential expansion at Project Areas #1-#4. The project poses no risk to sensitive natural communities because none occur within any project area. All four project areas occur in areas dominated by nonnative annual grasses. These project areas do not contain any watercourses or riparian vegetation and are setback from watercourses in property. The project does not pose a risk of impacting any sensitive natural communities.

Pacific gilia (*gilia capitata ssp. pacifica*), marsh pea (*lathyrus palustris*), maple-leaved checkerbloom (*sidalcea malachroides*), and Siskiyou checkerbloom (*sidalcea malviflora ssp. patula*) may potentially occur within the project areas. Potential habitat for Howell's montia (*montia howellii*) and white-flowered rein orchid (*piperia candida*) is present within property boundaries but not within the project areas. Floristic surveys during the appropriate time of year should occur to assure these species are not impacted by potential ground disturbance within the project areas. Floristic surveys should occur in the identified project areas and be conducted per guidelines in Protocol for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018). If any plant species of special concern are identified the project shall consult with CDFW prior to the commencement of ground disturbing activities. Under these mitigations the project is unlikely to result in impacts to plant species of special concern.

4.4.2 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 cannabis 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. This includes implementation of erosion control, watercourse setbacks, nutrient management, and other practices that will reduce or remediate potential risks to water quality. The project as proposed presents an unlikely probability of impacting Waters of the United States, Waters of the State, or aquatic wildlife habitat.

4.4.3 Bird Species of Special Concern

Proposed development of the project areas is unlikely to directly impact any bird species of special concern, as impacts would be limited to disturbance-only. AGS habitat provides potential foraging habitat for golden eagle, white-tailed kite (*elanus leucurus*), northern harrier (*circus hudsonius*), American kestrel (*falco sparverius*), red-tailed hawk (*buteo jamaicensis*), and red-shouldered hawk (*buteo lineatus*). The development of additional cultivation area and associated infrastructure is unlikely to significantly reduce AGS habitat, especially given that the maximum potential loss of AGS habitat is 1%. And the quality of this habitat is already marginal given the nonnative species dominance and small size relative to other grasslands in the BAA. This reduces the potential for grassland dependent raptor species to be found. The project as proposed is unlikely to impact Bird Species of Special Concern.

If the project proposes to remove any shrub species during the breeding bird season (March 1 – July 31), it is appropriate to survey for nesting birds. AGS habitat dominated by nonnative grasses does not provide potential nesting habitat for migratory birds. Potential habitat only consists of shrub and tree species present on-site.

4.4.4 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 2006. Without current survey data there is potential for an activity center to be located within the BAA.

The project areas are not located in any potential NSO habitat. Potential nesting/roosting habitat dominates the NSOAA. The nearest nesting/roosting habitat runs between project areas #1 and #4 and directly abuts the edge of project area #1. Potential NSO foraging habitat is focused along the Mattole River and areas that have been historically harvested for conifer species. The project proposes outdoor light deprivation cultivation. Black-out tarps will be used to manipulate photoperiod but no supplemental lighting will be utilized. Power will be supplied by a municipal grid connection.

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. Additionally, Mattole Road is an active corridor for local traffic in Honeydew, resulting in increased ambient noise levels relative to more wild areas. Daily activities do not pose a risk of disturbance to potentially present NSO. At the time of the site visit, no generator was on-site due to domestic power being supplied by the municipal grid. Given the rural setting and future potential for Public Safety Power Shutoffs, the applicant has stated an emergency generator

will be installed. This generator shall produce less than 70 dB(A) to prevent potential noise disturbance to NSO.

At this time, it is unsure exactly what construction techniques will be utilized given the uncertainty of site infrastructure. Heavy equipment may be utilized to prepare the site for development, including earth moving, trenching, and vegetation clearing. Development of cultivation structures (hoop houses, cultivation beds, storage sheds) will be constructed by hand using power tools and will not disturb NSO. The use of heavy equipment for site development and potential road maintenance may potentially generate noise levels that exceeds 70 dB(A) within nesting/roosting habitat within property boundaries. Potential noise disturbance impacts can be completely mitigated through the implementation of one of these two options.

- 1) Restrict the use of heavy equipment 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. A list of equipment and their common noise levels from the USFWS has been attached.
- 2) Survey for northern spotted owls per the Protocol for Surveying Proposed Management Activities that May Impact Northern Spotted Owls, USFWS 2012. Surveys should be conducted per Section 9.0 Surveys for Disturbance Only Projects.

A list of common sound levels for equipment/activities has been attached from USFWS (2006). This project does not pose a risk of impacting NSO potentially present within the BAA given these recommendations are followed.

4.4.5 Mammal Species of Special Concern

The BAA contains potential habitat for multiple mammal species of special concern. These species have been identified to have moderate or high potential of occurring within the BAA: American badger (*taxidea taxus*), long-eared myotis (*myotis evotis*), pallid bat (*antrozous pallidus*), North American porcupine (*erethizon dorsatum*), pacific fisher (*pekania pennanti*), and Sonoma tree vole (*arborimus poma*).

Pacific fisher, North American porcupine, Sonoma tree vole, and American badger have moderate or high probabilities of being found within the BAA. The proposed development will not result in the removal of potential habitat for any of these species. All three species are associated with timbered habitats. Pacific fisher have potential to be found foraging on property, but no denning or resting structures were observed during the site visit. Trees on average are too small diameter to provide limbs large enough for resting. Construction within property boundaries is unlikely to impact this species. Anecdotally, porcupines appear to be experiencing state-wide declines (Appel et al 2017). Although this decline has yet to be explained, disturbance is currently not a conservation concern for this species. Porcupines will not be impacted by the proposed project. Douglas-fir trees within 100' of Project Area #1 were assessed for any signs of potential vole nests, none were observed. If ground disturbance occurs after 09/05/2020 (6 months from initial site visit), another vole survey should be conducted to assure none have colonized the area. Project areas #2-#4 are outside of 100' from any potential vole habitat and do not pose a risk. American badger has a high potential of being found within the BAA north of the Mattole River where AGS habitat dominates. Habitat characteristics south of the Mattole River are ill suited for this species due to canopy closure, terrain ruggedness, and wetter conditions. The project does not pose a risk of impacting American badger present in the BAA.

The BAA contains potential roosting habitat for two bat species of special concern, long-eared myotis and pallid bat. The project only presents the potential for indirect impacts through project-generated noise because no trees or potential roosting structures will be removed. Long-eared myotis is the only bat species of special concern with a high probability to occur within property boundaries. Given the lack of rock outcroppings, maternal colonies are unlikely to occur within the BAA. Individual and small group roosts may potentially be present in the form of snag structures of both conifer and hardwood tree species. No snag features capable of providing roosts were observed during the site visit. Given that high quality

habitat is present outside of property boundaries and small roosting groups have low site fidelity, this project is unlikely to significantly impact long-eared myotis. Pallid bat has a moderate potential to be found roosting within the BAA. High quality oak woodland habitat is present north of the Mattole River but quality degrades as conifer species become more prominent in the canopy. The potential for pallid bats to be found roosting within property boundaries is unlikely, the project does not risk impacting this species.

4.4.7 Reptile/Amphibian Species of Special Concern

Implementation of best practicable treatment controls (BPTC) as outlined in the Site Management Plan (SMP) will reduce all risks of indirect impacts to amphibian species of special concern. Additional conformance with CDFW 1600 code and Humboldt County Stream Management Ordinance will prevent potential impacts to these species. The project area does not occur within terrestrial habitat for any reptiles or amphibians of special concern. Project Area #2 does contain western juncus marsh that may provide terrestrial habitat during the wet season to sierra tree frog, rough-skinned newt, and Oregon ensatina. These species are not amphibian species of special concern. Additionally, construction will occur during the dry season when these species will have likely dispersed to more mesic sites. Western pond turtles occur within the BAA along Elk Creek. No potential pond turtle habitat is present within property boundaries or 200' of project areas. This project has no potential of directly impacting reptile/amphibian species of special concern.

4.4.8 Invertebrate Species of Special Concern

AGS habitat within the BAA may provide potential habitat for western bumble bee (*bombus occidentalis*) and obscure bumble bee (*bombus caliginosus*). AGS habitat within the BAA is isolated from larger tracts of grassland reducing its quality. Additionally, the prevalence of nonnative species reduces the habitat quality present within the BAA. Hatfield and Leuhn (2007) found that meadow connectivity and variability/complexity was important in promoting bee abundance and richness. Daily activities associated with cannabis cultivation do not pose a risk to these species. Potential impacts to this species consist of the use of pesticides and conversion of habitat. 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. It is unknown what densities flowering forbs occur within nonnative grass communities present in property boundaries due to existing mowing and the season of the field visit. Potential impacts from loss of grassland may be mitigated through the use of companion plants given the relatively small amount of AGS to be developed. This project as proposed is not expected to significantly impact invertebrate species of special concern.

4.4.9 Invasive Species

Only one invasive plant species per the Humboldt County Weed Management Area list was identified. Himalayan blackberry (*rubus armeniacus*) is present in forest openings near the house and along the ephemeral watercourse that flows through the northern portion of the parcel. This species is known for invading and taking over natural habitats. Although this species is considered invasive, its role as a riparian species can be ecologically valuable. It is recommended the applicant maintain and prevent the blackberry community from getting any larger, possibly removing it from areas around the residence, but do not remove it from the ephemeral watercourse. Annual grassland habitat throughout the BAA is dominated by nonnative species but no invasive species per the Humboldt County Weed Management Area were identified. Section 55.4.12.16 of the CCLUO states: "*It is the responsibility of a certificate or permit holder to work to eradicate invasive species. As part of any application, the existences of invasive species on the project parcel need to be identified, including the type(s) of invasive plant species, where they are located, and a plan to control their spread.*" It is recommended the site operator familiarize themselves with the Invasive Weeds of Humboldt County 2nd Edition and continue to maintain an invasive weed free project. If identified any invasive species should be documented and eradicated.

Additionally, the site operator should utilize weed-free straw mulch, straw wattles, and other erosion control that may contain seed or plant matter from other areas.

5.0 Recommended Mitigation Measures

CCLUO Mitigation	Activity	Mitigation Type	Method	Season
3.4-3a & 3.4-4	Any Ground disturbance	Floristic Surveys	Per CDFW protocols.	April 1 – August 30
3.4-1f	Vegetation removal during breeding bird season (shrubs and forbs)	Nesting Bird Survey	Nest searching foot print of vegetation removal.	Mar 1 – July 31
3.4-1d	Ground disturbance during breeding bird season	Nesting Raptor Survey	Search for raptor nests within 300’ of project area	Mar 1 – July 31
3.4-1e	Heavy equipment use	NSO Protections	Prevent significant disturbance impacts as defined by USFWS (2006) through either avoidance or protocol surveys.	Mar 1 – July 31
3.4-11	Ground disturbance at Project Area #1 after Sept 5, 2020	Sonoma Tree Vole Survey	Search all potential habitat within 100’ for potential vole nests	Any time of year
3.4-3b	Commercial cannabis cultivation	Invasive Plant Species	Educate and remain vigilant for invasive plant species. Remove if identified within property boundaries.	Any time of year

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Appendixes

Appendix 1 - General Location Map

USGS Topographic Map

APN 107-103-015

APN 107-103-014

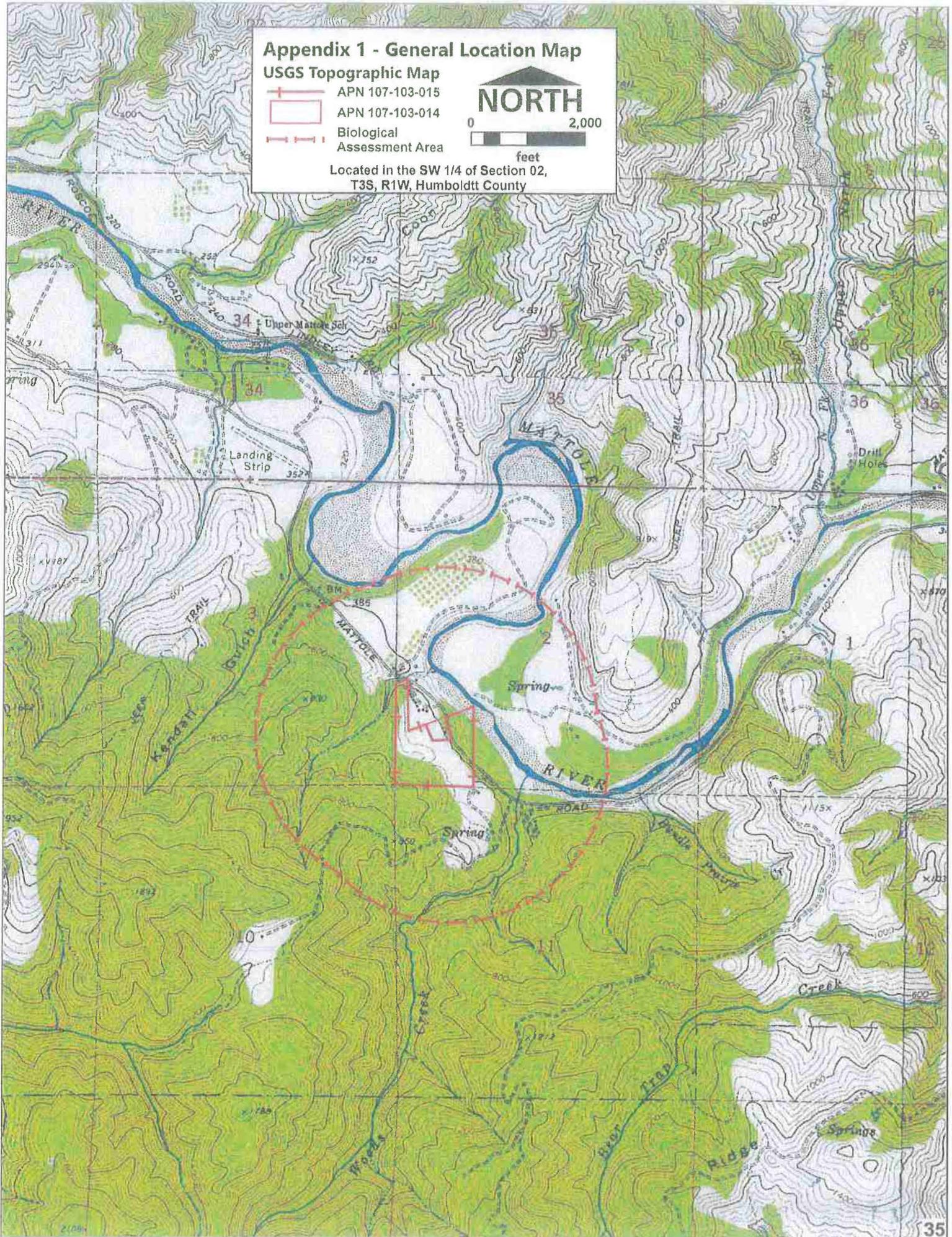
Biological Assessment Area



0 2,000

feet

Located in the SW 1/4 of Section 02,
T3S, R1W, Humboldt County



Appendix 2 – Site Photographs



Photo #1: Aerial photograph of Project Area #1. This area contains pre-existing cultivation and may potentially be expanded. No trees will be removed if expansion is proposed. An ephemeral watercourse flows through the vegetated area above the fenced area in this picture. Cultivation will be set back minimum 50'. Photo date: 01/03/2020.

Appendix 2 – Site Photographs



Photo #2: Aerial photograph of project areas #2-#4. These are the locations where new cultivation will be proposed. All cultivation will observe setbacks from property lines, watercourses, and wetlands. Photo date: 01/03/2020.

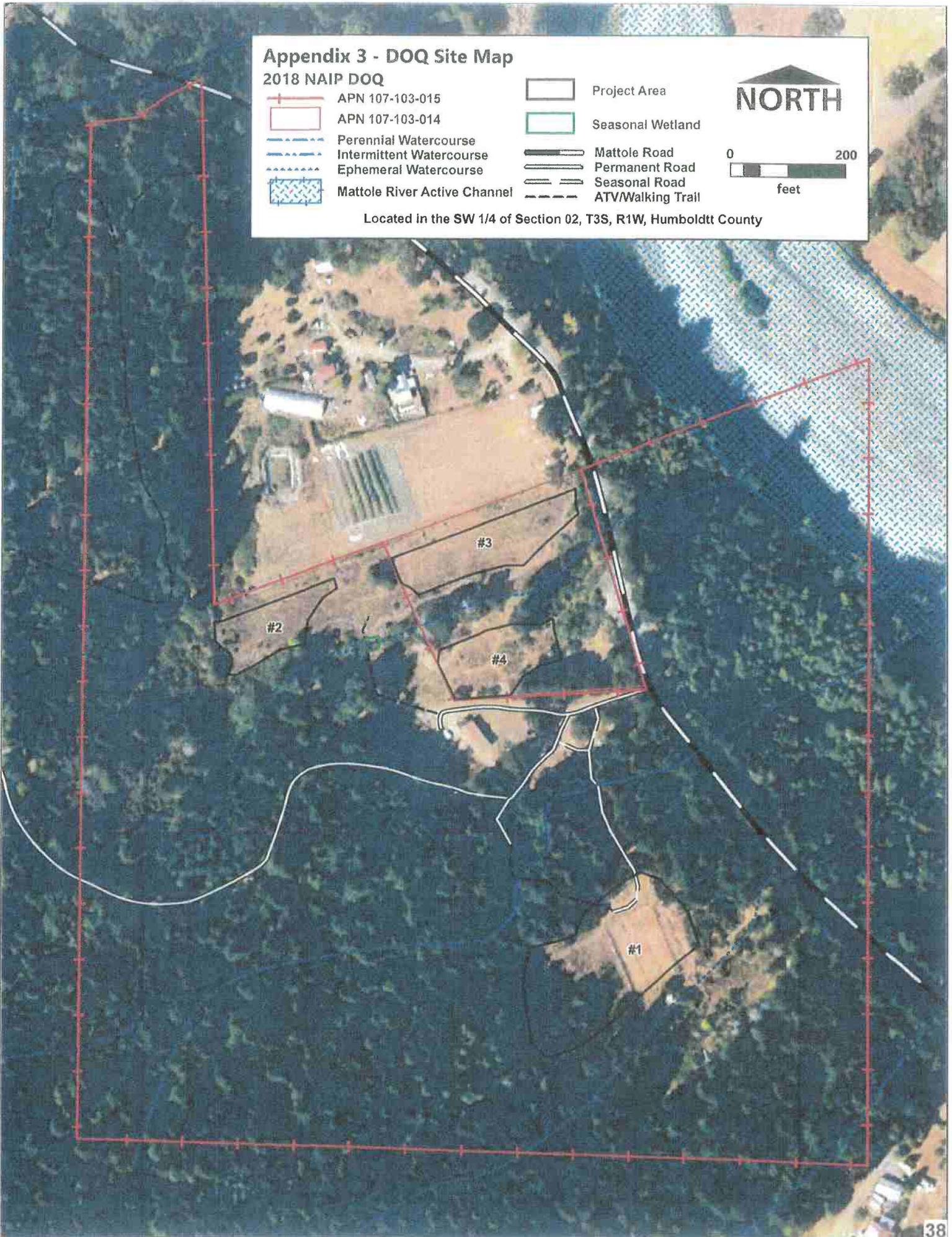
Appendix 3 - DOQ Site Map
2018 NAIP DOQ

-  APN 107-103-015
-  APN 107-103-014
-  Perennial Watercourse
-  Intermittent Watercourse
-  Ephemeral Watercourse
-  Mattole River Active Channel

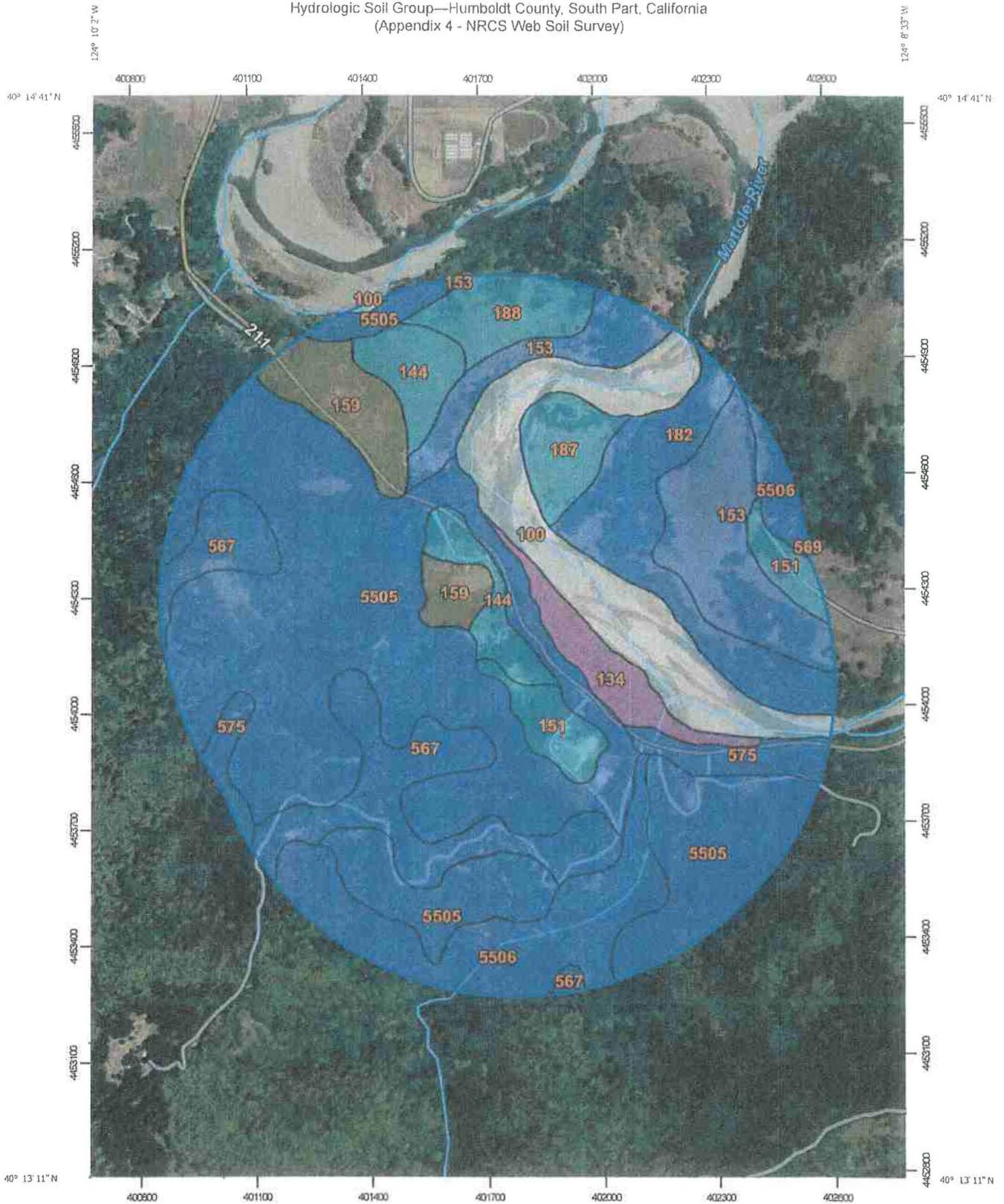
-  Project Area
-  Seasonal Wetland
-  Mattole Road
-  Permanent Road
-  Seasonal Road
-  ATV/Walking Trail



Located in the SW 1/4 of Section 02, T3S, R1W, Humboldt County



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



Map Scale: 1:13,600 if printed on A portrait (8.5" x 11") sheet.



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



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

MAP LEGEND

- Area of Interest (AOI)**
- Area of Interest (AOI)
- Soils**
- Soil Rating Polygons**
- A
 - A/D
 - B
 - B/D
 - C
 - C/D
 - D
 - Not rated or not available
- Soil Rating Lines**
- A
 - A/D
 - B
 - B/D
 - C
 - C/D
 - D
 - Not rated or not available
- Soil Rating Points**
- A
 - A/D
 - B
 - B/D
- Soils**
- C
 - C/D
 - D
 - Not rated or not available
- 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.

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 8, Sep 17, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—Nov 6, 2017

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

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

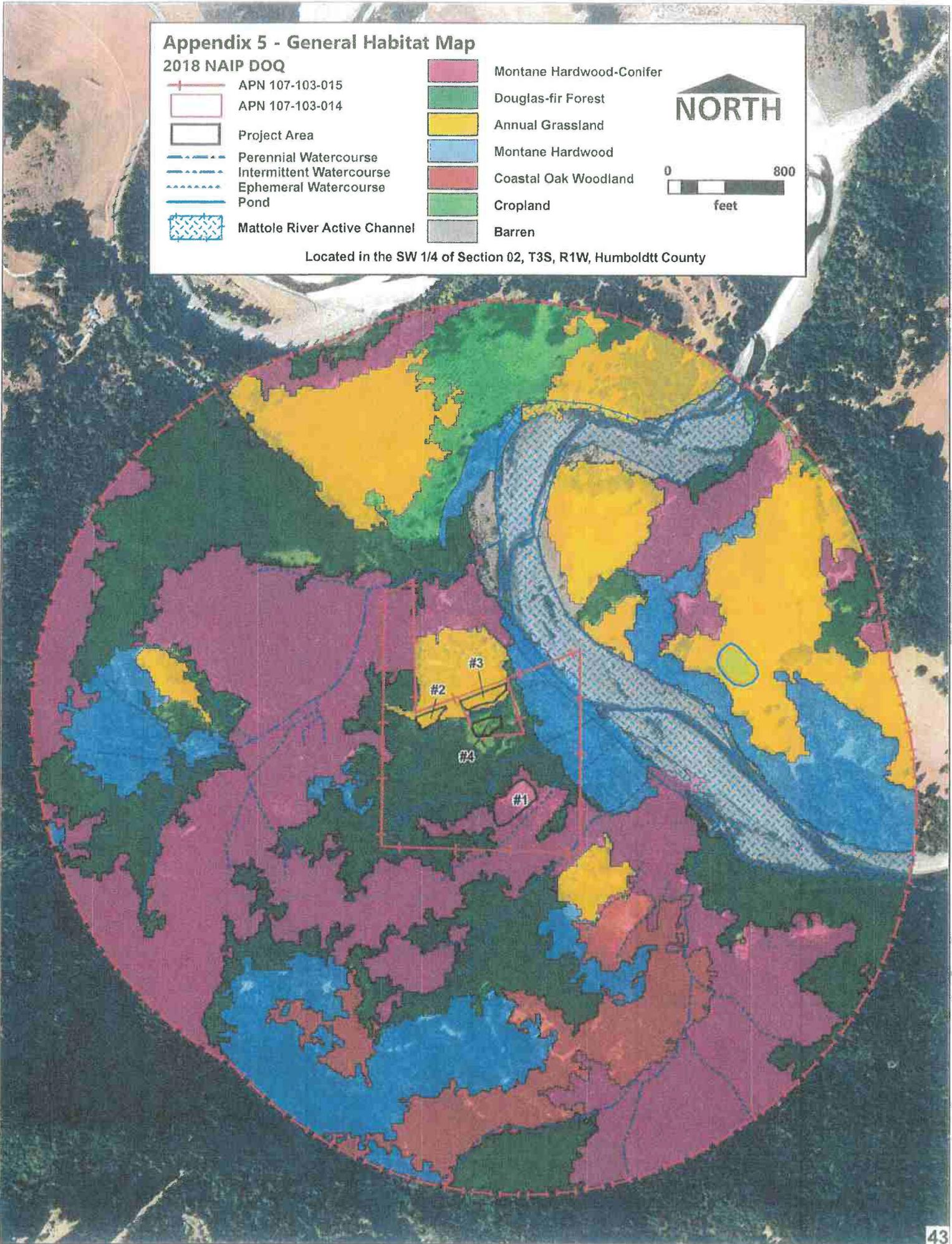
Appendix 5 - General Habitat Map
2018 NAIP DOQ

	APN 107-103-015		Montane Hardwood-Conifer
	APN 107-103-014		Douglas-fir Forest
	Project Area		Annual Grassland
	Perennial Watercourse		Montane Hardwood
	Intermittent Watercourse		Coastal Oak Woodland
	Ephemeral Watercourse		Cropland
	Pond		Barren
	Mattole River Active Channel		


NORTH

 0 800
 feet

Located in the SW 1/4 of Section 02, T3S, R1W, Humboldt County

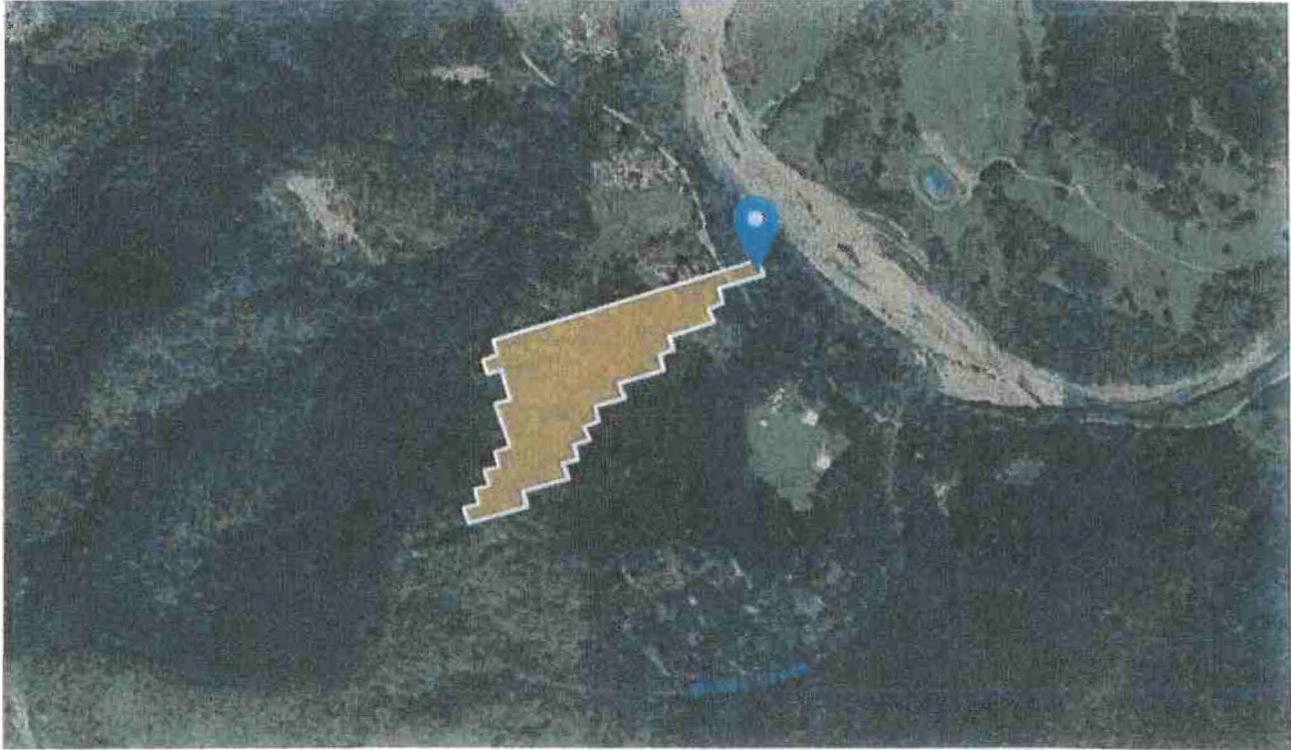


Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
100	Water and Fluvents, 0 to 2 percent slopes		60.4	9.6%
134	Fluvents, 0 to 2 percent slopes, occasionally flooded	A	15.2	2.4%
144	Garberville-Parkland complex, 0 to 2 percent slopes	C	23.9	3.8%
151	Parkland-Garberville complex, 2 to 9 percent slopes	C	16.7	2.6%
153	Conklin, 0 to 2 percent slopes	B	53.3	8.4%
159	Grannycreek-Parkland complex, 2 to 5 percent slopes	C/D	26.2	4.1%
182	Gschwend-Frenchman complex, 0 to 9 percent slopes	B	40.6	6.4%
187	Pepperwood-Shivelyflat complex, 0 to 2 percent slopes	C	14.2	2.2%
188	Johnnyjack, 0 to 2 percent slopes	C	17.3	2.7%
567	Crazycoyote-Sproulish-Caperidge complex, 15 to 50 percent slopes	B	53.2	8.4%
569	Crazycoyote-Windynip-Caperidge complex, 15 to 50 percent slopes	C	0.0	0.0%
575	Canocreek-Sproulish-Redwohly complex, 50 to 75 percent slopes, warm	B	15.7	2.5%
5505	Crazycoyote-Sproulish-Canocreek complex, 30 to 50 percent slopes	B	242.0	38.3%
5506	Crazycoyote-Sproulish-Canocreek complex, 50 to 75 percent slopes	B	53.5	8.5%
Totals for Area of Interest			632.1	100.0%

Appendix 6 - StreamStats Report

Region ID: CA
 Workspace ID: CA20200228153149375000
 Clicked Point (Latitude, Longitude): 40.23245, -124.15355
 Time: 2020-02-28 07:32:08 -0800



Streamstats Report for unnamed intermittent watercourse that flows through the project parcel.

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0	square miles
PRECIP	Mean Annual Precipitation	77.2	inches
BASINPERIM	Perimeter of the drainage basin as defined in SIR 2004-5262	1.3	miles
BSLDEM30M	Mean basin slope computed from 30 m DEM	27.3	percent

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

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

Statistic	Value	Unit
2 Year Peak Flood	0	ft ³ /s
5 Year Peak Flood	0	ft ³ /s
10 Year Peak Flood	0	ft ³ /s
25 Year Peak Flood	0	ft ³ /s
50 Year Peak Flood	0	ft ³ /s
100 Year Peak Flood	0	ft ³ /s
200 Year Peak Flood	0	ft ³ /s
500 Year Peak Flood	0	ft ³ /s

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/>)

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Application Version: 4.3.11

Parameter Code	Parameter Description	Value	Unit
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	-2340501.8	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	2262102.2	meters
EL6000	Percent of area above 6000 ft	0	percent
ELEV	Mean Basin Elevation	610	feet
ELEVMAX	Maximum basin elevation	937	feet
FOREST	Percentage of area covered by forest	85.3	percent
JANMAXTMP	Mean Maximum January Temperature	52.7	degrees F
JANMINTMP	Mean Minimum January Temperature	37.06	degrees F
LAKEAREA	Percentage of Lakes and Ponds	0	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	3.8	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	0.1	percent
LFPLENGTH	Length of longest flow path	0	miles
MINBELEV	Minimum basin elevation	327	feet
OUTLETELEV	Elevation of the stream outlet in thousands of feet above NAVD88.	327	feet
RELIEF	Maximum - minimum elevation	610	feet
RELRELF	Basin relief divided by basin perimeter	468	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	square miles	0.04	3200
PRECIP	Mean Annual Precipitation	77.2	inches	20	125

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

Appendix 7 - CNDDDB Occurrence Map

2018 NAIP DOQ

APN 107-103-015

APN 107-103-014

Perennial Watercourse

Intermittent Watercourse

Ephemeral Watercourse

Pond



Project Area



Biological Assessment Area



CNDDDB Element Occurrence

NORTH



Located in the SW 1/4 of Section 02, T3S, R1W, Humboldt County

Oncorhynchus mykiss irideus pop. 36



Usnea longissima

Appendix 8 - NSO Habitat Map

2018 NAIP DOQ

APN 107-103-015

APN 107-103-014

Project Area

NSO Assessment Area



Nest/Roost Habitat

Forage Habitat

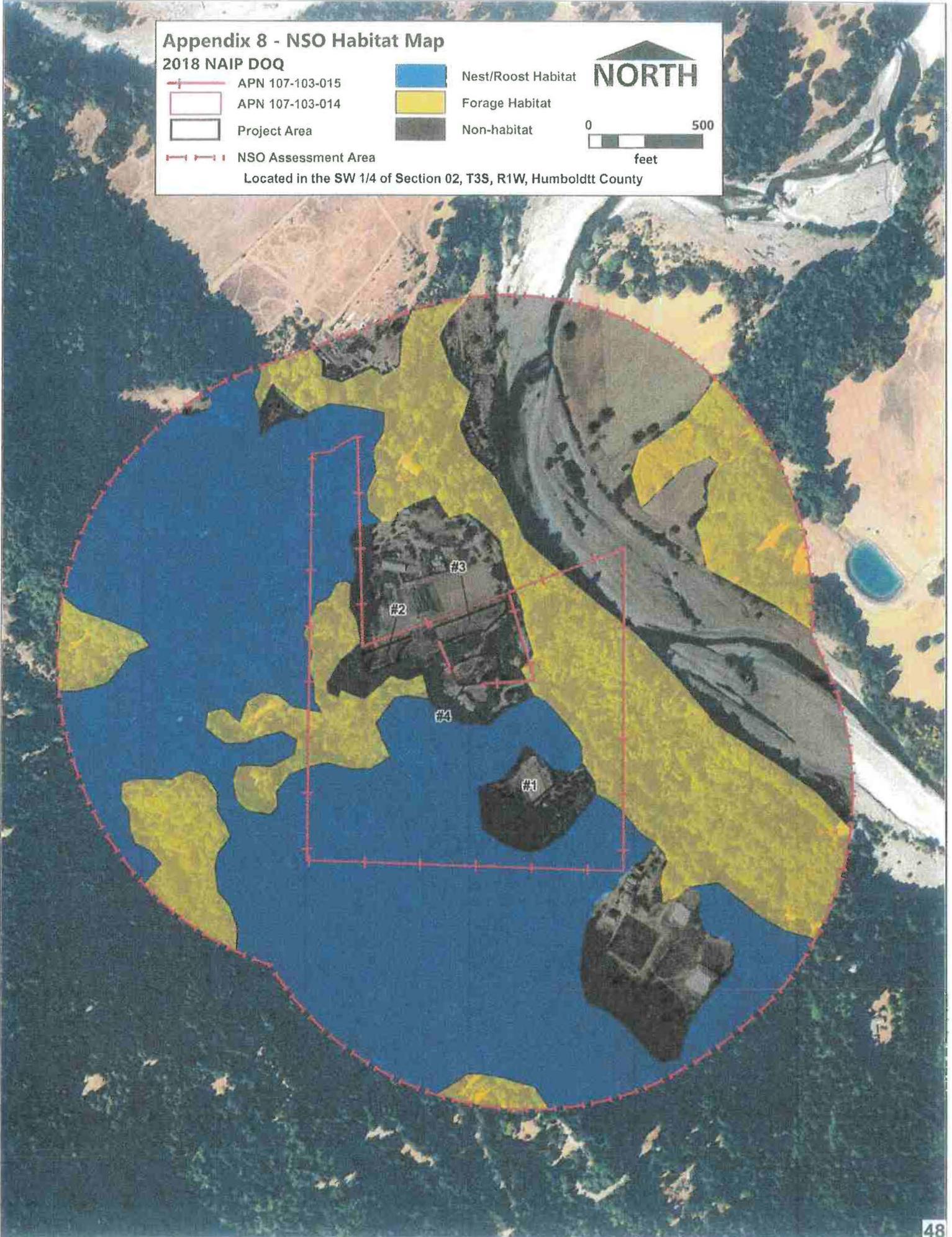
Non-habitat



0 500

feet

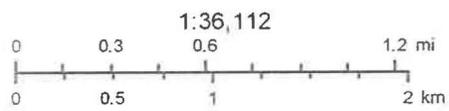
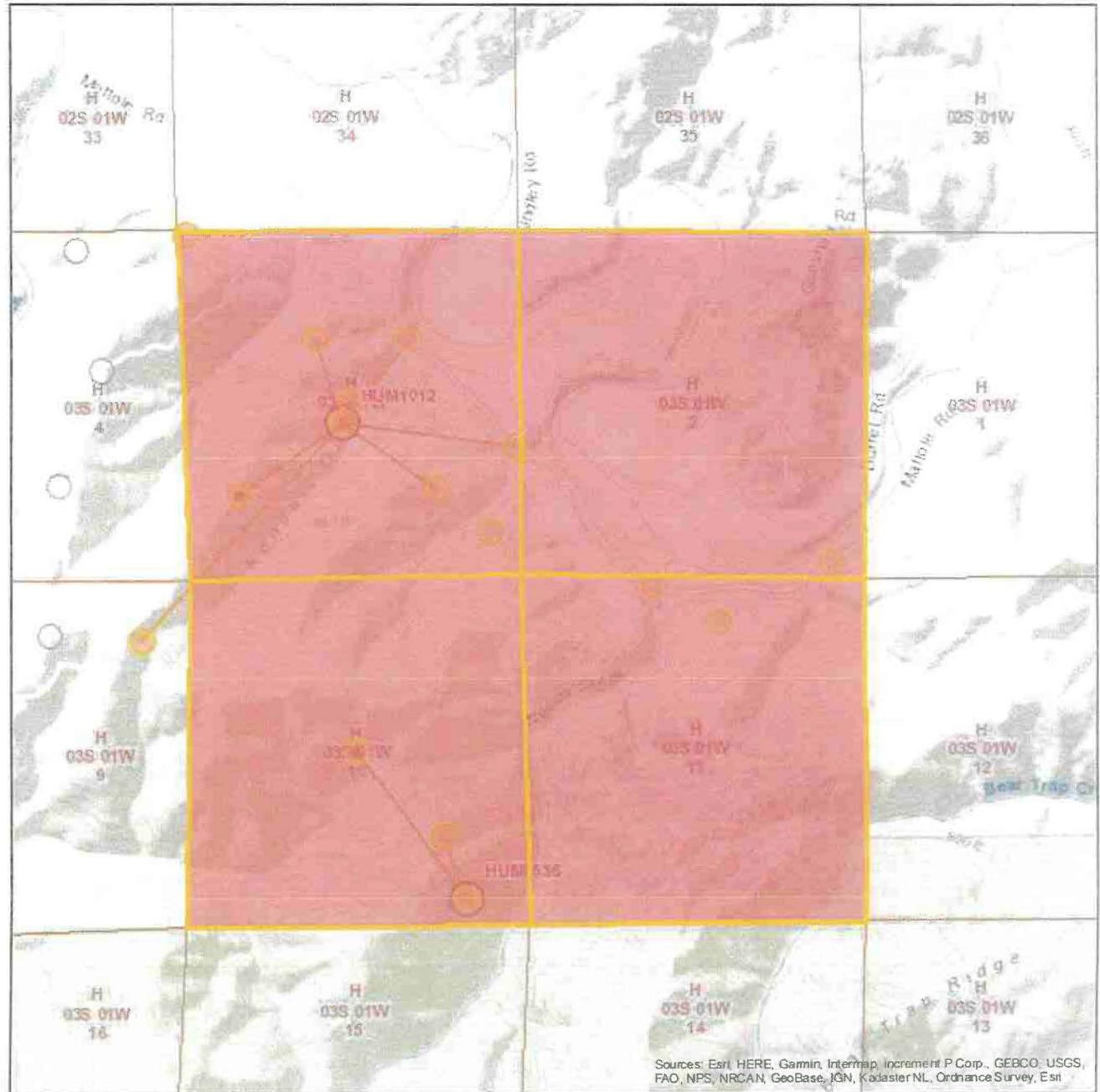
Located in the SW 1/4 of Section 02, T3S, R1W, Humboldt County



NSO Database Map

Spotted Owl Observations [ds704]

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



May 27, 2020

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

Author: jhenry@tberlandresource.com
 Printed from <http://bios.dfg.ca.gov>

Data Version Date:
04/28/2020
Report Generation Date:
5/27/2020

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



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

H_03S_01W Sections(02,03,10,11);

<i>Masterowl</i>	<i>Subspecies</i>	<i>LatDD NAD83</i>	<i>LonDD NAD83</i>	<i>MTRS</i>	<i>AC Coordinate Source</i>
HUM0536	NORTHERN	40.216709	-124.160835	H 03S 01W 10	Contributor
HUM1012	NORTHERN	40.236713	-124.167654	H 03S 01W 03	Contributor

Data Version Date:
04/28/2020

Report Generation Date:
5/27/2020

Report #2 - Observations Reported
List of observations reported by site.



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

H_03S_01W Sections(02,03,10,11);

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
NEG	2005-04-28	2048- 2058	0					40.235750	-124.158110	H 03S 01W 03	Contributor
NEG	2005-04-28	2233- 2243	0					40.240180	-124.163950	H 03S 01W 03	Contributor
NEG	2005-05-12	2114- 2124	0					40.240180	-124.163950	H 03S 01W 03	Contributor
NEG	2005-05-12	2127- 2137	0					40.235750	-124.158110	H 03S 01W 03	Contributor
NEG	2005-05-12	2114	0					40.237609	-124.167176	H 03S 01W 03	Section centri
NEG	2005-05-27	2108- 2118	0					40.240180	-124.163950	H 03S 01W 03	Contributor
NEG	2005-05-27	2108	0					40.237609	-124.167176	H 03S 01W 03	Section centri
NEG	2005-05-27	2054- 2104	0					40.235750	-124.158110	H 03S 01W 03	Contributor
NEG	2006-03-19	2030- 2040	0					40.240180	-124.163950	H 03S 01W 03	Contributor
NEG	2006-03-19	2043- 2053	0					40.235750	-124.158110	H 03S 01W 03	Contributor
NEG	2006-04-23	2122- 2132	0					40.240180	-124.163950	H 03S 01W 03	Contributor
NEG	2006-04-23	2109- 2119	0					40.235750	-124.158110	H 03S 01W 03	Contributor
NEG	2006-05-27	2054- 2104	0					40.240180	-124.163950	H 03S 01W 03	Contributor
NEG	2006-05-27	2106- 2116	0					40.235750	-124.158110	H 03S 01W 03	Contributor
NEG	2014	2400	0					40.240193	-124.169124	H 03S 01W 03	Contributor
NEG	2014	2400	0					40.227625	-124.178636	H 03S 01W 09	Contributor
NEG	2014-03-28	1900- 1910	0					40.233681	-124.173307	H 03S 01W 03	Contributor

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
NEG	2014-05-14	2007- 2017	0					40.233681	-124.173307	H 03S 01W 03	Contributor
NEG	2014-06-06	2013- 2023	0					40.233681	-124.173307	H 03S 01W 03	Contributor
POS	2014-06-19	2032	1	UM				40.233681	-124.173307	H 03S 01W 03	Contributor
NEG	2014-07-30	2013- 2023	0					40.233681	-124.173307	H 03S 01W 03	Contributor
NEG	2014-08-14	2000- 2010	0					40.233681	-124.173307	H 03S 01W 03	Contributor
NEG	2015	2400	0					40.240193	-124.169124	H 03S 01W 03	Contributor
NEG	2015	2400	0					40.233681	-124.173307	H 03S 01W 03	Contributor
NEG	2015	2400	0					40.227625	-124.178636	H 03S 01W 09	Contributor
NEG	2016	2400	0					40.233681	-124.173307	H 03S 01W 03	Contributor
NEG	2016	2400	0					40.227625	-124.178636	H 03S 01W 09	Contributor
NEG	2016	2400	0					40.240193	-124.169124	H 03S 01W 03	Contributor
NEG	2017	2400	0					40.227625	-124.178636	H 03S 01W 09	Contributor
NEG	2017	2400	0					40.233681	-124.173307	H 03S 01W 03	Contributor
NEG	2017	2400	0					40.240193	-124.169124	H 03S 01W 03	Contributor
Additional surveys within the search area with no Spotted Owls detected											
NEG	2004	2400	0					40.229900	-124.150560	H 03S 01W 11	Contributor
NEG	2004	2400	0					40.228380	-124.147000	H 03S 01W 11	Contributor

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
NEG	2006-03-19	2016- 2026	0					40.229900	-124.150560	H 03S 01W 11	Contributor
NEG	2006-04-23	2033- 2043	0					40.229900	-124.150560	H 03S 01W 11	Contributor
NEG	2006-04-23	2021- 2031	0					40.228380	-124.147000	H 03S 01W 11	Contributor
NEG	2006-04-23	2050- 2100	0					40.232160	-124.159550	H 03S 01W 03	Contributor
NEG	2006-04-23	2006- 2016	0					40.230850	-124.140800	H 03S 01W 02	Contributor
NEG	2006-05-27	2119- 2129	0					40.229900	-124.150560	H 03S 01W 11	Contributor
NEG	2006-05-27	2035- 2045	0					40.232160	-124.159550	H 03S 01W 03	Contributor
NEG	2006-05-27	2147- 2157	0					40.230850	-124.140800	H 03S 01W 02	Contributor
NEG	2006-05-27	2134- 2144	0					40.228380	-124.147000	H 03S 01W 11	Contributor
NEG	2014	2400	0					40.244590	-124.176190	H 03S 01W 03	Contributor
NEG	2015	2400	0					40.244590	-124.176190	H 03S 01W 03	Contributor
NEG	2016	2400	0					40.244590	-124.176190	H 03S 01W 03	Contributor
NEG	2017	2400	0					40.244590	-124.176190	H 03S 01W 03	Contributor