

CONFIDENTIAL

Biological Resource Assessment Report for APN 217-271-005



March 2020
Prepared For:
Big Rock Farms, Inc.

CONFIDENTIAL

Prepared By:



TransTerra Consulting

INTEGRATED ENVIRONMENTAL SERVICES

TABLE OF CONTENTS

Introduction.....	3
Environmental Setting.....	3
Project Location	3
Methods	8
Results and Discussion.....	9
Existing Conditions	9
Vegetation.....	9
Invasive Species	10
Wetlands and SMA areas	13
Additional Laws and Policies.....	15
Northern Spotted Owl.....	15
CNDDDB and other Database Results.....	15
Potential Direct and Indirect Impacts.....	16
Recommendations.....	17
Site Photographs.....	28
References	30
APPENDIX A-QUALIFICATIONS.....	31

LIST OF FIGURES

Figure 1. Soil series results from Web Soil Survey with estimated parcel boundaries	5
Figure 2. Project Location. Map created using ArcMap 10.6.....	6
Figure 3. Proposed Project Map (created Green Road Consulting).....	7
Figure 4. Streamside Management Areas (SMA), National Wetland Inventory (NWI) wetlands, and watersheds mapped in and adjacent to the project site. (More detailed hydrology of the parcel is map in figure 3 by Green Road Consulting).....	8
Figure 6. CNDDDB search results of observed rare plant and sensitive animal occurrences within five miles of property	18
Figure 7. Northern Spotted Owls database entries within 5 miles of property.	19

LIST OF TABLES

Table 1. CNDDDB nine-quad database results for the Blocksburg 7.5' quadrangle (species listed in CNDDDB results; C=Candidate Species, E=Endangered, T=Threatened, D=Delisted, N=None).	20
Table 2. CNPS nine-quad database results for the Blocksburg 7.5' quadrangle. (plants listed in CNPS results; C=Candidate Species, E=Endangered, T=Threatened, D=Delisted, N=None).	23
Table 3. Observed Species on site.	26

Introduction

This Biological Resource Assessment was prepared to provide data concerning the type and extent of biological resources under the jurisdiction of the California Department of Fish and Wildlife (CDFW) and US Fish and Wildlife Service (USFWS) that are currently or potentially present at the project location. The project includes commercial cannabis cultivation and associated activities. If required after agency review of the preliminary habitat assessment, protocol level surveys will be completed per recommendations by the Final Environmental Impact Report (FEIR) amendments to the Humboldt County Code Regulating Commercial Cannabis Activities.¹

Environmental Setting

Project Location

The property is located off of Alderpoint Road in Blocksburg of Humboldt County, California (Section 20, T2S, R5E). The project area is located on a 46.44-acre parcel within the U.S. Geological Survey's (USGS) Blocksburg 7.5-minute quadrangle map. Elevation is approximately 1680-1760 feet above sea level with a majority of the project area at slopes of 15 to 30 percent. The property is located in the Lower Eel Watershed. The parcel is zoned as Unclassified with a General Plan listing of Agricultural Grazing, Rural Community Center, and Timberland. The regional climate is Mediterranean in nature with warm summers and cool winters.

The proposed project involves permitting of a commercial Cannabis cultivation facility. There are existing structures, roads, graded flats and other infrastructure. This BRA is designed to determine the potential extent of special habitats and determine whether protocol-level special-status species surveys are necessary prior to development. There are no special-status species known or observed on the site.

Soil, Topography, Hydrology

Three (3) main soil types are mapped throughout the parcel on the Web Soil Survey.² The project area is primarily composed of two (2) soil types: Coolyork-Yorknorth complex, 5 to 30 percent slopes (671) and Burgsblock-Coolyork-Tannin complex, 15 to 30 percent slopes (451). These series are not considered hydric and consist of very deep, moderately to well drained soils formed in residuum, colluvium, and weathered material derived from mixed sources such as sandstone and mudstone.

The Coolyork series consists of very deep, moderately well drained soils formed in residuum and colluvium derived from chloritic schist, mudstone and sandstone. Coolyork soils are on mountains and slopes range from 5 to 75 percent. The mean annual precipitation is about 1500 mm and the mean annual air temperature is about 13 degrees C. Coolyork soils have mollic epipedons and contain more

¹ Final Environmental Impact Report: Amendments to the Humboldt County Code Regulating Commercial Cannabis Activities. January 2018. Prepared by Ascent Environmental. (Accessed via <https://humboldt.gov.org/DocumentCenter/View/62689/Humboldt-County-Cannabis-Program-Final-EIR-60mb-PDF>)

² Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. (Accessed via <https://websoilsurvey.sc.egov.usda.gov/>.)

than 35 percent clay in the particle size control section. These soils occur on linear to concave positions on backslopes.

The Yorknorth series consists of very deep, moderately well drained soils that formed in material weathered from chloritic schist and other sedimentary and metamorphic rocks. Yorknorth soils are on hills and mountains and have concave to linear slopes of 2 to 50 percent. The mean annual precipitation is about 1650 mm and the mean annual temperature is about 14 degrees C.

The Burgsblock series consists of very deep, well drained soils that formed in colluvium and residuum derived from sandstone and mudstone. Burgsblock soils contain more than 35 percent coarse fragments in the control section and are on linear to convex mountain slopes. Burgsblock soils are on mountains and have slopes of 15 to 75 percent. These soils occur on slightly to strongly convex positions.

The Tannin series consists of very deep, well drained soils formed in colluvium and residuum derived from sandstone and mudstone. Tannin soils are on mountains. Slope ranges from 9 to 75 percent. Mean annual precipitation is about 2160 mm and the mean annual temperature is about 13 degrees C. These soils contain less than 35 percent rock fragments and are found on linear to slightly concave or convex positions on summits, shoulders and backslopes on mountain slopes.



Figure 1. Soil series results from Web Soil Survey with estimated parcel boundaries.

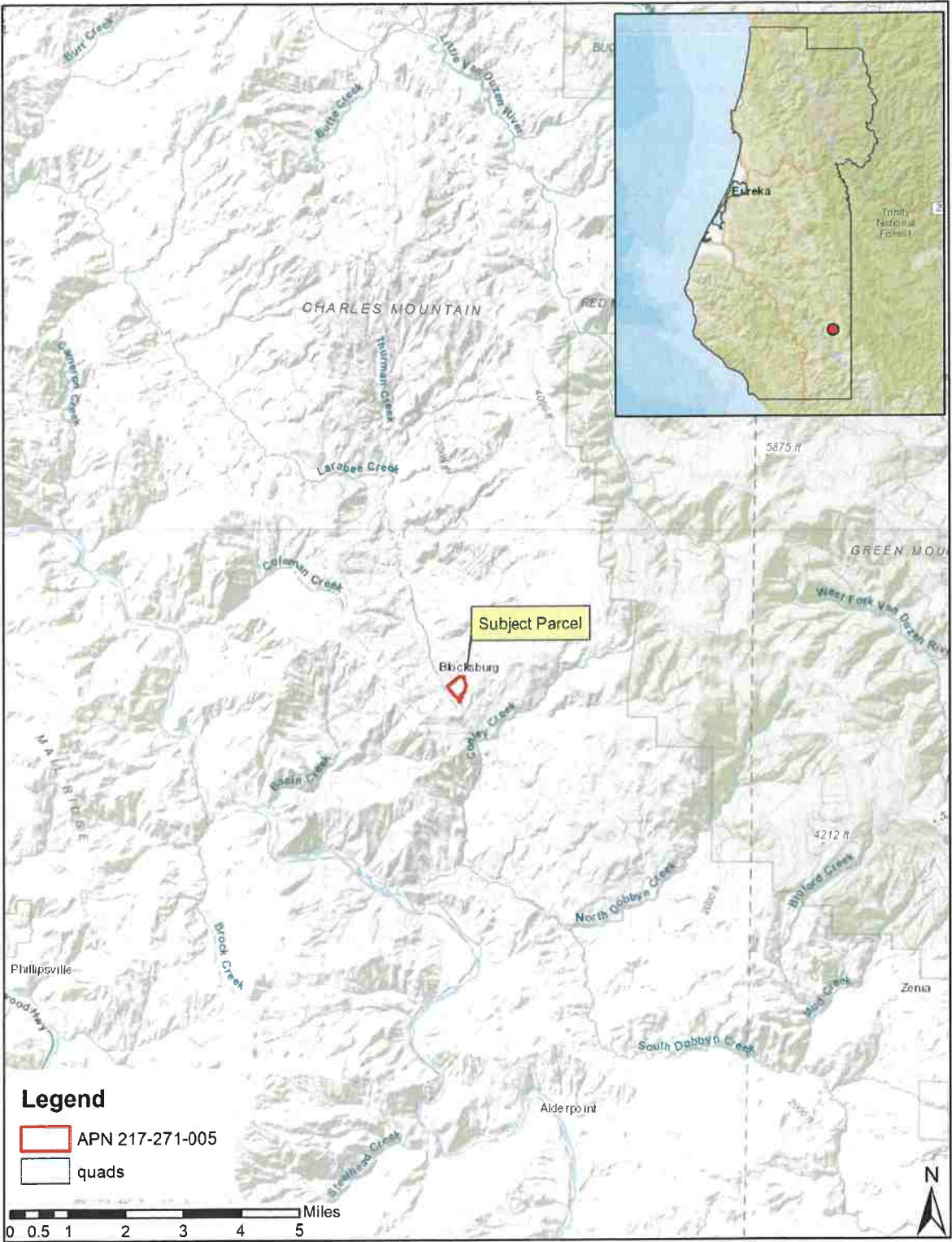


Figure 2. Project Location. Map created using ArcMap 10.6.

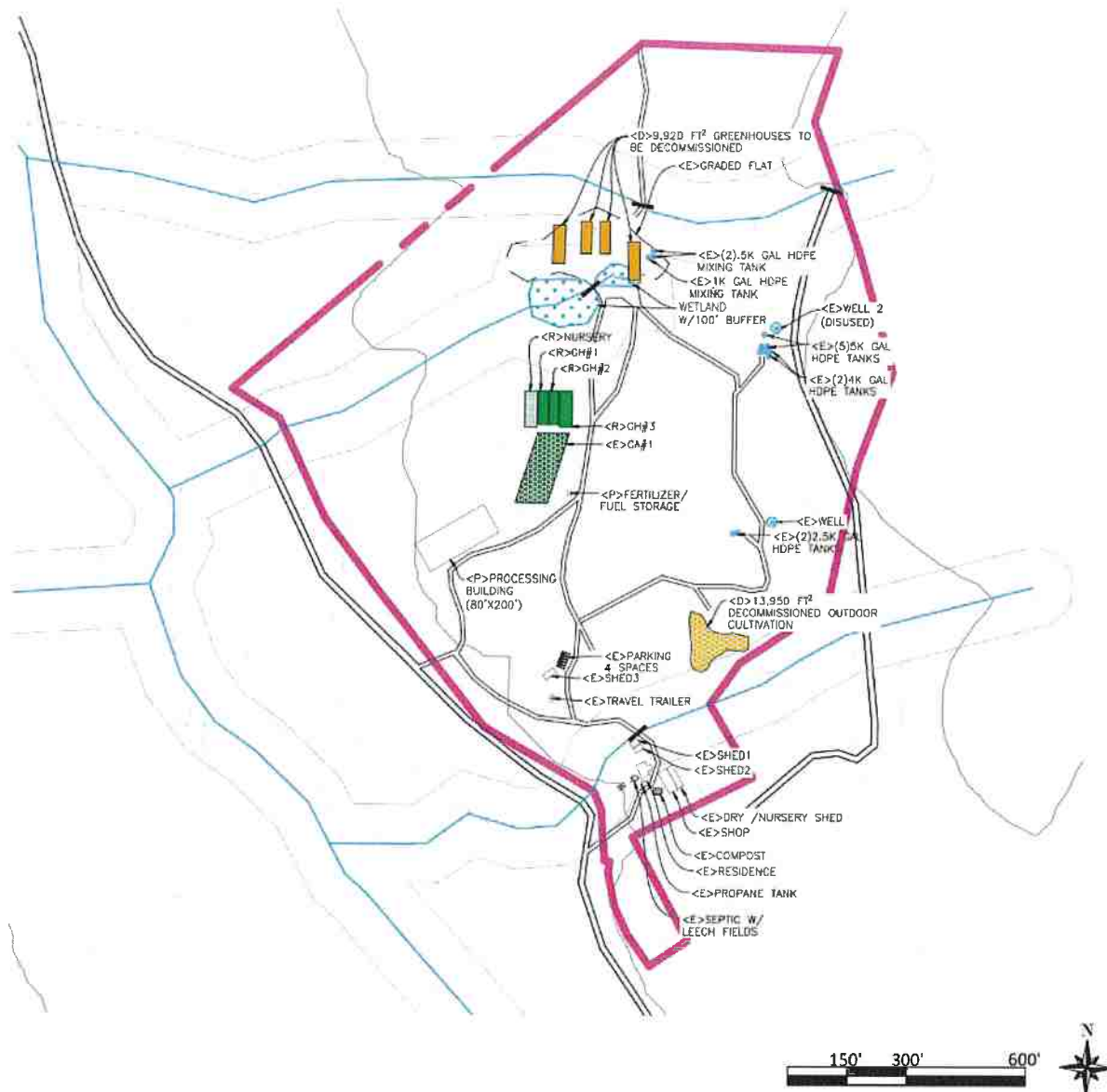


Figure 3. Proposed Project Map (created Green Road Consulting).

The property is situated in the Upper Larabee Creek Watershed which is located within the Lower Eel Watershed. The Humboldt GIS layers show no Streamside Management Areas within the parcel. The Streamside Management Area of the Larabee Creek lies approximately 600 feet to the southwest of the parcel boundary. The NWI and Humboldt GIS layers show riparian wetlands following adjacent to the creek. The Humboldt GIS and NWI layers may not capture the full, accurate scope of waterways in the area. Green Road Consulting mapped a complete hydrology of the site as seen in Figure 3. **TransTerra staff did not survey or map streams and wetlands.**

The project area is mapped as possessing high instability and very high fire severity. An unnamed fault lies approximately 1.15 miles to the southeast of the parcel. Historic landslides, potential liquefaction, and other hazards are not mapped in or adjacent to the parcel on the Humboldt GIS database.



Figure 4. Streamside Management Areas (SMA), National Wetland Inventory (NWI) wetlands, and watersheds mapped in and adjacent to the project site³. (More detailed hydrology of the parcel is map in figure 3 by Green Road Consulting).

Methods

The study area is dictated by the proposed project description at the time of visit, as well as, the areas which pose potential direct, indirect, and cumulative effects (Figure 5). The study area was assessed utilizing the best available information for the site. Maps created by Green Road Consulting were used to determine the areas of effect including areas of cultivation, hydrological alterations, and future development.

The California Natural Diversity Database (CNDDB) RareFind and Spotted Owl Database, and California Native Plant Society (CNPS) databases were used to assess potential rare species. A habitat assessment

³ Humboldt County GIS layer. (Accessed via: <http://webgis.co.humboldt.ca.us/HCEGIS2.0/>)

was conducted by TransTerra Consulting Biologists Megan Nibbelink and Margaux Karp on January 17, 2020. The assessment evaluated listed species and species of special concern (SOC). The study area was scanned for wildlife sign including tracks, scat, tree habitat (cavities, nests scrapes or accumulated vegetation) as well as special habitat types and habitats associated with rare plant species. **The observations were concentrated around the cultivation site, road and watercourses.** The CNDDDB 9-Quad area was queried to generate occurrences of special-status animal species.

The assessment was conducted due to mandatory requirements for cannabis permitting, however the timing of the field visit did not coincide with ideal survey seasons based on phenology and life history cycles for all potential species. **Full floristic surveys and/or protocol-level surveys were not conducted in the project area.** Based on the timing of the survey, all plant species growing within the study area may not have been observed due to varying flowering phenologies and life forms, such as bulbs, biennials, and annuals. Other potentially dominant species within vegetation communities on site may be present during other times of the year. Therefore, the present study is not floristic in nature. Some of the plant species identified in this report are tentative due to the absence of morphological characters, resulting from immature reproductive structures or seasonal desiccation, which is required to make species-level determinations. Species-specific surveys will be conducted as appropriate and are further discussed below.

Results and Discussion

Existing Conditions

The proposed project does not involve further alteration of hydrological regimes such as stream crossings or ponding. Past clearing is evident as well as past use for cannabis. The baseline environment for the project is considered to be the state of the site at the time of assessment. There are currently four stream crossing culverts located throughout the parcel. There are two wells on site with multiple storage tanks as well as a septic tank with leech fields near the residence. The proposed power sources consist of PG&E, solar, and generators. Prior greenhouses have been decommissioned and proposed to move to an alternate space on the property. Slight grading in proposed relocation greenhouse site may be needed in order to level out the area. See Project Map above for additional details.

Vegetation

The project area is generally Cismontane Woodland and scrub with clearings dominated by pasture grasses and forbs. The forested areas are dominated by *Pseudotsuga menziesii* (Douglas fir), *Umbellularia californica* (California Bay), *Abies grandis* (Grand fir), *Arbutus menziesii* (Pacific Madrone), and *Quercus kelloggii* (California Black Oak). The forested areas were had a variable canopy and understory but were primarily open with shrub layer including *Ceanothus velutinus* (Tobacco brush), *Ceanothus integerrimus* (Deer Bush), *Rubus armeniacus* (Himalayan blackberry), and *Notholithocarpus densiflorus* (Tanoak). Openings are a mixture of native and non-native grasses and forbs including *Juncus sp.* (Rush), *Plantago major* (Common plantain), *Hordeum vulgare* (Cereal barley), *Scirpus microcarpus* (Small fruited bulrush), *Vicia sp.* (Vetch), *Galium aparine* (Goose grass), and *Fragaria vesca* (wood strawberry). See Table 3 for full list of species observed.

Invasive Species

Per the Board of Supervisors, County of Humboldt, Ordinance 2599 regarding Commercial Cannabis Cultivation "55.4.12.16 Invasive Species Control It is the responsibility of a certificate or permit holder to work to eradicate invasive species. As part of any application, the existence 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. All invasive plant species shall be removed from the cultivation site and associated infrastructure using measures appropriate to the species. Removal shall be confirmed during subsequent annual inspection. Corrective action may be required if invasive species are found to have returned."

The California Invasive Plant Council (Cal-IPC) is the most current and comprehensive database of invasive plants in California and will be used to define and list the plants considered "invasive" in the project area. Plants are rated as Watch, Limited, Moderate and High.⁴

- High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
- Moderate – These species have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
- Limited – These species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.
- Alert – An Alert is listed on species with High or Moderate impacts that have limited distribution in California but may have the potential to spread much further.
- Watch – These species have been assessed as posing a high risk of becoming invasive in the future in California.

Preventing invasive species from becoming established can be more effective than restoring an injured ecosystem. Controlling established invasive species is difficult, and complete eradication is extremely difficult. Prevention can avoid the potentially permanent species losses that may result from a pest invasion.

Natural pathways for the introduction and dispersal of pests include wind, water or animals. Areas disturbed by both natural and human causes (roadsides, trails, log landings, energy transmission rights-of-way and construction zones) are particularly susceptible to invasion and should be targeted for prevention efforts (monitoring, equipment washing), as these are likely sources of seed or propagules

⁴ California Invasive Plant Council Inventory (Accessed via <https://www.cal-ipc.org/plants/inventory/>)

for the translocation of invasive species. Motorized and non-motorized transportation devices (including ATVs and bicycles) transport seeds of invasive plants.

Invasive species identified on-site are subject to mitigation measures and subsequent annual inspections to ensure compliance. Himalayan blackberry was the only species identified as invasive on-site. It is generally considered a naturalized species and is present throughout Humboldt County and difficult to eradicate. As the survey was conducted outside of the blooming window for most species and protocol level surveys were not conducted, additional species may be present in and around the project area. The following methods are provided as general best management practices to address the control of invasive species.

For all invasive species control, care must be taken to protect water quality and other natural resources. Prior to using any control measure in and around wetland and watercourses, consult with agency personnel or qualified professionals to ensure the protection of wetlands and waters.

General Control Strategy

Because plants can produce thousands of seed each year and these seeds can survive for a long period of time in the soil, methods must be repeated for many years. Continue to monitor areas for seedlings after plants have been controlled. Soil disturbance can cause a flush of seed germination. Aim to control plants before seed pods mature.

Mechanical Control

Hand pulling and digging up plants are an option for small infestations. Use a tool like a Weed Wrench, Extractigator, or Uprooter to leverage plants out of the ground, along with their roots. Chopping, cutting or mowing is an option for flat areas. Cutting plants close to the ground when they are drought stressed, late summer, can provide control on plants with stems wider than 2 inches. Monitor plants for resprouts. Cutting followed by an herbicide application on new growth can also be effective.

Herbicide Control

Cutting stems and painting the fresh cut with herbicide can provide effective control. Herbicides should be applied by qualified personnel.

To prevent the introduction and spread of invasive species:

- Minimize disturbance when possible, and restore damage caused by unavoidable disturbances.
- Cover, mulch, seed or plant disturbed areas to prevent establishment of unwanted plants. Establishing native seed cover is preferred. Monitor the site and control unwanted plants that may appear.
- Reclaim/restore recently altered areas. Heavily disturbed areas are especially prone to invasion. Immediate reclamation of these areas by planting non-invasive plant species is essential. Establishing native species in restoration activities will help create a desired vegetation cover.
- Make sure any equipment was not used previously in heavily infested areas and is clean of mud, seeds and other propagules.

- Plants that are native to a site should be selected for use in landscaping, whenever feasible. Use reputable nurseries and seed sources. Ask vendors if they are aware of restricted species. Check for “hitch-hikers” in nursery stock, packing materials, and associated locations. Use only certified seed, where feasible.
- Use fertilizers wisely. The most commonly used supplemental nutrients in agriculture or landscaping include limiting factors in plant growth, principally nitrogen and phosphorous. High nitrogen levels offer a supreme growth factor for all plants, granting an advantage to invasive plants. Many invasive species have adapted to use plentiful nutrients for explosive growth; therefore, excessive fertilizer application enhances the growth of invasive species. Using soil tests to prescribe proper levels of fertilizer is important. The use of native plants will cut down or eliminate the need for fertilizers, as many native plants can grow well without them.
- Protect native plant communities. A key to controlling invasive plants is to protect native plant communities. Where native plant communities have been displaced, invasive plants thrive, especially on bare soil and disturbed ground. Where native communities are still present, non-invasive plants can move into the empty niche created by the removal of invasive species. Protecting native plant communities from disturbance, deer browse, and other threats will strengthen their ability to resist invasion.
- Develop education and training. Land managers must be trained in invasive species identification, inventory and control methods.
- Inspect annually for invasive species. Effective scouting will allow managers to identify invasive species before populations increase exponentially and reach levels difficult to control. Identifying and controlling organisms before populations reproduce will result in greater program success.
- Carefully consider location when disposing of mechanically removed invasive plant species. Reproductive parts of many invasive plants can withstand seasonal cycles, including drying and freezing, therefore composting invasive species residue is not recommended. Seeds and roots/rhizomes, especially, should be destroyed or carefully collected and discarded with trash to prevent reestablishment.
- Prioritize the management of existing on-site invasive species to prevent spread. Travel on roadways and trails is a major conduit for invasive species movement, thus control measures should target high traffic areas, as well as areas where new small populations have just been found. For individual projects, invasive species in areas that are frequently revisited should be treated prior to project initiation and monitored throughout project completion.
- Examine common practices to determine how alterations may reduce the risk of invasive species introduction. To accomplish this task, the U.S. Fish and Wildlife Service employs a method known as Hazard Analysis Critical Control Point (HACCP).⁵ planning. This procedure for preventing

⁵ Hazard Analysis and Critical Control Point: Planning to Prevent the Spread of Invasive Species (Accessed via <https://nctc.fws.gov/courses/HACCP/haccp.html>)

introduction does not require each land manager to have detailed knowledge of invasive species present at a site.

- Review contracts for opportunities to strengthen prevention measures. Added language to existing contracts with internal and external groups may include equipment cleaning requirements, avoiding the use of equipment that has been recently used in infested areas, liability for new invasive species introductions, disturbed habitat remediation guidelines and other appropriate preventive activities.
- Know original sources of transferred and used materials. Require knowledge of the original source and previous sites of transferred topsoil, fill, firewood or other materials brought into a site. Roadside shoulder material, removed during road shoulder maintenance, can be loaded with invasive plant seeds. If the source of this material supported invasive plants, the contaminated material should not be used in an uninfested area. Other soil or fill material should be used only with a good plan for weed control following placement. A visit to the site of the material's origin may be necessary to evaluate whether its use is appropriate.

Wetlands and SMA areas

As stated previously, there are watercourses in the area. Facultative hydrophytic vegetation was present throughout the site due to the proximity to the coast and other factors. Many areas were dominated by hydrophytic vegetation that did not appear to be in jurisdictional wetlands (primary and secondary hydrology indicators not observed) and were existing via the phreatic zone near the riparian area. The wetland areas mapped connecting to a Class II stream were visible during site visit with proposed greenhouse relocation providing a sufficient 100-foot buffer. A jurisdictional wetland delineation was not requested or conducted for this assessment. The regulatory background for wetlands in Humboldt County is presented below.

U.S. Army Corps of Engineers (USACE)

The USACE Regulatory Branch regulates activities that may discharge dredged or fill materials into "waters of the U.S." under Section 404 of the Federal Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. This permitting authority applies to all "waters of the U.S." where the material (1) replaces any portion of a "waters of the U.S." with dry land or (2) changes the bottom elevation of any portion of any "waters of the U.S.". These fill materials include sand, rock, clay, construction debris, wood chips, and materials used to create any structure or infrastructure in these waters. The selection of disposal sites for dredged or fill material is done in accordance with guidelines specified in Section 404(b)(1) of the CWA, which were developed by the U.S. Environmental Protection Agency (USEPA).

Regional Water Quality Control Board (RWQCB)

The RWQCB is the primary agency responsible for protecting water quality in California through the regulation of discharges to surface waters under the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The RWQCB's jurisdiction extends to all "waters of the State" and to all "waters of the U.S.," including wetlands (isolated and non-isolated).

Section 401 of the CWA provides the RWQCB with the authority to regulate, through a Water Quality Certification, any proposed, federally permitted activity that may affect water quality. Among such activities are discharges of dredged or fill material permitted by the USACE pursuant to Section 404 of the CWA. Section 401 requires the RWQCB to provide certification that there is reasonable assurance an activity with the potential for discharge into navigable waters will not violate water quality standards. Water Quality Certification must be based on findings that the proposed discharge will comply with water quality standards, which contain numeric and narrative objectives found in each of the nine RWQCBs' Basin Plans.

California Department of Fish and Wildlife

The CDFW has jurisdictional authority over wetland resources associated with rivers, streams, and lakes pursuant to the California Fish and Game Code (§§1600–1616). Activities of state and local agencies, as well as public utilities that are project proponents, are regulated by the CDFW under Section 1602 of the California Fish and Game Code.

Because the CDFW includes streamside habitats under its jurisdiction that, under the federal definition, may not qualify as wetlands on a project site, its jurisdiction may be broader than that of the USACE. Riparian forests in California often lie outside the plain of ordinary high water regulated under Section 404 of the CWA, and often do not have all three parameters (wetland hydrology, hydrophytic vegetation, and hydric soils) sufficiently present to be regulated as a wetland.

However, riparian forests are frequently included within CDFW regulatory jurisdiction under Section 1602 of the California Fish and Game Code.

The CDFW jurisdictional limits are not as clearly defined by regulation as those of the USACE. While they closely resemble the limits described by USACE regulations, they include riparian habitat supported by a river, stream, or lake regardless of the presence or absence of hydric and saturated soils conditions. In general, the CDFW extends jurisdiction from the top of a stream bank or to the outer limits of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place within or near a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish and other aquatic plant and/or wildlife species. It also includes watercourses that have a surface or subsurface flow that support or have supported riparian vegetation.

Humboldt County-Streamside Management Area

"Streamside Management Areas" (SMAs) [Section 3432(5) of the Humboldt County 1984 General Plan] are defined in the Humboldt County General Plan (Page G-8) and include a natural resource area along both sides of streams containing the channel and adjacent land. Updates to the SMA guidance for cannabis activities are defined in the Environmental Impact Assessment Biological Resources Section.⁶

Project applicants proposing development activities within a SMA or wetland areas are required to include a site-specific biological report prepared consistent with these regulations. The written report prepared by a qualified biologist is subsequently referred to CDFW for review and comment. If required, after agency review of the preliminary habitat assessment, protocol level surveys will be completed per

⁶ <https://humboldt.gov/DocumentCenter/View/58840/Section-311-Biological-Resources-Revised-DEIRPDF>

recommendations by the Final Environmental Impact Report (FEIR) amendments to the Humboldt County Code Regulating Commercial Cannabis Activities⁷.

Additional Laws and Policies

In addition to the above-mentioned policies, numerous other policies exist to protect wetlands, waters and biological resources including the California Environmental Quality Act (CEQA), California Endangered Species Act (CESA) and the Z'berg-Nejedly Forest Practice Act.

Northern Spotted Owl

In 2016, the California Fish and Game Commission approved the listing of the Northern Spotted Owl (*Strix occidentalis caurina*) as Threatened under the California Endangered Species Act. It has been listed as Threatened under the federal Endangered Species Act since 1990. Owl pairs typically nest in broken-top trees, tree cavities, debris accumulations or nests built by other wildlife (abandoned raptor nests or rodent nests). Females generally lay one to two eggs in spring and chicks fledge and leave nests in early fall. Generally older forests with dense canopy closure are preferred for nesting and roosting, however younger stands with similar structure are also utilized. Structural components of high-quality stands include multiple canopy layers, higher species density, larger overstory trees, live trees with deformities and woody debris in the understory. Prey species include flying squirrels, woodrats, rabbits, voles, shrews, gophers, smaller birds, bats and insects. Owls are threatened by Barred Owls, habitat loss, climate change and pathogens.⁸

Northern Spotted Owl was recorded in the CDFW database within two miles (Figure 7). Habitat was present on-site for nesting spotted owls due to stand age and structure. Several negative observations were recorded within the one-mile buffer in the database. The activity center of HUM1006 is located around 1.28 miles to the south of the parcel, established in 2005 by Embree. Observations have been recorded in the database for this activity center only from 2005 to 2006. The HUM0195 activity center was established in 2014 by Obrien via THP and is located approximately 2.30 miles to the northwest of the parcel. Critical habitat for NSO is located approximately 2.7 miles to the east of the parcel.

CNDDb and other Database Results

The CDFW CNDDb, BIOS, Rarefind and CNPS databases were scoped before and after field site visit to determine habitat potential and known occurrences of rare or listed species of concern in or around the project area. Known reference populations near the site were visited to confirm phenology. The following species were observed in the database within 5 miles of the project site (Figure 6).

Montia howellii (Howell's montia) is ranked as 2B.2 by CNPS, meaning low populations are present in California, being more prevalent outside the state. It occupies meadows and seeps, north coast coniferous forest, as well as, vernal pools. This species prefers vernal wet sites, often on compacted soil ranging from 10-1215 m. Habitat was present on site containing many compacted wet areas.

⁷ Final Environmental Impact Report: Amendments to the Humboldt County Code Regulating Commercial Cannabis Activities. January 2018. Prepared by Ascent Environmental. Accessed via <https://humboldt.gov/DocumentCenter/View/62689/Humboldt-County-Cannabis-Program-Final-EIR60mb-PDF>. Accessed [January 2019]

⁸ Northern Spotted Owls in California. California Department of Fish and Wildlife (Accessed via <https://www.wildlife.ca.gov/Conservation/Birds/Northern-Spotted-Owl>)

Rana boylei (foothill yellow-legged frog) is California state listed as a threatened candidate species. It occupies partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. This species needs at least some cobble-sized substrate for egg-laying. A least 15 weeks is required to attain metamorphosis. Habitat was present on site including the several Class II streams. If required a forty-eight hours prior to proposed new development activities within 200 feet of any SMA or Other Wet Area, a preconstruction survey for special-status amphibians shall be conducted by a qualified biologist. The biologist shall be familiar with the life cycle of foothill yellow-legged frog, northern red-legged frog, Pacific tailed-frog, and southern torrent salamander, and will conduct appropriate surveys for the applicable life stages (i.e., eggs, larvae, adults).

Bombus caliginosus (obscure bumble bee) occupies coastal areas from Santa Barbara County to north to Washington state. Their food plant genera include *Baccharis*, *Cirsium*, *Lupinus*, *Lotus*, *Grindelia* and *Phacelia*. The property is in range for occurrences.

Bombus occidentalis (western bumble bee) while once common & widespread, the species has declined precipitously from central CA to southern B.C., perhaps from disease.

Tracyina rostrata (beaked tracyina) has a CNPS ranking of 1B.2, meaning they are rare throughout their range. This species occupies cismontane woodland, valley and foothill grassland, and chaparral. It is found in open grassy meadows usually within oak woodland and grassland habitats around 150-795 m. Property has habitat sufficient for species.

Erethizon dorsatum (North American porcupine) occupy a wide variety of coniferous and mixed woodland habitat. They are found in these forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges. Species presence is possible.

The project area contains habitat for various rare or listed species. (See site photos for general habitat types) A complete list of occurrences of rare and species of concern are listed below in Table 1 and Table 2. The scope of the project is unlikely to significantly affect the species which habitats are present on site.

Potential Direct and Indirect Impacts

The potential direct, indirect, and cumulative effects of the land clearing, residential development, and cultivation activities include removal of vegetation and canopy cover, disturbance and compaction of soil, alteration of hydrologic regime, sedimentation and erosion, increase in invasive species, and noise, solid and chemical waste pollution, visual impacts, and air quality impacts.

Tree clearing is not currently proposed, though past clearing has occurred. Additional grading and expansion of facilities is proposed in order to move the decommissioned greenhouses to a more appropriate location on the property. The ambient conditions from cannabis cultivation are similar to the impacts of historic agriculture, logging, or grazing. The site was well maintained, and solid waste or other hazardous materials were not observed. Generators, fans, and other tools creating noise were observed or in proposed plans for the parcel. No sources of light pollution were observed. If generators or fans are utilized ambient levels should not be breached. The multiple stream crossings on site looked well maintained with culverts in place. Any additional alterations of waterways should be approved through the proper parties.

Recommendations

Follow all recommendations outlined by existing agency policies for minimizing impacts to natural resources. Impacts from light, noise and chemicals can be addressed in the operations plan and best management practices can be employed to minimize impacts. Additional disturbance, clearing, and road cuts would likely modify existing groundwater, and surface water patterns and could impact water quality and/or hydrophytic species.

Agency personnel from CDFW and USFWS can further analyze the potential impacts and provide technical assistance for any listed species if additional activities are proposed that may result in take of a listed species including Northern Spotted Owl.⁹ If required, pre-construction reconnaissance surveys should follow the guidelines set forth in the Humboldt County Cannabis Program EIR, CDFW Survey and Monitoring Protocols and Guidelines¹⁰, USFWS Endangered Species Program¹¹ and CNPS Botanical Survey Guidelines.¹²

Please contact me with any comments or concerns regarding this memorandum or future work required for your project. I can be reached at tami@trans-terra.com or (707) 845-7483. I have included my project experience as an attachment to this memorandum as it is often requested by agency personnel reviewing work of this nature. (Appendix A)

⁹ Transmittal of Guidance: Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelet in Northwestern California: (Accessed via <https://www.fws.gov/arcata/es/birds/nso/documents/MAMUNSO%20Harassment%20Guidance%20NW%20CA%202006Jul31.pdf>)

¹⁰ California Department of Fish and Wildlife Survey and Monitoring Protocols and Guidelines (Accessed via <https://www.wildlife.ca.gov/conservation/survey-protocols>)

¹¹ USFWS Arcata Fish and Wildlife Office Endangered Species Program (Accessed via <https://www.fws.gov/arcata/es/default.htm>)

¹² California Native Plant Society (CNPS) Botanical Survey Guidelines (Accessed via https://cnps.org/wp-content/uploads/2018/03/cnps_survey_guidelines.pdf)

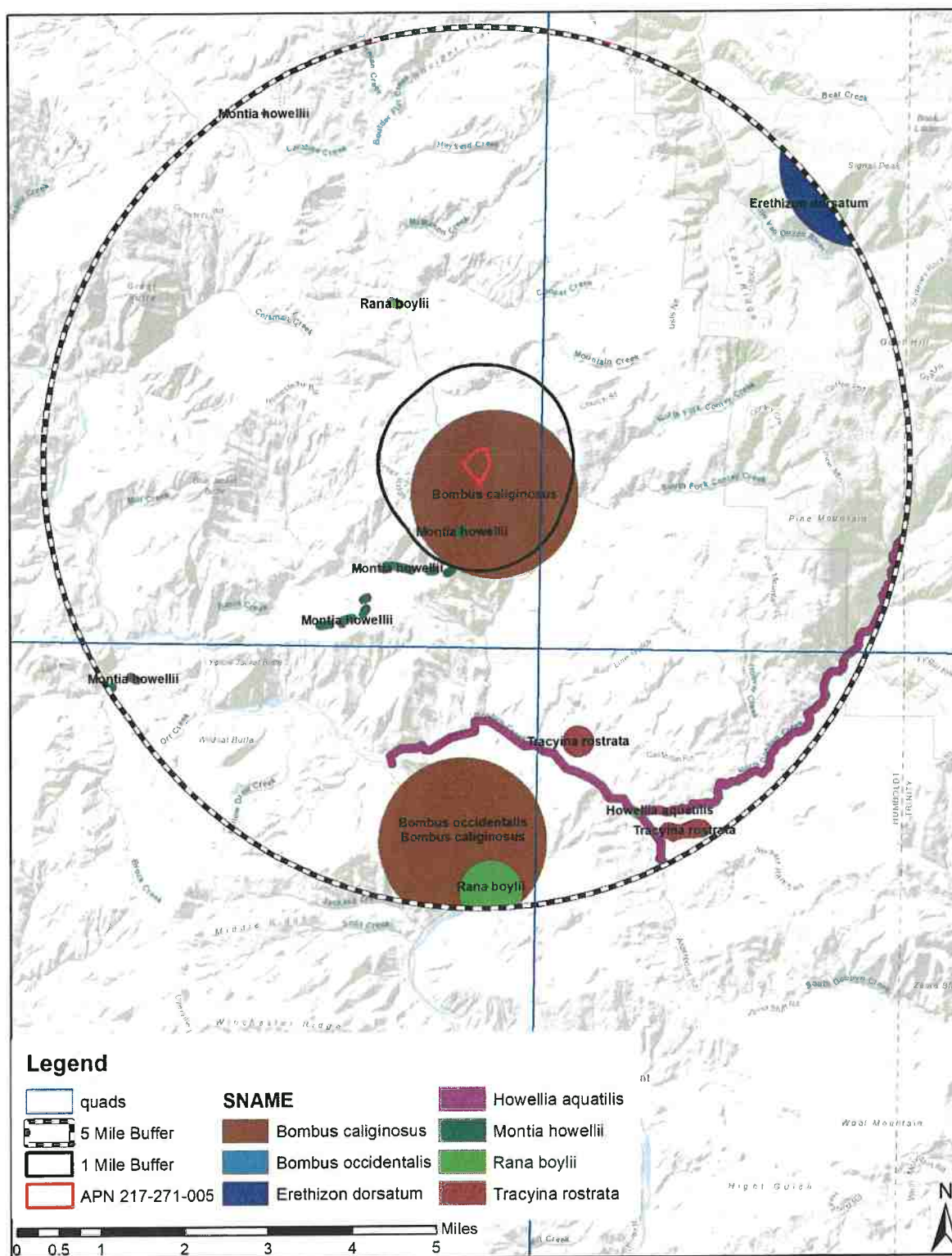


Figure 5. CNDB search results of observed rare plant and sensitive animal occurrences within five miles of property.

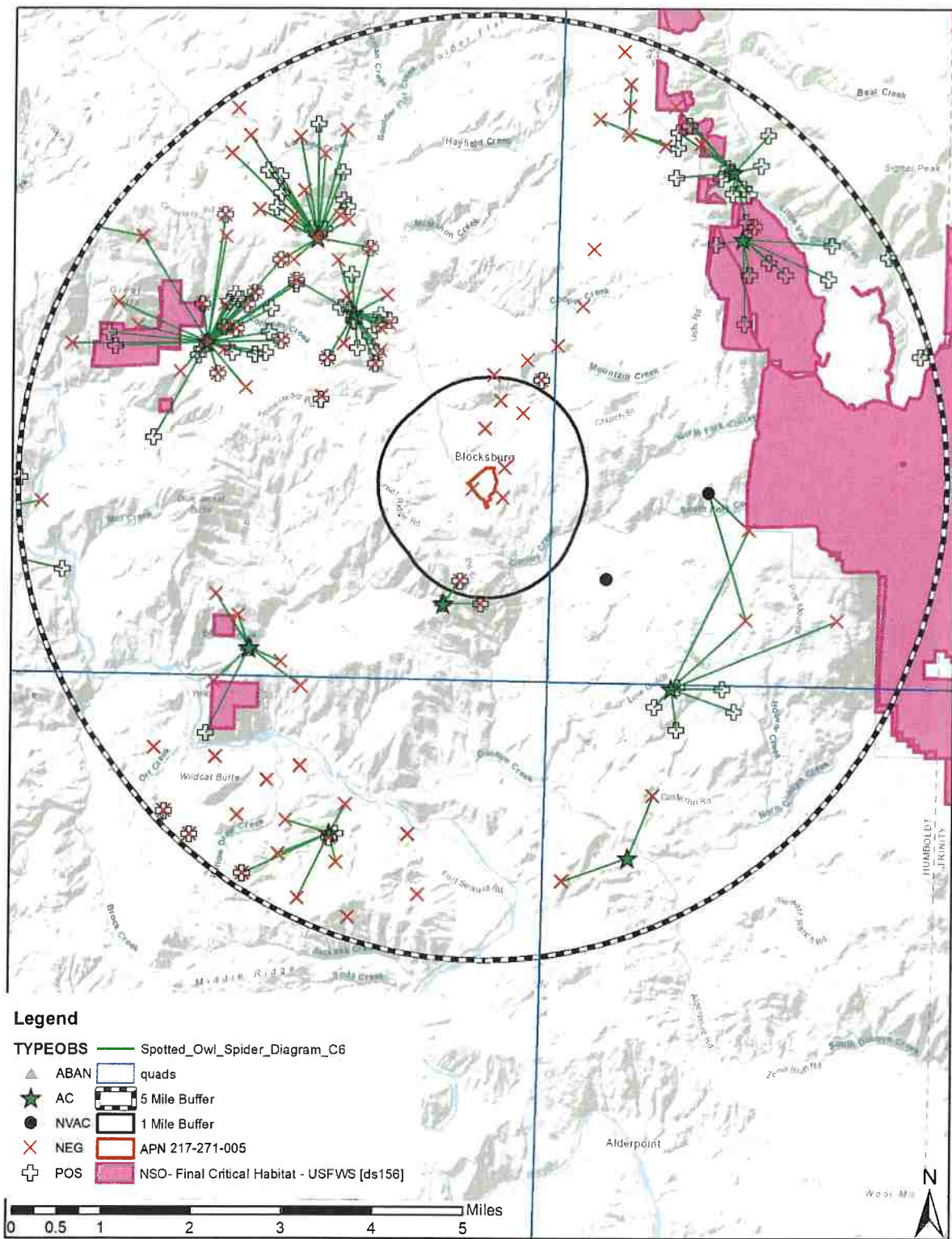


Figure 6. Northern Spotted Owls database entries within 5 miles of property.

Table 1. CNDDB nine-quad database results for the Blocksburg 7.5' quadrangle (species listed in CNDDB results; C=Candidate Species, E=Endangered, T=Threatened, D=Delisted, N=None).

Scientific Name	Common Name	FESA	CESA	General Habitat	Microhabitat	Probability of Occurrence
<i>Accipiter cooperii</i>	Cooper's hawk	N	N	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Moderate
<i>Accipiter gentilis</i>	northern goshawk	N	N	Within, and in vicinity of, coniferous forest. Uses old nests, and maintains alternate sites.	Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.	Low
<i>Aquila chrysaetos</i>	golden eagle	N	N	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Low
<i>Arborimus pomo</i>	Sonoma tree vole	N	N	North coast fog belt from Oregon border to Sonoma County. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	Moderate
<i>Ascaphus truei</i>	Pacific tailed frog	N	N	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	Moderate
<i>Atractielmis wawona</i>	Wawona riffle beetle	N	N	Aquatic; found in riffles of rapid, small to medium clear mountain streams; 2000-5000 ft elev.	Strong preference for inhabiting submerged aquatic mosses	Low
<i>Bombus caliginosus</i>	obscure bumble bee	N	N	Coastal areas from Santa Barbara county to north to Washington state.	Food plant genera include Baccharis, Crisium, Lupinus, Lotus, Grindelia and Phacelia.	High
<i>Bombus occidentalis</i>	western bumble bee	N	N	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.		High
<i>Empidonax traillii brewsteri</i>	little willow flycatcher	N	E	Mountain meadows and riparian habitats in the Sierra Nevada and Cascades.	Nests near the edges of vegetation clumps and near streams.	Low
<i>Emys marmorata</i>	western pond turtle	N	N	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Low

Scientific Name	Common Name	FESA	CESA	General Habitat	Microhabitat	Probability of Occurrence
<i>Erethizon dorsatum</i>	North American porcupine	N	N	vegetation, below 6000 ft elevation. Forested habitats in the Sierra Nevada, Cascade, and Coast ranges, with scattered observations from forested areas in the Transverse Ranges.	Wide variety of coniferous and mixed woodland habitat.	Moderate
<i>Falco peregrinus anatum</i>	American peregrine falcon	D	D	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures.	Nest consists of a scrape or a depression or ledge in an open site.	Moderate
North Central Coast Summer Steelhead Stream	North Central Coast Summer Steelhead Stream	N	N			Low
<i>Noyo intersessa</i>	Ten Mile shoulderband	N	N	Found in coastal dunes, coastal scrub, and riparian redwood forest habitats.		Low
<i>Oncorhynchus mykiss</i> irideus pop. 36	summer-run steelhead trout	N	N	No. Calif coastal streams south to Middle Fork Eel River. Within range of Klamath Mtns province DPS & No. Calif DPS.	Cool, swift, shallow water & clean loose gravel for spawning, & suitably large pools in which to spend the summer.	Low
<i>Pandion haliaetus</i>	osprey	N	N	Ocean shore, bays, freshwater lakes, and larger streams.	Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Low
<i>Pekania pennanti</i>	fisher - West Coast DPS	N	T	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure.	Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Low
<i>Rana aurora</i>	northern red-legged frog	N	N	Humid forests, woodlands, grasslands, and streamside in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Moderate
<i>Rana boylei</i>	foothill yellow-legged frog	N	CT	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	High
<i>Rhyacotriton variegatus</i>	southern torrent salamander	N	N	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane	Cold, well-shaded, permanent streams and seepages, or within	Moderate

Scientific Name	Common Name	FESA	CESA	General Habitat	Microhabitat	Probability of Occurrence
				hardwood-conifer habitats. Old growth forest.	splash zone or on moss-covered rocks within trickling water.	
Upland Douglas Fir Forest	Upland Douglas Fir Forest	N	N			Low

Table 2. CNPS nine-quad database results for the Blocksburg 7.5' quadrangle. (plants listed in CNPS results; C=Candidate Species, E=Endangered, T=Threatened, D=Delisted, N=None).

Scientific Name	Common Name	Lifeform	CRPR	Habitat	Probability of Occurrence
<i>Allium hoffmanii</i>	Beegum onion	perennial bulbiferous herb	4.3	Lower montane coniferous forest (serpentine)	Low
<i>Anisocarpus scabridus</i>	scabrid alpine tarplant	perennial herb	1B.3	Upper montane coniferous forest (metamorphic, rocky)	Low
<i>Arctostaphylos hispidula</i>	Howell's manzanita	perennial evergreen shrub	4.2	Chaparral (serpentine or sandstone)	Low
<i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	Konocti manzanita	perennial evergreen shrub	1B.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	Moderate
<i>Arnica spathulata</i>	Klamath arnica	perennial rhizomatous herb	4.3	Lower montane coniferous forest (serpentine)	Low
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	perennial herb	1B.1	Broadleafed upland forest, North Coast coniferous forest	Low
<i>Astragalus rattanii</i> var. <i>rattanii</i>	Rattan's milk-vetch	perennial herb	4.3	Chaparral, Cismontane woodland, Lower montane coniferous forest	Moderate
<i>Carex praticola</i>	northern meadow sedge	perennial herb	2B.2	Meadows and seeps (mesic)	Low
<i>Carex scabriuscula</i>	Siskiyou sedge	perennial rhizomatous herb	4.3	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	Low
<i>Collomia tracyi</i>	Tracy's collomia	annual herb	4.3	Broadleafed upland forest, Lower montane coniferous forest	Low
<i>Coptis laciniata</i>	Oregon goldthread	perennial rhizomatous herb	4.2	Meadows and seeps, North Coast coniferous forest (streambanks)	Low
<i>Cryptantha rostellata</i>	red-stemmed cryptantha	annual herb	4.2	Cismontane woodland, Valley and foothill grassland	Moderate
<i>Cypripedium fasciculatum</i>	clustered lady's-slipper	perennial rhizomatous herb	4.2	Lower montane coniferous forest, North Coast coniferous forest	Moderate
<i>Cypripedium montanum</i>	mountain lady's-slipper	perennial rhizomatous herb	4.2	Broadleafed upland forest, Cismontane woodland, Lower montane coniferous forest, North Coast coniferous forest	Moderate
<i>Epilobium oreganum</i>	Oregon fireweed	perennial herb	1B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest	Moderate
<i>Epilobium septentrionale</i>	Humboldt County fuchsia	perennial herb	4.3	Broadleafed upland forest, North Coast coniferous forest	Low
<i>Erigeron maniotamicus</i>	Mad River fleabane daisy	perennial herb	1B.2	Lower montane coniferous forest, Meadows and seeps (open, dry)	Low

<i>Erythronium oregonum</i>	giant fawn lily	perennial bulbiferous herb	2B.2	Cismontane woodland, Meadows and seeps	Moderate
<i>Erythronium revolutum</i>	coast fawn lily	perennial bulbiferous herb	2B.2	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Low
<i>Eucephalus glabratus</i>	Siskiyou aster	perennial herb	4.3	Lower montane coniferous forest, Upper montane coniferous forest	Low
<i>Fritillaria glauca</i>	Siskiyou fritillaria	perennial bulbiferous herb	4.2	Alpine boulder and rock field, Subalpine coniferous forest, Upper montane coniferous forest	Low
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	annual herb	1B.2	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland	Low
<i>Hosackia yollabollensis</i>	Yolla Bolly Mtns. bird's-foot trefoil	perennial herb	1B.2	Meadows and seeps, Upper montane coniferous forest (openings)	Low
<i>Howellia aquatilis</i>	water howellia	annual herb (aquatic)	2B.2	Marshes and swamps (freshwater)	Low
<i>Kopsiopsis hookeri</i>	small groundcone	perennial rhizomatous herb (parasitic)	2B.3	North Coast coniferous forest	Low
<i>Lathyrus biflorus</i>	two-flowered pea	perennial herb	1B.1	Lower montane coniferous forest (serpentine)	Low
<i>Lilium rubescens</i>	redwood lily	perennial bulbiferous herb	4.2	Broadleafed upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Low
<i>Listera cordata</i>	heart-leaved twayblade	perennial herb	4.2	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	Low
<i>Lupinus constancei</i>	The Lassies lupine	perennial herb	1B.1	Lower montane coniferous forest (serpentine)	Low
<i>Lycopodium clavatum</i>	running-pine	perennial rhizomatous herb	4.1	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	Low
<i>Meesia triquetra</i>	three-ranked hump moss	moss	4.2	Bogs and fens, Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest (mesic)	Low
<i>Mitellastrum caulescens</i>	leafy-stemmed mitrewort	perennial rhizomatous herb	4.2	Broadleafed upland forest, Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest	Low
<i>Montia howellii</i>	Howell's montia	annual herb	2B.2	Meadows and seeps, North Coast coniferous forest, Vernal pools	High

<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	perennial rhizomatous herb	2B.2	Coastal scrub, North Coast coniferous forest	Low
<i>Piperia candida</i>	white-flowered rein orchid	perennial herb	1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	Low
<i>Pityopus californicus</i>	California pinefoot	perennial herb (achlorophyllous)	4.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Moderate
<i>Ptilidium californicum</i>	Pacific fuzz wort	liverwort	4.3	Lower montane coniferous forest, Upper montane coniferous forest	Moderate
<i>Sabulina decumbens</i>	The Lassies sandwort	perennial herb	1B.2	Lower montane coniferous forest, Upper montane coniferous forest	Moderate
<i>Sanicula tracyi</i>	Tracy's sanicle	perennial herb	4.2	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	Moderate
<i>Sedum laxum</i> ssp. <i>flavidum</i>	pale yellow stonecrop	perennial herb	4.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest	Moderate
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	perennial herb	4.2	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	Low
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	perennial rhizomatous herb	1B.2	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	Low
<i>Tracyina rostrata</i>	beaked tracyina	annual herb	1B.2	Chaparral, Cismontane woodland, Valley and foothill grassland	Moderate
<i>Usnea longissima</i>	Methuselah's beard lichen	fruticose lichen (epiphytic)	4.2	Broadleafed upland forest, North Coast coniferous forest	Moderate
<i>Wyethia longicaulis</i>	Humboldt County wyethia	perennial herb	4.3	Broadleafed upland forest, Coastal prairie, Lower montane coniferous forest	Moderate

Table 3. Observed Species on site.

<i>Sci_Name Jeps93</i>	<i>Sci_Name Jeps12</i>	<i>Common Name</i>
Herb		
<i>Juncus</i> sp.	<i>Juncus</i> sp.	Rush
<i>Plantago major</i>	<i>Plantago major</i>	Common plantain
<i>Hordeum vulgare</i>	<i>Hordeum vulgare</i>	Cereal barley
<i>Scirpus microcarpus</i>	<i>Scirpus microcarpus</i>	Small fruited bulrush
<i>Vicia</i> sp.	<i>Vicia</i> sp.	Vetch
<i>Galium aparine</i>	<i>Galium aparine</i>	Goose grass
<i>Fragaria vesca</i>	<i>Fragaria vesca</i>	Wood strawberry
Shrub		
<i>Rubus armeniacus</i>	<i>Rubus armeniacus</i>	Himalayan blackberry
<i>Ceanothus velutinus</i>	<i>Ceanothus velutinus</i>	Tobacco brush
<i>Ceanothus integriramus</i>	<i>Ceanothus integriramus</i>	Deer brush
<i>Rosa californica</i>	<i>Rosa californica</i>	California rose
<i>Notholithocarpus densiflorus</i> var. <i>densiflorus</i>	<i>Notholithocarpus densiflorus</i> var. <i>densiflorus</i>	Tanoak
<i>Baccharis pilularis</i>	<i>Baccharis pilularis</i>	Coyote brush
Tree		
<i>Thuja plicata</i>	<i>Thuja plicata</i>	Western red cedar
<i>Abies grandis</i>	<i>Abies grandis</i>	Grand fir
<i>Umbellularia californica</i>	<i>Umbellularia californica</i>	California-bay
<i>Quercus kelloggii</i>	<i>Quercus kelloggii</i>	California black oak
<i>Arctostaphylos columbiana</i>	<i>Arctostaphylos columbiana</i>	Columbia manzanita
<i>Arbutus menziesii</i>	<i>Arbutus menziesii</i>	Pacific madrone
Nonvascular		
<i>Cladonia</i> sp.		
<i>Kindbergia</i> sp.		
<i>Dicranum</i> sp.		
<i>Pogonatum</i> sp.		

<i>Sci_Name_Jeps93</i>	<i>Sci_Name_Jeps12</i>	<i>Common Name</i>
<i>Hypogymnia imshaugii</i>		
<i>Parmotrema perlatum</i>		
<i>Lobaria oregana</i>		
<i>Usnea cornuta</i> **		
<i>Usnea filipendula</i> **		

Site Photographs



Stream Crossing Culvert near
decommissioned greenhouses



Existing Decommissioned Greenhouses



Proposed relocation for greenhouses and
nursery



Culvert through road to cultivation area



Road to cultivation area



Current residence structure on site

References

- California Cannabis Land Use Ordinance. Board of Supervisors, Humboldt County, Ca. Ord no. 2559, May 2018.
- California Department of Fish and Wildlife Survey and Monitoring Protocols and Guidelines.
<https://www.wildlife.ca.gov/conservation/survey-protocols>
- California Geological Survey. California Department of Conservation (CDC). 2018.
<https://www.conservation.ca.gov/cgs>
- California Natural Diversity Database. California Department of Fish and Wildlife. 2019.
<https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>.
- Final Environmental Impact Report: Amendments to the Humboldt County Code Regulating Commercial Cannabis Activities. Ascent Environmental. January 2018.
<https://humboldt.gov.org/DocumentCenter/View/62689/Humboldt-County-Cannabis-ProgramFinal-EIR-60mb-PDF>.
- Flood Zones. Federal Emergency Management Agency. June 2017. <http://webgis.co.humboldt.ca.us/HCEGIS2.0/>.
- Hazard Analysis and Critical Control Point: Planning to Prevent the Spread of Invasive Species.
<https://nctc.fws.gov/courses/HACCP/haccp.html>.
- Humboldt County General Plan. Board of Supervisors et al., Humboldt County, Ca. October 2017.
- Humboldt County Web GIS. <http://webgis.co.humboldt.ca.us/HCEGIS2.0/>.
- Google Earth Pro. U.S. Geological Survey. 2019.
- Inventory of Rare and Endangered Vascular Plants. California Native Plants Society. 2018.
<http://rareplants.cnps.org/>.
- The Jepson Manual: Higher Plants of California Second Edition. University of California Press. January 2012.
<http://ucjeps.berkeley.edu/jepman.html>.
- A Manual of California Vegetation Second Edition. California Native Plant Society. Sawyer et al. 2009.
- Mineral Resources. U.S. Geological Survey. 2019. <https://mrdata.usgs.gov/>.
- National Earthquake Hazards Reduction Program (NEHRP). FEMA et al. June 2019. <https://www.nehrp.gov/>.
- National Wetland Inventory. California Department of Fish and Wildlife. May 2019.
- Transmittal of Guidance: Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelet in Northwestern California:
<https://www.fws.gov/arcata/es/birds/nso/documents/MAMUNSO%20Harassment%20Guidance%20NW%20CA%202006Jul31.pdf>.
- USACE 1987 Manual, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coastal Regions. United States Army Corps of Engineers. Version 2.0. 2010.
- USFWS Arcata Fish and Wildlife Office Endangered Species Program. <https://www.fws.gov/arcata/es/default.htm>.
- Web Soil Survey. Natural Resources Conservation Service, United States Department of Agriculture. May 2019.
<https://websoilsurvey.sc.egov.usda.gov/>.

APPENDIX A-QUALIFICATIONS



Tami Camper
Owner-Founder

Tami is the founder of TransTerra Consulting LLC. She obtained a B.S. in Environmental Science from Western Washington University and M.S. in Biology from Humboldt State University. She has worked on publications including a rare plant guide for timberlands of Mendocino County published by MCRCD. She has worked as a professional biologist and planner for 18 years, specializing in wetland/stream surveys, wildlife/vegetation mapping, rare species surveys, biological assessments, impact assessments, mitigation and monitoring plans, CEQA/NEPA and land-use planning. Though she has worked as an independent consultant for most of her career, she has also worked for HSU, Caltrans, Mendocino Redwood Company, Campbell Timberland Management and Streamline Planning (now SHN) to round out her experience. Her desire is to implement her diverse background and passion for the natural world to aid clients through the environmental process. She also is also a member of the Arcata Sunrise Rotary Club, California Native Plant Society, The Wildlife Society, The Society of Wetland Scientists and other local non-profits and professional organizations.

Margaux received her Bachelor's Degree in Molecular Biology from the California State University of Monterey Bay in 2018. She grew up in Humboldt and is very familiar with the unique geological and political landscape. Her experience encompasses restoration, environmental education, and lab techniques. She strives to utilize her molecular background to share an in depth understanding of the environmental field to promote policy and preservation.



Margaux Karp
Staff Biologist



Adrian Macedo
Staff Biologist

Adrian obtained a Bachelors of Science degree in Wildlife and a minor in Botany from Humboldt State University in 2017. He is currently finishing up a Masters of Science in Biological Sciences at Humboldt State. He has worked with the California Department of Fish and Wildlife for the past 5 years, specializing in fish, amphibian, and reptile research and restoration in the high mountain lakes of the Trinity Alps and Marble Mountain wilderness. His extensive resume includes his current phylogenetic work on Coastal Tailed Frog (*Ascaphus truei*), Mountain Lion (*Puma concolor*) tracking, bat mist-netting, electrofishing/dive counts, research specimen preparation, PIT tagging of amphibians, invasive species removal, native plant cultivation and landscaping, and much more. In addition, he has worked on six publications in various journals and three conference presentations.

Megan received her Bachelor's degree in Botany from Humboldt State University in 2019. She will be returning to HSU to pursue her Master's degree in Biology with a thesis focusing on fossil plants from the lower Devonian of Québec, Canada. Her previous work experience includes curation and care of an extensive living collection of plants from around the world, state-of-the-art biological lab facility and research equipment maintenance, and education. Currently, she is working on a diversity survey of ancient plants and will be presenting an oral paper at the Botanical Society of America conference this summer.



Megan Nibbelink
Staff Botanist

