

Preliminary Biological Resource Assessment for APN 207-141-007



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INTEGRATED ENVIRONMENTAL SERVICES

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Introduction

This Preliminary 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 and Summary

The property is located off of State Highway 36 in Bridgeville of Humboldt County, California (Section 17, T1N, R3E). The project area is located on a 4.38-acre parcel within the U.S. Geological Survey's (USGS) Bridgeville 7.5-minute quadrangle map. Elevation is approximately 430-480 feet above sea level with a majority of the project area at slopes of less than 15 percent. The property is located in the Van Duzen Watershed. The parcel is zoned as Unclassified with a General Plan listing of Residential Agriculture. 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. 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.

There are also several jurisdictional watercourses onsite, including a Class I reach of Van Duzen River, a Class II ditch draining the grassland, and areas of potential jurisdictional wetland, although a protocol-level wetland delineation was not performed.

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 one (1) soil type Pepperwood-Shivelyflat complex, 0 to 2 percent slopes (187). The parcel is mapped as having prime agriculture soils of Fe³ on Humboldt GIS. These series are not considered hydric and consist of very deep, moderately well to somewhat poorly drained soils formed in alluvium derived from mixed sedimentary sources.

The Pepperwood series consists of very deep, moderately well drained soils formed in alluvium derived from mixed sedimentary sources. Pepperwood soils are on flood-plain steps in mountain river valleys and slopes range from 0 to 2 percent. The mean annual precipitation is about 1500 mm and the mean

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/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/>.)

annual temperature is about 13 degrees C. Pepperwood soils contain more than 10 percent clay content in particle size control section. The Shivelyflat series consists of very deep, somewhat poorly drained soils formed in alluvium derived from mixed sedimentary sources. They are found on linear to slightly concave positions on flood-plain steps in mountain river valleys. Shivelyflat soils are on flood-plain steps in mountain river valleys and slope ranges from 0 to 2 percent. Mean annual precipitation is about 1525 mm and the mean annual temperature is about 13 degrees C. The particle size of these soils consists of more than 18 percent clay content and less than 2 percent rock fragments.



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



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

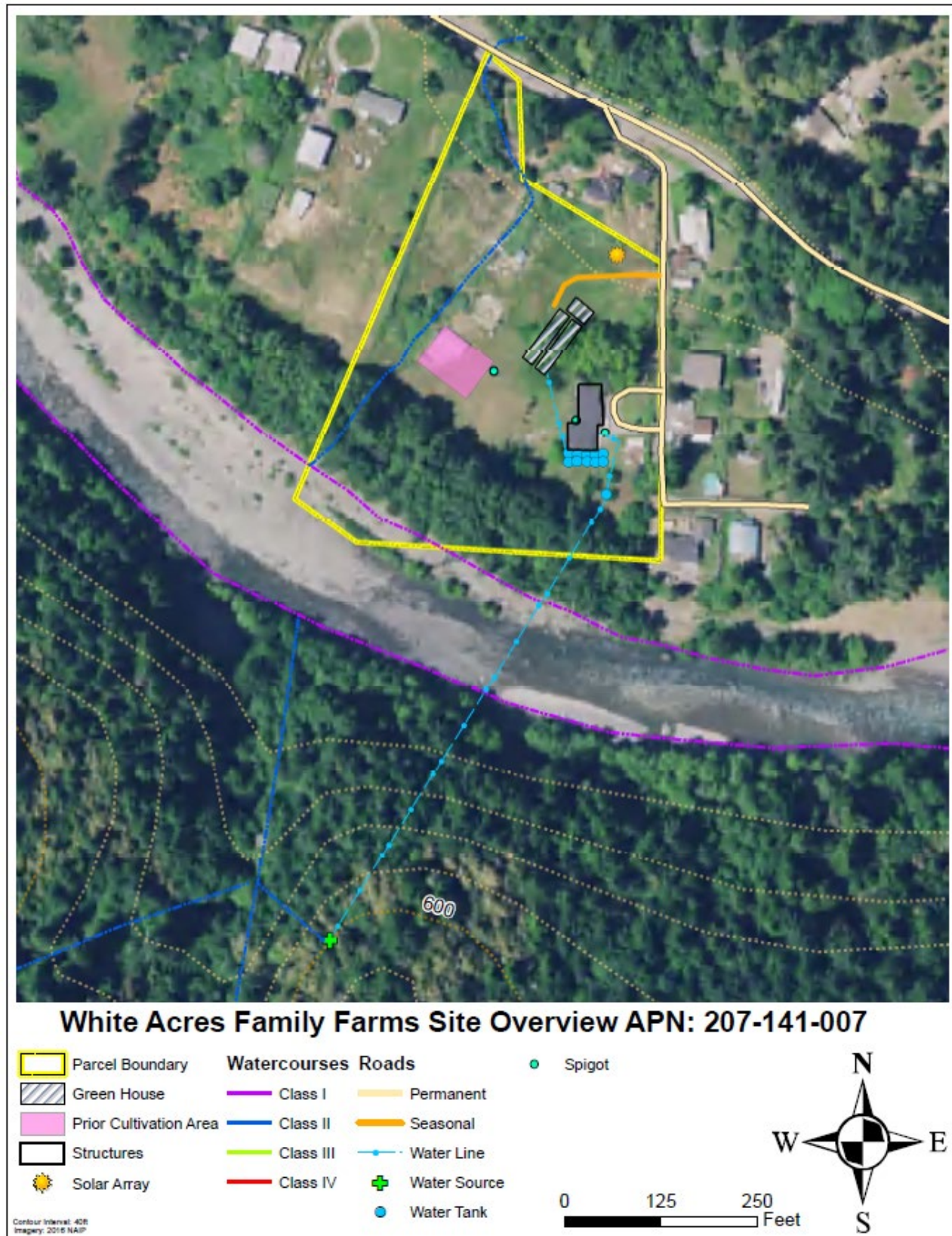


Figure 3. Proposed Project Map and study area provided by GreenRoad Consultants.

The property is situated in the Hoagland Creek-Van Duzen Watershed which is located within the Van Duzen Watershed. These are denoted as Cannabis impacted watersheds. The Streamside Management Area of the Van Duzen River intersects the lower portion of the parcel lying approximately 190 feet from the proposed project area. The Van Duzen River is on the USEPA's Section 303(d) list for impairment or threat of impairment to water quality associated with elevated sediment and temperature levels. The NWI and Humboldt GIS layers show riparian wetlands following adjacent to the river. The parcel is completely captured in the FEMA 100-year Flood Zone (A) shown on Humboldt GIS due to the proximity to the Van Duzen River. The Humboldt GIS and NWI layers may not capture the full, accurate scope of waterways in the area. The Class II feature along the western side of the parcel (not shown below) and any other features would also qualify as SMA areas and require appropriate protection measures. Greenroad Consulting will be mapping SMA buffers to determine setbacks and feasibility of moving existing greenhouses.

The project area is mapped as possessing moderate instability and very high fire severity. The Little Salmon Fault Zone is located about 1 mile to the northeast of the property. Historic landslides, potential liquefaction, and other hazards are not mapped in or adjacent to the parcel on the Humboldt GIS database.

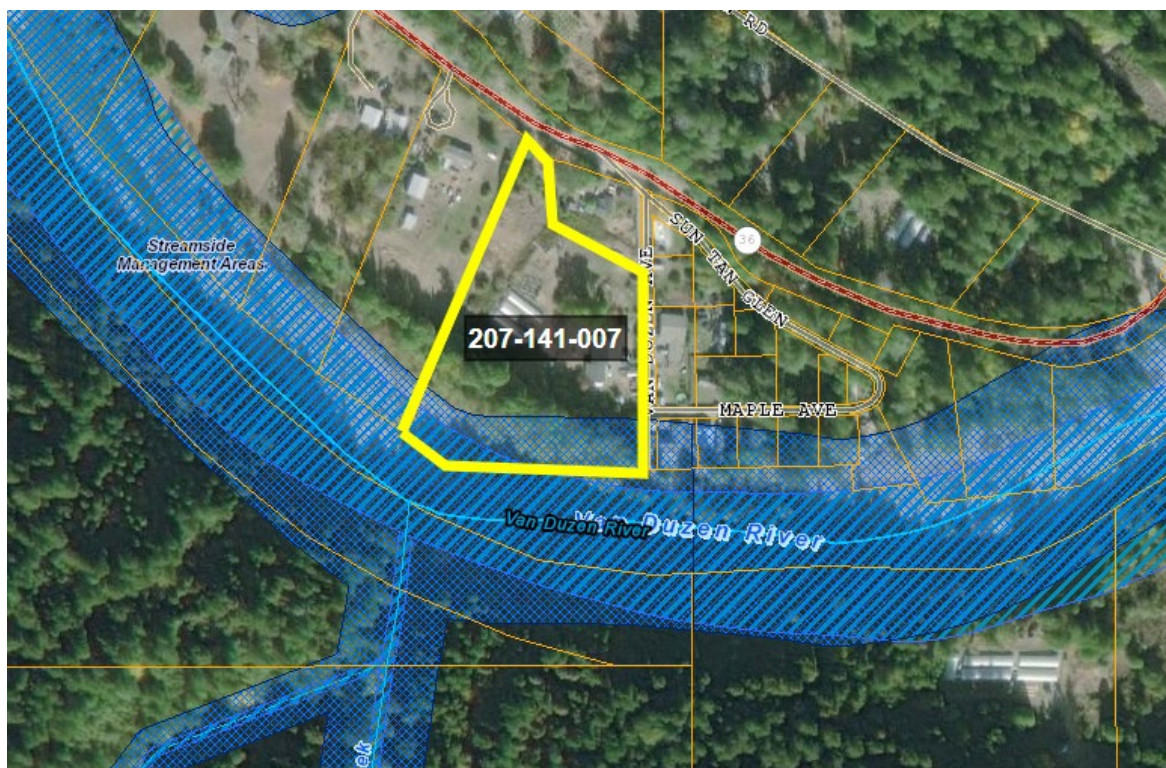


Figure 4. Streamside Management Areas (SMA), National Wetland Inventory (NWI) wetlands, and watersheds mapped in and adjacent to the project site.³

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

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.

The California Natural Diversity Database (CNDDDB) RareFind and Spotted Owl Database, and California Native Plant Society (CNPS) databases were used to assess potential rare species. A habitat assessment 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 watercourse. 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. Species-specific surveys will be conducted as appropriate and are further discussed below.

A wetland and waters delineation was not conducted, however potential wetlands were noted and compared with existing maps.



Figure 5. The surveyed area for APN 217-271-005 including areas of potential direct impacts. Indirect or cumulative impacts to areas outside of the project area are estimated below.

Results and Discussion

Existing Conditions

The parcel was likely cleared in the past but is established as a grass, meadow area. Past use for cannabis is evident with greenhouses standing. The baseline environment for the project is considered to be the state of the site at the time of assessment. The current greenhouses are proposed to be relocated to provide a 100-foot buffer from the Class II stream located currently behind them. There is currently a well on site which is not proposed to be used for cannabis activities. Rain catchment systems with holding water tanks are proposed to provide a majority of water. A residence is one site near the east end of the parcel. The proposed power sources consist of PG&E, solar, and generators.

Vegetation

The project area is generally open ruderal meadow and grassland with scattered ornamental trees and shrubs. The riparian area along the Van Duzen was dominated by *Pseudotsuga menziesii* (Douglas fir), *Salix lasiandra* (Willow), *Acer macrophyllum* (Bigleaf maple), and *Umbellularia californica* (California

bay). Openings are a mixture of native and non-native grasses and forbs including *Geranium sp.* (geranium), *Trifolium sp.* (Clover), *Daucus carota* (Queen Anne's lace), *Plantago major* (Common plantain). *Shrub areas were dominated by Rubus armeniacus* (Himalayan blackberry) and *Polystichum munitum* (Western sword fern).

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.

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

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 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.

The following species were observed on-site. As the survey did not take place during the blooming window, a full floristic list is not available and more invasive species may be present.

Hedera helix (English ivy) -High

Rubus armeniacus (Himalayan blackberry) -High

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 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 uninfected 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

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>)

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. 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 Section⁶.

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 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,

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

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.org/DocumentCenter/View/62689/Humboldt-County-Cannabis-Program-Final-EIR60mb-PDF>. Accessed [January 2019]

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 one mile (Figure 7). Habitat was present on-site for nesting spotted owls due to stand age and structure. The HUM0332 activity center, established in 2000 by Collins, is located approximately 0.60 miles to the southwest of the project area. Both positive and negative observations have been recorded in the database spanning 1991 to 2014. The HUM1094 is located around 1 mile to the south of the project area and was established in 2014 by SPI. Positive and negative observations ranging from 2011 to 2014 were recorded in the database. The HUM0859 activity center was established in 2014 by SPI and is located approximately 1 mile from the project. Observations in the database for this activity center span from 2001 to 2014 with both positive and negative observations. While HUM1121 and HUM0553 are located just outside of the one-mile buffer both positive and negative are recorded in the database within the buffer. Critical habitat for NSO is located approximately 1.5 miles to the east of the parcel.

CNDDDB and other Database Results

The CDFW CNDDDB, 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 1 miles of the project site (Figure 6).

Pekania pennanti (fisher- West Coast DPS) is listed in California as a threatened species. They occupy intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. This species uses cavities, snags, logs and rocky areas for cover and denning. They need large areas of mature, dense forest for habitat. A majority of this property was open grass areas having low probability of occurrence for the 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. A majority of this property was open grass areas having low probability of occurrence for the species.

Erythronium revolutum (coast fawn lily) is ranked as 2B.2 by CNPS, meaning low populations are present in California, being more prevalent outside the state. It inhabits bogs, fens, broadleafed upland forest, and north coast coniferous forest. It can be found in mesic sites and streambanks around 60-1405 m. Habitat may be present for species towards riparian areas.

Usnea longissima (Methuselah's beard lichen) is categorized as a 4.2 by the CNPS, denoting it a watchlist species. It occupies north coast coniferous forest and broadleafed upland forest. This species grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. In California it is found between 45-1465 m. Habitat present for species to occur.

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

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

2. The scope of the project is unlikely to significantly affect the species which habitat is present on site if protocol level surveys for species that are highly likely to occur are conducted prior to disturbance. The area is primarily rural residential with wide, open areas which has a low suitability for most of the species listed above.

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. Waterways, soils, ecosystems, etc. can all be affected by cultivation and processing development. Air quality can be degraded due to emissions caused by travel to and from the project site such as by transportation of product or employee travel. Travel on unpaved roads can increase the level of dust particles in the air. Excess watering can lead to runoff and erosion of minerals.

The ambient conditions from cannabis cultivation are similar to the impacts of historic agriculture, logging, and grazing. **Tree clearing is currently proposed of ornamental trees on the property in order to move greenhouses out of the SMA.** The site was well maintained, and solid waste or other hazardous materials were not observed. If generators or fans are utilized above ambient levels should not be breached. Any alterations of waterways should be approved through the proper parties.

Direct impacts to some species could occur due to disturbance when greenhouses are moved particularly plant or amphibian species. The existing disturbance on the site likely precludes these species occupying the site, however habitat for riparian/aquatic species is present.

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

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>)

Monitoring Protocols and Guidelines¹⁰, USFWS Endangered Species Program¹¹ and CNPS Botanical Survey Guidelines¹²

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)

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)

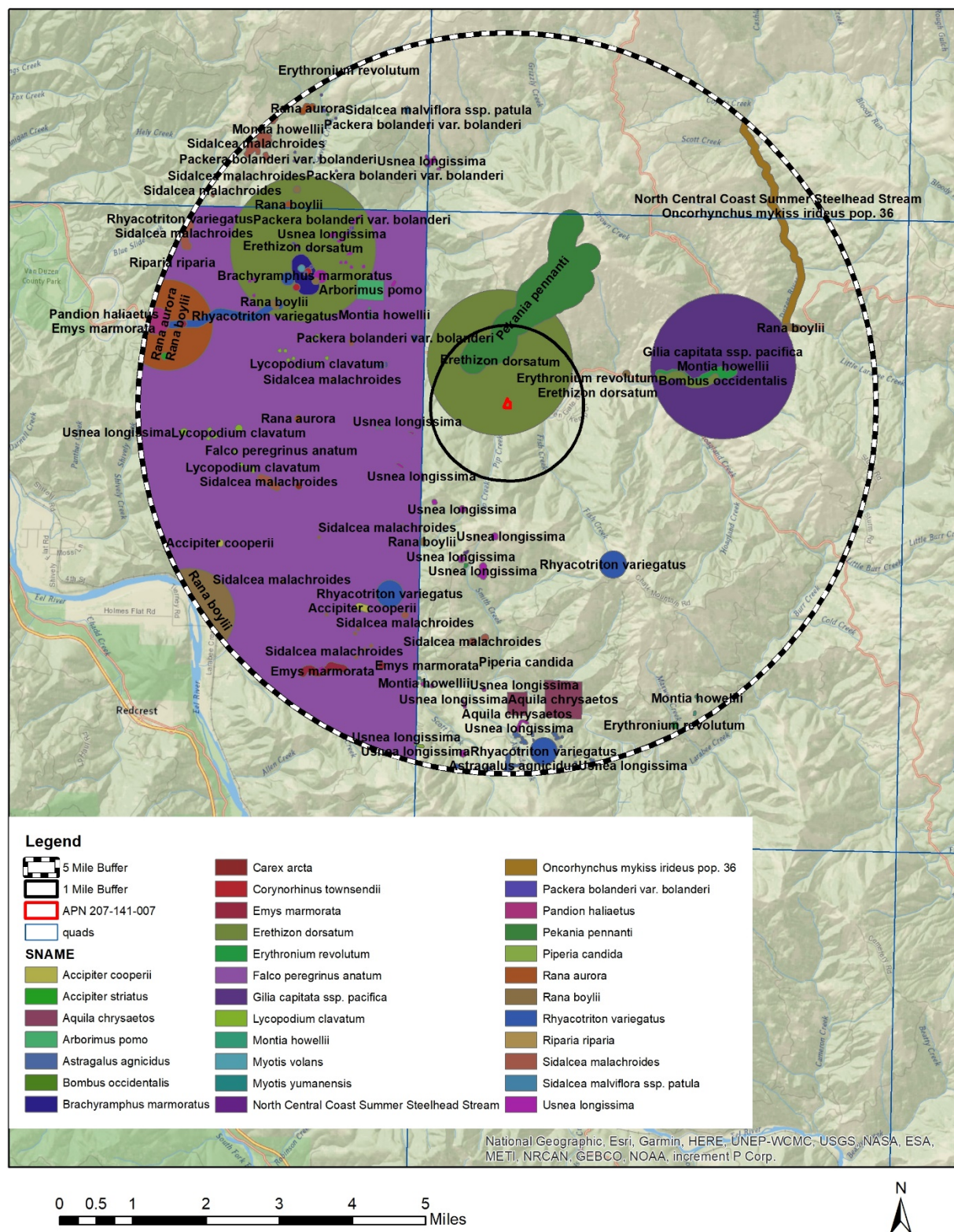


Figure 6. CNDDb search results of observed rare plant and sensitive animal occurrences within five miles of property.

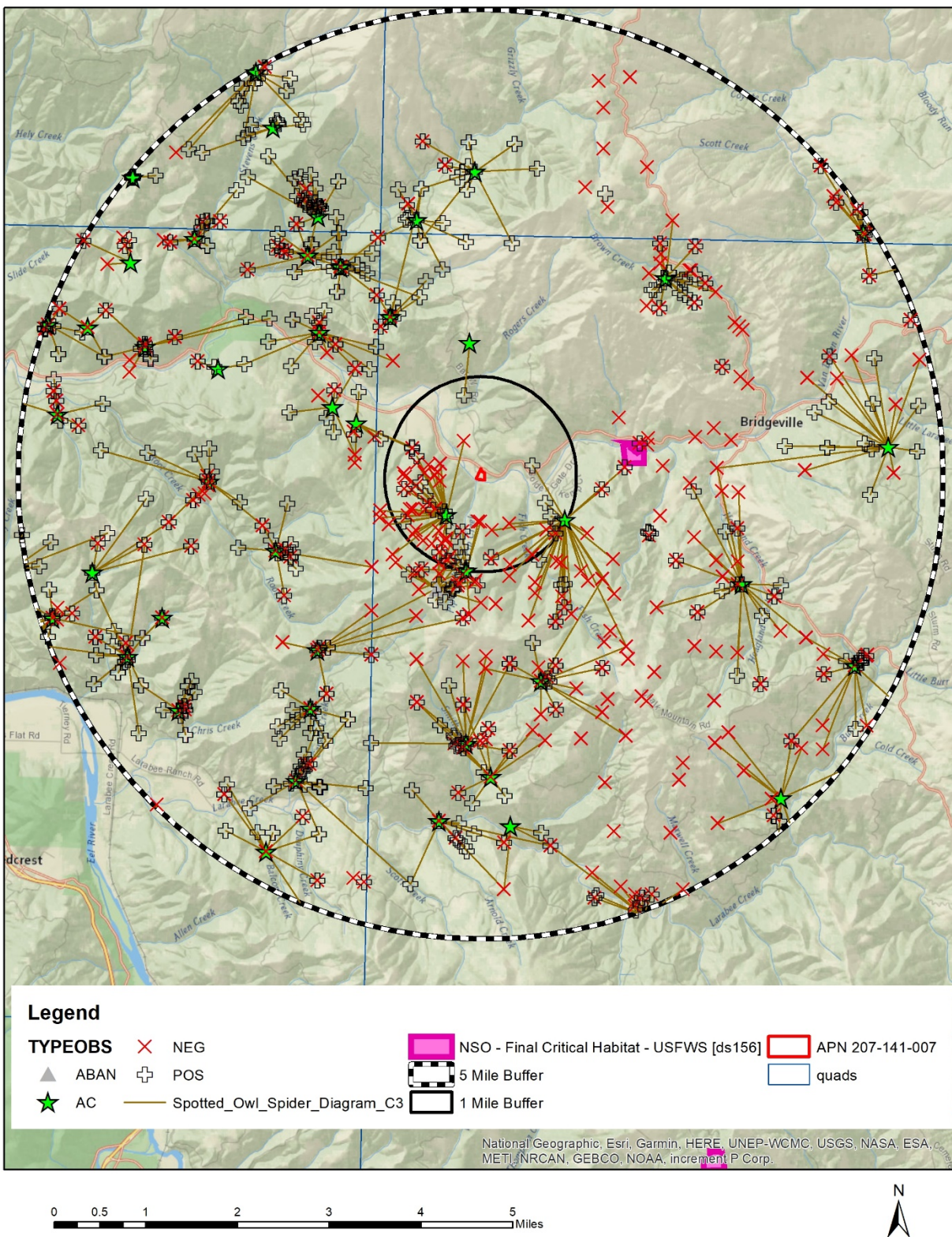


Figure 7. Northern Spotted Owls database entries within 5 miles of property.

Table 1. CNDDDB nine-quad database results for the Bridgeville 7.5' quadrangle (species listed in CNPS 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.	High-Riparian trees present but out of impacted areas. Indirect impacts possible.
<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>Accipiter striatus</i>	sharp-shinned hawk	N	N	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas.	North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.	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>Atractelmis 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-Elevation of project too 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, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	Moderate
<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.		Moderate
<i>Brachyramphus marmoratus</i>	marbled murrelet	T	E	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz.	Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	Low
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	N	N	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites	High-Roosting/foraging habitat present but out of impacted

Scientific Name	Common Name	FESA	CESA	General Habitat	Microhabitat	Probability of Occurrence
					limiting. Extremely sensitive to human disturbance.	areas. Indirect impacts possible.
<i>Emys marmorata</i>	western pond turtle	N	N	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation.	Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	High-Aquatic habitat present but out of impacted areas. Indirect impacts possible.
<i>Erethizon dorsatum</i>	North American porcupine	N	N	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
<i>Lasiurus blossevillii</i>	western red bat	N	N	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests.	Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	High-Roosting/foraging habitat present but out of impacted areas. Indirect impacts possible.
<i>Martes caurina humboldtensis</i>	Humboldt marten	N	C E	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	Moderate
<i>Myotis volans</i>	long-legged myotis	N	N	Most common in woodland and forest habitats above 4000 ft. Trees are important day roosts; caves and mines are night roosts.	Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	Moderate
<i>Myotis yumanensis</i>	Yuma myotis	N	N	Optimal habitats are open forests and woodlands with sources of water over which to feed.	Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Moderate
North Central Coast Summer Steelhead Stream	North Central Coast Summer Steelhead Stream	N	N			High-Stream habitat present but out of impacted areas. Indirect impacts possible.
<i>Noyo intersessa</i>	Ten Mile shoulderband	N	N	Found in coastal dunes, coastal scrub, and riparian redwood forest habitats.		High-Aquatic habitat present but out of impacted areas. Indirect impacts possible.
<i>Oncorhynchus clarkii clarkii</i>	coast cutthroat trout	N	N	Small coastal streams from the Eel River to the Oregon border.	Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	High-Stream habitat present but out of impacted areas. Indirect impacts possible.

Scientific Name	Common Name	FESA	CESA	General Habitat	Microhabitat	Probability of Occurrence
<i>Oncorhynchus mykiss irideus</i> 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.	High-Stream habitat present but out of impacted areas. Indirect impacts possible.
<i>Oncorhynchus tshawytscha</i> pop. 17	chinook salmon - California coastal ESU	T	N	Federal listing refers to wild spawned, coastal, spring & fall runs between Redwood Cr, Humboldt Co & Russian River, Sonoma Co		High-Stream habitat present but out of impacted areas. Indirect impacts possible.
<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.	High-Riparian trees present but out of impacted areas. Indirect impacts possible.
<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.	High-Riparian trees present but out of impacted areas. Indirect impacts possible.
<i>Rana aurora</i>	northern red-legged frog	N	N	Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	High- Stream/wetland habitat present but out of impacted areas. Indirect impacts possible.
<i>Rana boylei</i>	foothill yellow-legged frog	N	C T	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- Stream habitat present but out of impacted areas. Indirect impacts possible.
<i>Rhyacotriton variegatus</i>	southern torrent salamander	N	N	Coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest.	Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rocks within trickling water.	Moderate
<i>Riparia riparia</i>	bank swallow	N	T	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	High-Riparian banks present but out of impacted areas. Indirect impacts possible.
Upland Douglas Fir Forest	Upland Douglas Fir Forest	N	N			Low

Table 2. CNPS nine-quad database results for the Bridgeville 7.5' quadrangle.

Scientific Name	Common Name	Lifefrom	CRPR	Habitat	Probability of Occurrence
Astragalus agnicidus	Humboldt County milk-vetch	perennial herb	1B.1	Broadleaved upland forest, North Coast coniferous forest	Moderate
Astragalus umbraticus	Bald Mountain milk-vetch	perennial herb	2B.3	Cismontane woodland, Lower montane coniferous forest	Low
Carex arcta	northern clustered sedge	perennial herb	2B.2	Bogs and fens, North Coast coniferous forest (mesic)	Low
Castilleja ambigua var. ambigua	johnny-nip	annual herb (hemiparasitic)	4.2	Coastal bluff scrub, Coastal prairie, Coastal scrub, Marshes and swamps, Valley and foothill grassland, Vernal pools margins	Low
Coptis laciniata	Oregon goldthread	perennial rhizomatous herb	4.2	Meadows and seeps, North Coast coniferous forest (streambanks)	Moderate
Cypripedium fasciculatum	clustered lady's-slipper	perennial rhizomatous herb	4.2	Lower montane coniferous forest, North Coast coniferous forest	Moderate
Epilobium septentrionale	Humboldt County fuchsia	perennial herb	4.3	Broadleaved upland forest, North Coast coniferous forest	Moderate
Erythronium oregonum	giant fawn lily	perennial bulbiferous herb	2B.2	Cismontane woodland, Meadows and seeps	Moderate
Erythronium revolutum	coast fawn lily	perennial bulbiferous herb	2B.2	Bogs and fens, Broadleaved upland forest, North Coast coniferous forest	Moderate
Gilia capitata ssp. pacifica	Pacific gilia	annual herb	1B.2	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland	Low
Lathyrus glandulosus	sticky pea	perennial rhizomatous herb	4.3	Cismontane woodland	Low
Lilium kelloggii	Kellogg's lily	perennial bulbiferous herb	4.3	Lower montane coniferous forest, North Coast coniferous forest	Moderate
Lilium rubescens	redwood lily	perennial bulbiferous herb	4.2	Broadleaved upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest	Moderate
Listera cordata	heart-leaved twayblade	perennial herb	4.2	Bogs and fens, Lower montane coniferous forest, North Coast coniferous forest	Moderate
Lycopodium clavatum	running-pine	perennial rhizomatous herb	4.1	Lower montane coniferous forest (mesic), Marshes and swamps, North Coast coniferous forest (mesic)	Moderate

<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	Moderate
<i>Montia howellii</i>	Howell's montia	annual herb	2B.2	Meadows and seeps, North Coast coniferous forest, Vernal pools	Low
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	perennial rhizomatous herb	2B.2	Coastal scrub, North Coast coniferous forest	Moderate
<i>Piperia candida</i>	white-flowered rein orchid	perennial herb	1B.2	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	Moderate
<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>Pleuropogon refractus</i>	nodding semaphore grass	perennial rhizomatous herb	4.2	Lower montane coniferous forest, Meadows and seeps, North Coast coniferous forest, Riparian 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>Sidalcea malachroides</i>	maple-leaved checkerbloom	perennial herb	4.2	Broadleafed upland forest, Coastal prairie, Coastal scrub, North Coast coniferous forest, Riparian woodland	Moderate
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	perennial rhizomatous herb	1B.2	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest	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	Low

Site Photographs



Existing greenhouses on-site. Proposed to move inland on property to meet waterway buffer



Waterway, Class II, near current greenhouses



Tree line near Van Duzen River riparian area



Grass field on property



Proposed trees for removal



Other ornamental trees on property

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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