TransTerra Consulting

INTEGRATED ENVIRONMENTAL SERVICES

Preliminary Biological Resource Assessment for APN 223-074-004/006/009 Tobias Hafenecker-Dodge

Prepared by:

TransTerra Consulting LLC
791 8th Street
Arcata, CA 95521
Contact: Tamara Camper
(707) 840-4772

CONTENTS

Table of Figures

Table of Tables

APPENDICES

INTRODUCTION

Purpose of Study

This Preliminary[1] Biological Resource Assessment (PBRA) was prepared in accordance with Humboldt County Ordinance No. 2599, the Commercial Cannabis Land Use Ordinance (CCLUO) (Humboldt County Board of Supervisors, 2018). The goals of the CCLUO are to ensure that Best Management Practices are implemented for all commercial cannabis operations, including strong protections for the environment. Protections for the environment include preserving sensitive habitats and preventing impacts to special status[2] plant or animal species as mandated by the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA). In addition to the CESA, the California Environmental Quality Act (CEQA) provides that species categorized as "Species of Special Concern" (SSC) "Fully Protected Species" (FP) or "Watchlisted Species" (WL) by the California Department of Fish and Wildlife (CDFW) are also considered during impact analysis.

This PBRA provides baseline biological-resource data, observations, analysis, and, as needed, mitigation recommendations to fulfil the requirements of the cannabis permitting process by Humboldt County. It is designed to determine the potential extent of special habitats and whether protocol-level special status species surveys are necessary prior to development. Additionally, in compliance with Humboldt County Ordinance 2599, section 55.4.12.16, an analysis on the presence of invasive species in the area of project activities is provided along with recommendations as needed for their control or eradication.

Project Area

In the following report, the "Project Area" is defined as the area within the parcel where direct impacts to the environment from commercial activities may occur. On-site field assessments are

[1] This Preliminary Biological Resources Assessment was conducted to satisfy mandatory requirements for cannabis permitting by the Humboldt County Planning and Building Department. However, because the field survey was completed period outside the ideal for observing seasonally driven life cycles for plants and animals (May – September), some plant species, including seasonally flowering bulbs, biennials, and annuals, may not have been observable, and evidence for nesting and other seasonally constrained activities by animals may have been temporarily absent. As a result, full floristic surveys and/or protocol-level surveys could not be adequately completed. Therefore, the findings of this report are considered preliminary pending agency review and a determination as to the reasonable need for species-specific, protocol-level surveys to be completed at a more appropriate time. Such recommendations would be pursuant to the Final Environmental Impact Report (FEIR) amendments to the Humboldt County Code Regulating Commercial Cannabis Activities (Ascent Environmental, Inc., 2018).

[2] "Special status" plant or animal species include those that are: (1) listed as rare, threatened, or endangered under either ESA or CESA; (2) considered rare or endangered under Section 15380 of CEQA; or (3) are federally designated as "sensitive species" or State-designated "species of special concern" which, although not officially listed, are showing decline and are being monitored.

completed within the Project Area. An additional "Biological Assessment Area" (BAA) encompasses a larger buffer zone around the Project Area to evaluate the potential for indirect impacts to nearby sensitive habitats, special status species, or seasonal or migrating species, as a result of activities within the Project Area. The BAA is evaluated using online maps and databases, as described below. The BAA may extend beyond the project parcel; however, field studies are not conducted outside of parcel boundaries due to access restrictions unless otherwise specified.

Project Location and Description

The property is with the Humboldt assessor's parcel number (APN) 223-074-004/006/009 is located off Little Buck Valley Road in Garberville of Humboldt County, California (Table 1, Figure 1). The Project Area is located on three parcels totaling to 400-acres spanning approximately 550 to 1,560 feet above sea level.

Table 1. Parcel and Project Area overview

Property Data	*Description*		
APN #	*223-074-004*	*223-074-006*	*223-074-009*
Parcel size	*160-acres*	*80-acres*	*160-acres*
USGS 7.5-minute quadrangle	*Garberville/Harris*		
Location	*Section 29, T4S, R4E, Humboldt Meridian*		
Humboldt County Zoning / Land-Use Designation	*Agriculture Exclusive, Special Building Site, Timberland Production/ Agricultural Grazing*		

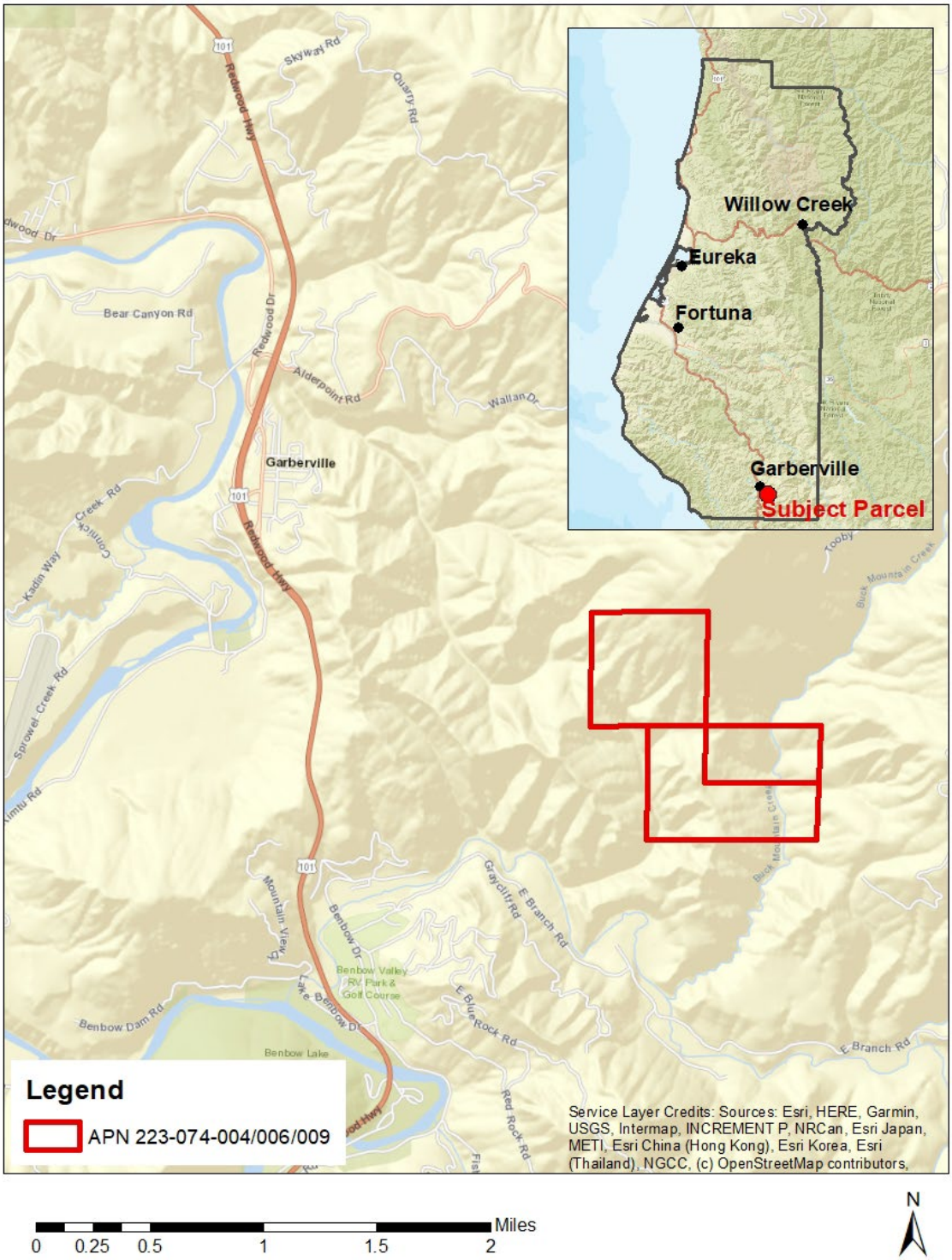

Figure 1. Project location

The proposed project spans three parcels; APN 223-074-009, APN 223-074-006, and APN 223-074-004. Existing cultivation areas on the parcels include light deprivation (outdoor) cultivation areas including 17 (60 ft x 10 ft) greenhouses totaling to 10,000 SQFT of cultivation area on APN -009, 30 (60 ft x 10 ft) greenhouses totaling to 18,000 SQFT of cultivation area on APN - 006, and 21 (60 ft x 10 ft) greenhouses totaling to 12,000 SQFT of cultivation area on APN -004. Existing cultivation buildings included in the project are one (1) nursery (6,000 SQFT), two (2) multi-use buildings (576 and 1,440 SQFT) for immature plants, harvest and chemical storage, and admin hold area, one (1) office (200 SQFT), one (1) harvest storage container (200 SQFT), one (1) generator shed (400 SQFT), two (2) tool storage sheds (100 and 240 SQFT), and nine (9) harvest storage sheds (128 SQFT). Existing domestic buildings included in the project are three (3) residence (624, 128, and 960 SQFT), two (2) seasonal living cabins (ea. 200 SQFT), one (1) domestic storage building (110 SQFT), one (1) domestic storage trailer (208 SQFT), and two (2) storage containers (160 SQFT). Existing water storage on-site includes three (3) 50,000-gallon tanks, four (4) 5,000-gallon HDPE tanks, one (1) 2,500-gallon HDPE tank, four (4) 600-gallon HDPE tanks, and four (4) 4,000-gallon tanks totaling to 174,900 gallons of water storage. Two (2) wells provide water for cannabis irrigation while power is supplied by multiple generators (6.5 KW, 45 KW, 3.5 KW) as well as solar panels. Several cultivation areas have been decommissioned throughout APN -004.

Proposed development on-site includes one (1) processing building (2,880 SQFT), one (1) 85 KW generator, 13 5,000-gallon HDPE tanks, seven (7) 600-gallon HDPE tanks, and one (1) 250,000-gallon tank totaling to an additional water storage of 319,200 gallons.

In addition, several areas have been developed within a Streamside Management Area (SMA) which are in need of restoration or proposed to be moved out of the SMAs.

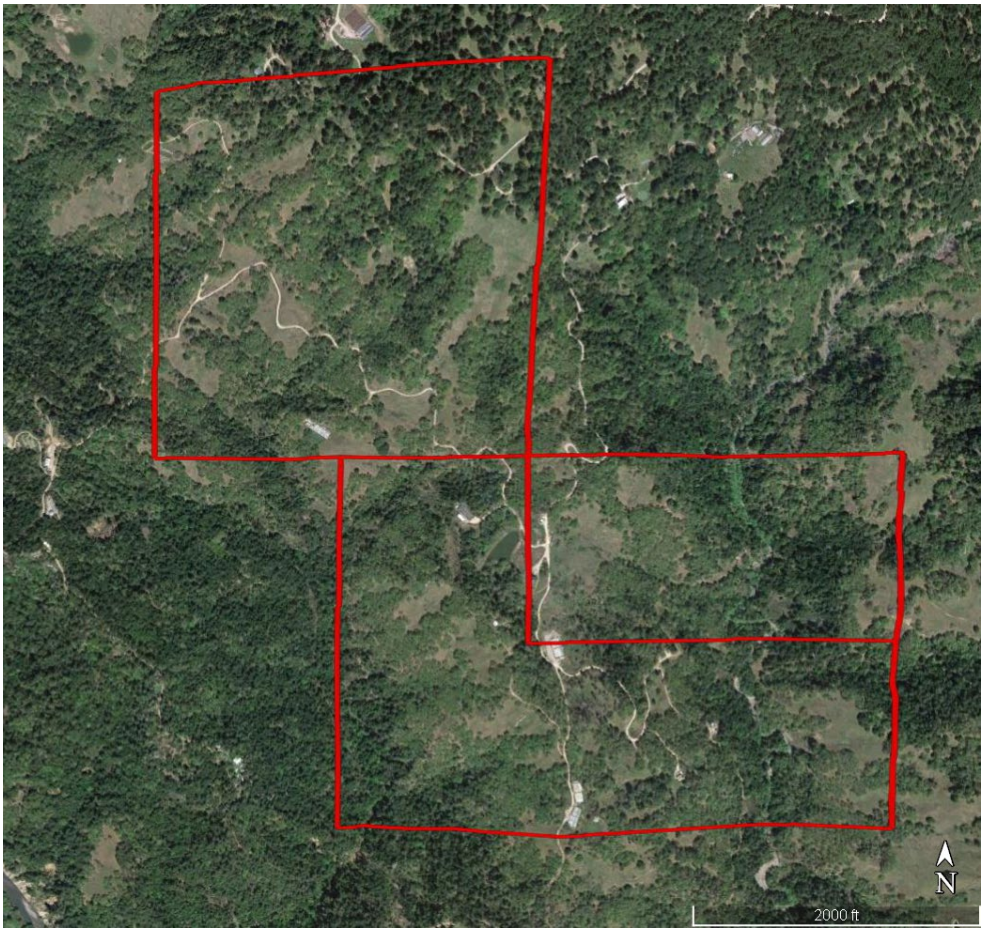

Figure 2. Aerial image of the Project Area and existing infrastructure (Google Earth 2020)

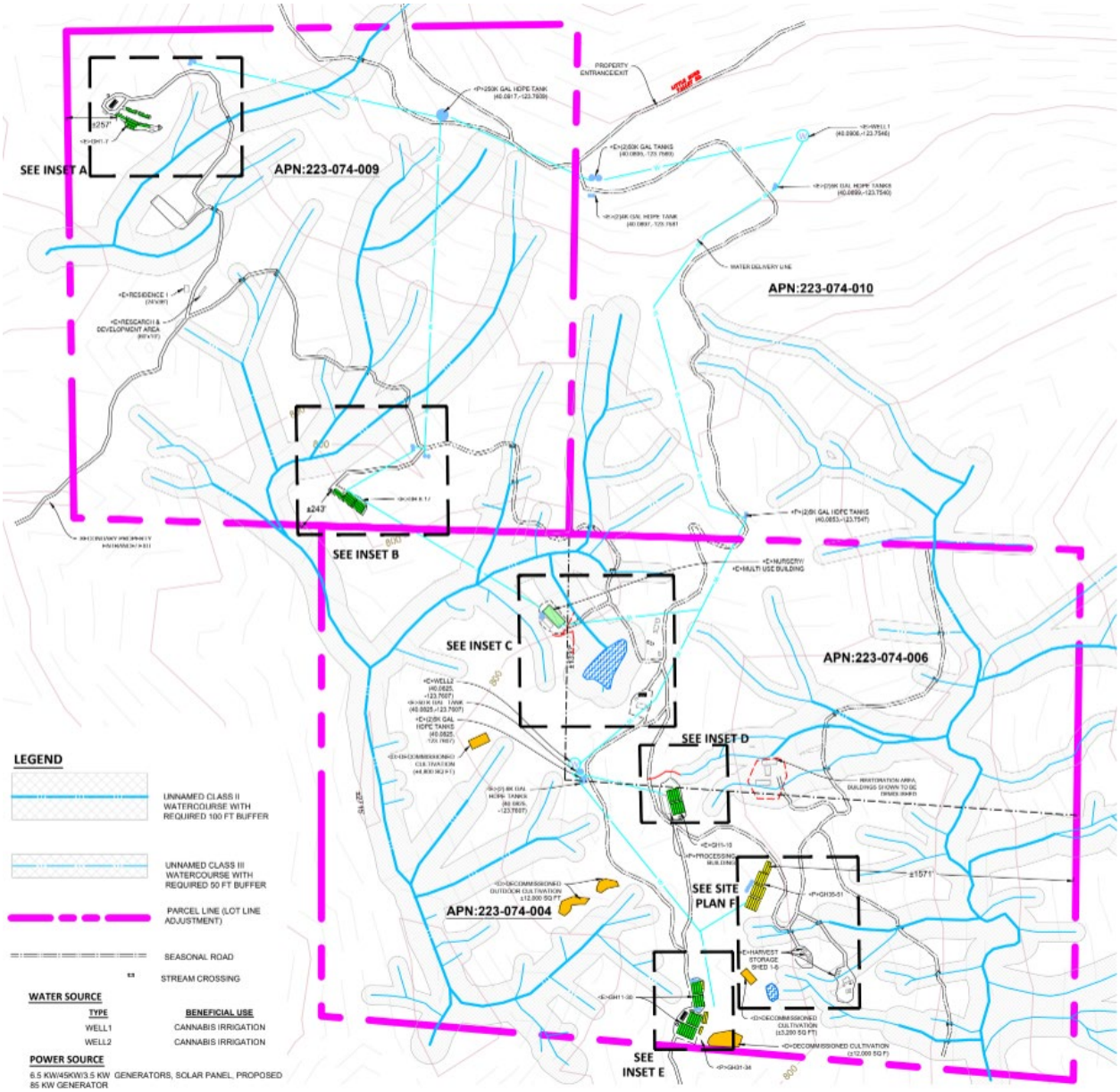

Figure 3. Map showing proposed project activities (Provided by Green Road Consulting)

METHODS

A PBRA is based on information from several sources: (1) published research, maps, and databases showing the distribution of ecological habitats, soil types, watercourses, topography, and the local and regional distribution of special status plant and animal species; (2) on-site field evaluations and data collection by a certified, professional biologist; and, where applicable, (3) consultation with knowledgeable outside sources such as federal, state, or county scientists or land managers, private consultants, and property owners.

Records Search and Literature Review

Occurrences of biological species are a function of their physical environment. Therefore, prior to on-site field assessments, TransTerra compiles hydrologic, physiographic, habitat, and species-distribution information for the project site and vicinity. Where applicable, watercourses and wetland areas are identified through the Humboldt GIS Portal[3] and the National Wetlands Inventory[4] (NWI). Soil types are mapped with the Natural Resource Conservation Service Web Soil Survey[5] or the Humboldt GIS Portal. Topography and elevation data are compiled from USGS 7.5-minute topographic maps. General habitat distribution and historical land-use are determined from Google Earth Pro (v.7.3) aerial imagery. Base maps for the field assessment are compiled using the Avenza Systems field mapping application[6].

Lists of special status plant and animal species with a potential to occur in the Project Area are compiled from the CDFW's California Natural Diversity Database (CNDDB)[7], which includes the stand-alone Spotted Owl Observations Database[8] and the California Native Plant Society (CNPS) database[9]. The databases are searched using a 9-quad query that includes the USGS 7.5-minute quadrangle in which the project site is located plus the surrounding 8 quadrangles. Other pertinent resources for special status species in Humboldt County include the Jepson Manual, Second Edition (Baldwin et al., 2012) and the Arcata Fish and Wildlife Office website[10]. The local and regional species-distribution data from these

[3] https://humboldtgov.org/1357/Web-GIS

[4] https://www.fws.gov/wetlands

[5] https://websoilsurvey.sc.egov.usda.gov

[6] https://www.avenza.com/avenza-maps

[7] https://wildlife.ca.gov/Data/CNDDB

[8] https://wildlife.ca.gov/Data/CNDDB/Spotted-Owl-Info

[9] http://www.rareplants.cnps.org/

[10] https://www.fws.gov/arcata/es

sources are cross-referenced with the physiography and habitat types at the project site to generate a refined list of species with a reasonable probability to be found at that location. The databases are also used to produce a map of specific locations near the Project Area where special status species can be observed in the field, for comparison with specimens on-site. The California Invasive Plant Council (Cal-IPC) inventory.[11] is the primary reference for documenting invasive plants in the Project Area.

Field Assessment and Data Collection

The area covered by the field assessment for this PBRA was determined by the project description provided by the client, in addition to observations for any possible adjacent areas of direct, indirect, or cumulative effects, as discussed below. Though protocol level surveys for plants were not conducted, surveys for sensitive natural communities follow CDFW's (2018) *Protocol for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural* Communities. The reconnaissance survey includes an assessment of the various habitats present in the Project Area, any sensitive habitat types, habitats associated with rare plant species, an inventory of plant species, and an inventory of wildlife signs including tracks, scat, ground dwellings, and tree habitats (e.g., cavities, nests, scrapes, or accumulated vegetation). All observations of habitats, including evidence for pertinent floral and faunal species as well as watercourses and wetland areas are recorded on-site. The field assessment for this project was completed on April 19, 2020 by TransTerra Associate Biologists Margaux Karp and Holly Vadurro.

ENVIRONMENTAL SETTING

The BAA is located in the North Coast Ranges Subregion of the Northwestern California Region of the California Floristic Province (Jepson Flora Project, 2020). The climate classification for this area is Warm Temperate (Köppen, 1936), with moderate to warm temperatures on average and most precipitation occurring during winter months.

The property is situated in the Lower East Branch South Fork Eel River Watershed—South Fork Eel Planning (Humboldt County, 2020). Elevations on the property are approximately 550 to 1,560 ft. The BAA is primarily flat to sloping ranging between 15 to greater than 50 percent slopes.

Steep slopes within North Coast Ranges are prone to high instability and landsliding (Kelsey, 1978). Several historic landslides are mapped throughout all the BAA. Potential liquefaction or other geologic hazards are not evident in the BAA (Humboldt County, 2020). The Garberville-Briceland Fault Zone is mapped through all three parcels. The BAA is mapped as possessing moderate to high levels of instability. Fire risk for the area during dry periods is high to very high in severity.

[11] https://www.cal-ipc.org/plants/inventory

Soils

The kinds of soils on a property will strongly influence whether or not sensitive natural communities or special status plants will be present. For example, hydric soils, which are seasonally, or permanently saturated soils as found in wetlands, or soils that possess unique "edaphic characteristics" such as high serpentine content, provide the required substrate for the growth and survival of particular sensitive communities and plants. Soil types from the National Resources Conservation Service Web Soil Survey[12] are listed below. These soil surveys are estimations of soils located on-site and are often not accurate at a fine scale.

Five main soil types are mapped on the parcel (Figure 4, Table 2), with Coolyork-Yorknorth complex, 30 to 50 percent slopes (673) and Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes (452) found in the BAA. These soils are (1) nonhydric; and (2) not known to possess edaphic characteristics associated with the distribution of sensitive natural communities or special status plants. NRCS soil mapping was not confirmed on-site. Studies regarding soil types and prime agricultural soils are outside of the scope of this report.

Table 2. Soils mapped on the parcel and BAA

Map Unit Symbol	*Map Unit Name*	*Description*	*Hydric?*
673	Coolyork-Yorthnorth complex, 30 to 50 percent slopes	*Coolyork: series consists of very deep, moderately well drained soils formed in residuum and colluvium derived from chloritic schist, mudstone and sandstone. Soils are on mountains and slopes with linear to concave positions ranging from 5 to 75 percent. Coolyork soils have mollic epipedons and contain more than 35 percent clay in the particle size control section.* *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.*	*N*
452	Burgsblock-Coolyork-Tannin complex, 30 to 50 percent slopes	*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 lightly to strongly convex mountain slopes. This series have slopes of 15 to 75 percent.* *Coolyork: see 673 series* *Tannin: series consists of very deep, well drained soils formed in colluvium and residuum derived from sandstone and mudstone. Slope ranges from 9 to 75 percent. 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.*	*N*

[12] https://websoilsurvey.sc.egov.usda.gov/

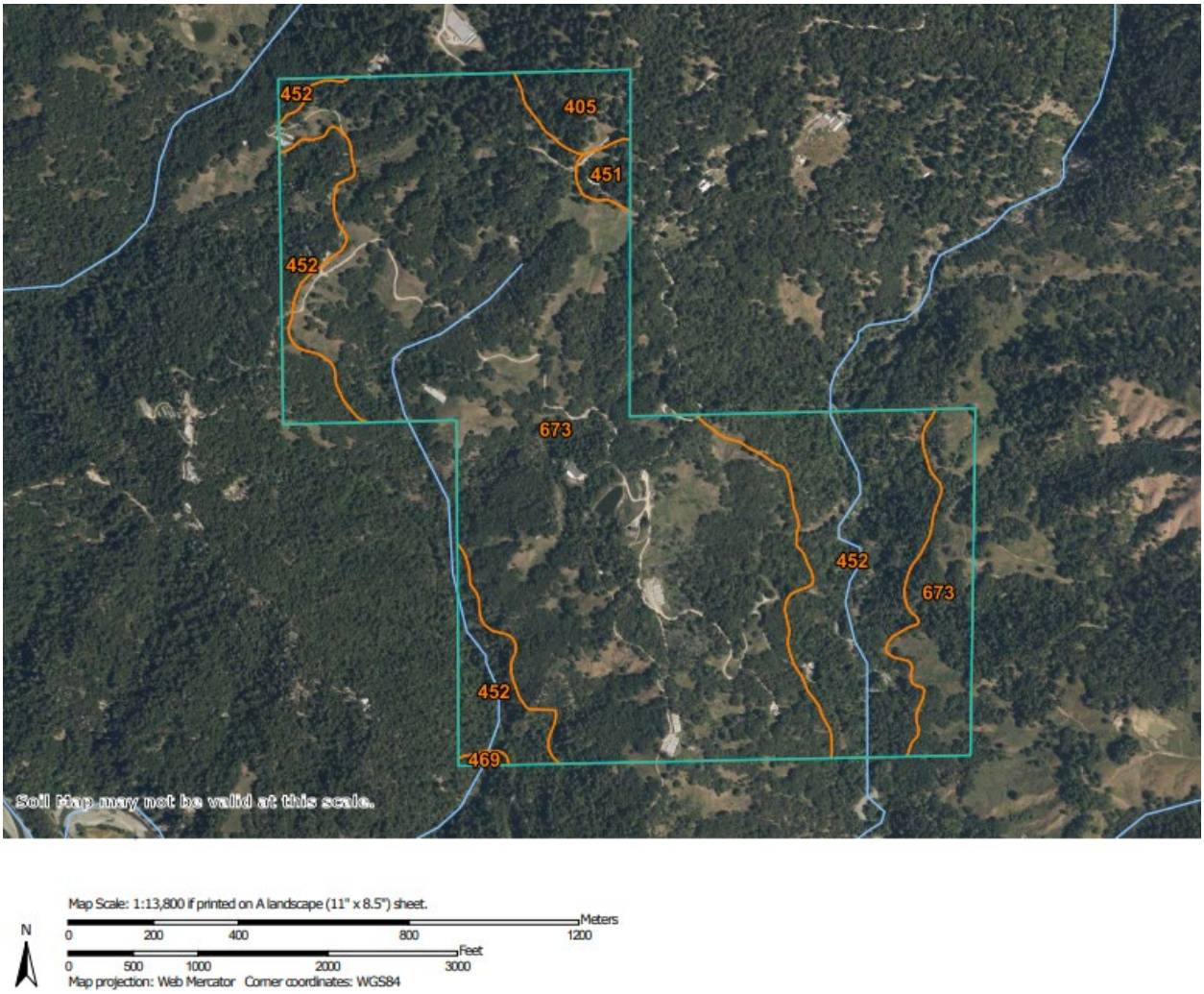

Figure 4. Soil types mapped on the parcel and BAA from the National Resources Conservation Service Web Soil Survey

Watercourses

Watercourses in California are designated as Class I, II, III, or IV based on their annual flow capacity and role in supporting aquatic life (Table 3). Generally, cultivation areas and associated facilities shall not be located or occur within 100 feet of any Class I or II watercourse or within 50 feet of any Class III watercourse or wetlands as conditions on enrollment, including site-specific riparian buffers and other

Best Management Practices beyond those identified in water resource protection plans, to ensure water quality protection[13].

Table 3. Definitions of Class I-IV watercourses

Class	*Definition*
I	*Perennial streams that contain fish or are domestic water supplies*
II	*Perennial streams that do not contain fish but do contain other aquatic life or are within 1,000 ft (305 m) of a Class I stream*
III	*Watercourses that do not support aquatic life but have the potential to deliver sediment to a Class I or II stream.*
IV	*Human-made streams for domestic, agricultural, or hydroelectric supply or for other beneficial use.*

Two Class II watercourses, Panther Canyon and Buck Mountain Creek, are mapped within the BAA; however, Green Road Consulting has identified and mapped multiple, additional Class II and Class III watercourses throughout the parcels (Figure 3).

Wetlands and Streamside Management Areas

Wetlands, as defined by the USDA-Natural Resources Conservation Service (NRCS), are areas that (1) have a predominance of hydric soils; and (2) are inundated or saturated by surface or groundwater at levels necessary to support hydrophytic vegetation that require saturated soil conditions. For this study, a formal wetland delineation per USACE was not performed. Wetland boundaries are estimated by GIS queries and field observations.

A "Streamside Management Area" (SMA) is a legally designated buffer zone along streams and aquatic habitats where extra precaution is required to protect water quality. Section 314-61.6 of the Humboldt County General Plan provides for the protection of SMAs along perennially and intermittent streams as well as other wet areas such as natural ponds, springs, vernal pools, marshes and wet meadows.

Per the Humboldt County GIS layer, the SMA of two watercourses, Panther Canyon and Buck Mountain Creek are located in the BAA. Panther Canyon is located near the middle of APN 009 and the western border of 004 with the SMA primarily greater than 500 ft from the Project Area; However, one portion of this SMA is located approximately 120 ft from the Project Area. Buck Mountain Creek is located through the eastern portions of APN 004 and 006. with the SMAs for this watercourse greater than 500 ft from the Project Area. The NWI and Humboldt GIS layers show wetlands on the property following adjacent to these watercourses (Figure 5). However, these GIS databases may not capture the

13 https://www.waterboards.ca.gov/water_issues//programs/cannabis/docs/policy/final_cannabis_policy_with_attach_a.pdf

full, accurate scope of waterways in the area. Green Road Consulting is tasked with mapping SMA buffers to determine appropriate setbacks (Figure 3).

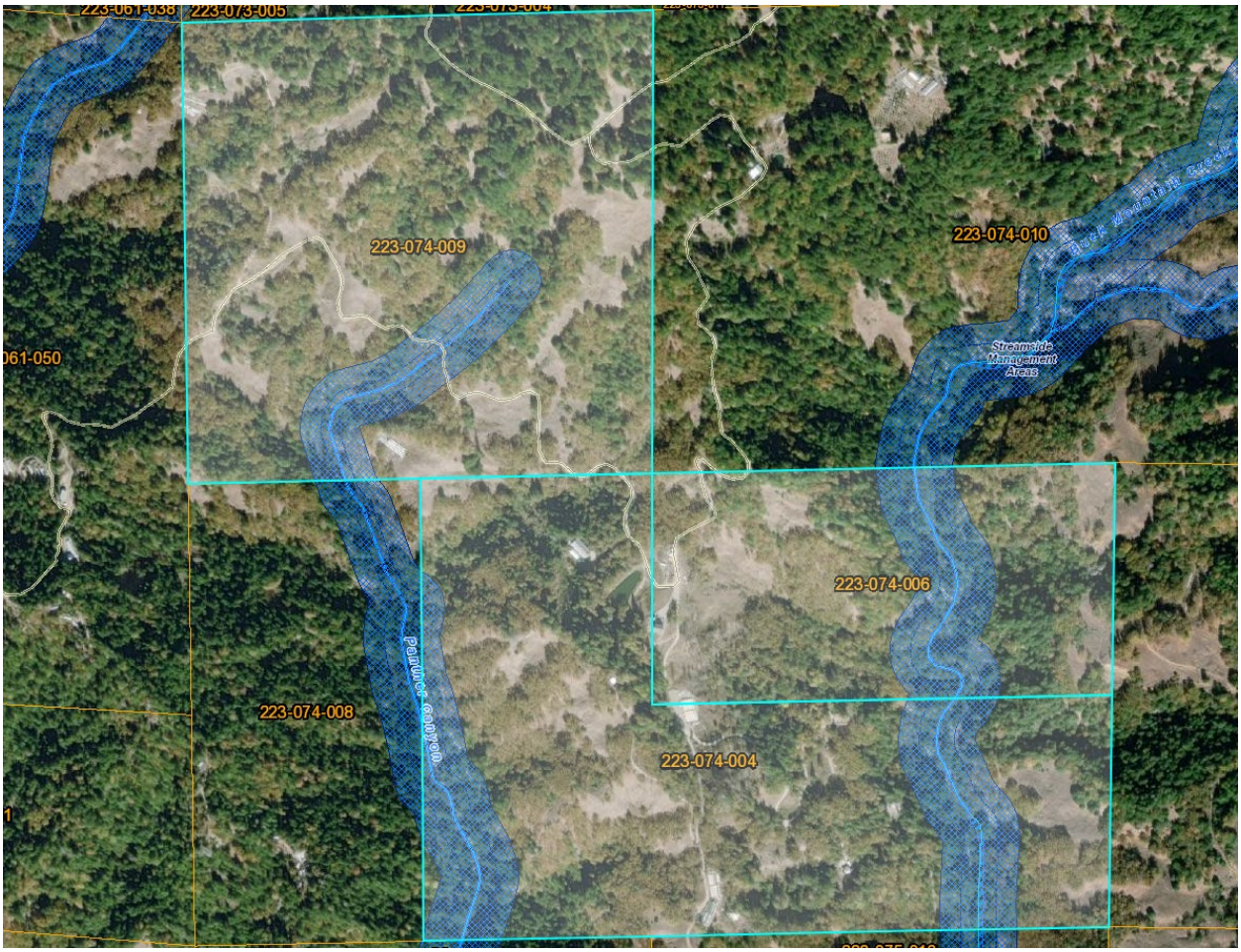

Figure 5. Map of watercourses, Streamside Management Areas (SMAs), and wetlands on the property as mapped by Humboldt County GIS

Other Hydrology

There is one man-made pond located in the upper eastern portion of 004 as well as a cattle pond located on APN -009.

Streamside Management Area Development

Several existing areas were developed within a SMA (Table 4). Inset C area (Figure 3) consists of one (1) nursery structure (6,000 SQFT), six (6) HDPE water tanks, one (1) multi-use building (576 SQFT), two (2) gas containers, and an electrical board. Three of the water tanks are within the western SMA and about half of the nursery building is located within the eastern SMA as well as much of the graded flat developed to hold these structures. Damage within the western SMA was minimal with slight

grading and de-vegetation from a small portion of the graded flat and placement of the water tanks. Total disturbance within the eastern SMA was 0.16 acres due to the graded flat and nursery, consisting of grading and de-vegetation. It is recommended the revegetation is to occur within these areas to restore the disturbance (Figure 6).

The nursery is proposed to be moved approximately 1,000 ft southeast to the top of the hillslope to the east of the road. This area is already disturbed by previous development and has a slope of approximately 0 to 8%. Some fill would be needed to level out this area to be suitable for the greenhouse. This area is also located upslope, about 600 ft from a previous observation of Siskiyou checkerbloom.

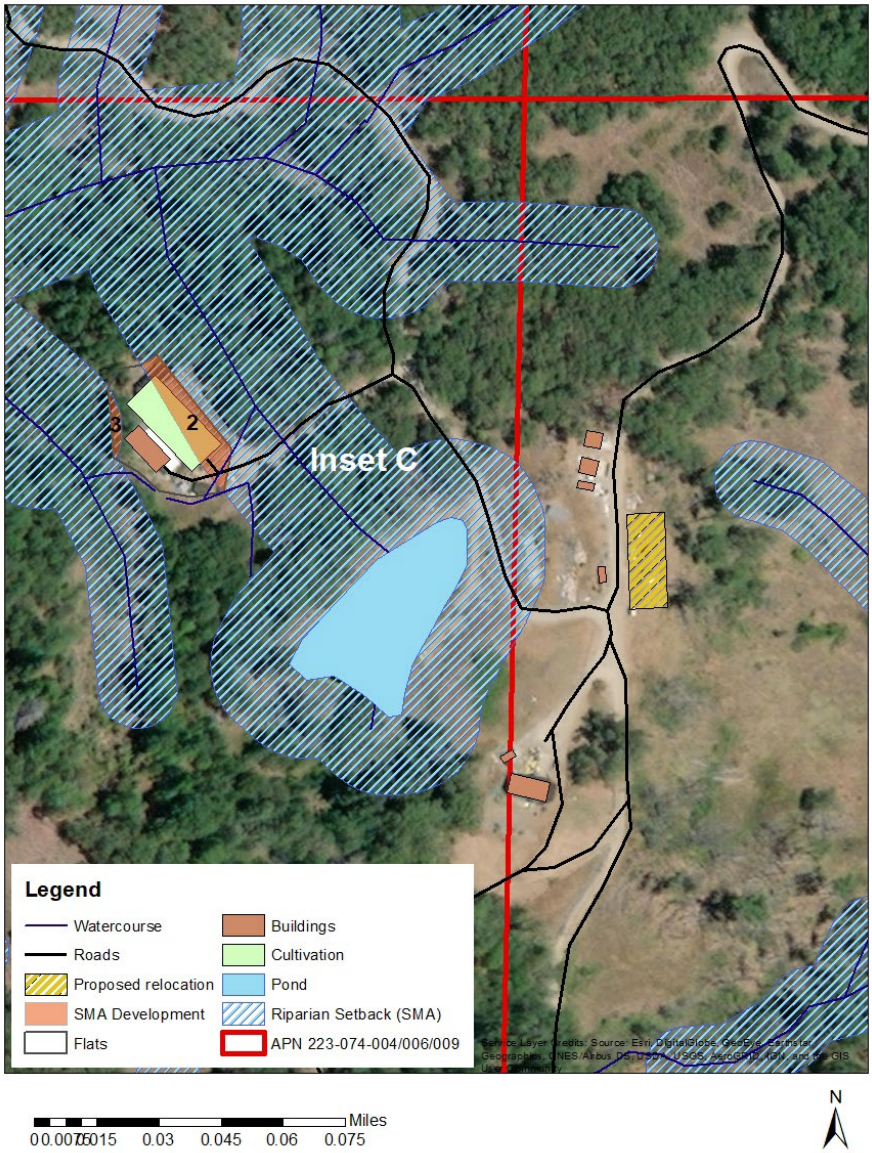

Figure 6. SMA development in Inset C

The inset D area had three domestic buildings that were already demolished at the time of the site visit and in the process of clearing the remaining debris (Figure 7). Wattle was also present on the eastern slope from the flat. De-vegetation was present throughout this area from slight grading and development. Development within the northern SMA was almost adjacent to the stream. Total disturbance to SMA in the area is 0.81 acres. Precautions should be taken to protect this stream from erosion during restoration, as this stream has very steep edges. In addition, the roadway established here runs through a stream and needs to have a culvert added or restored to allow for proper hydrological flow if use of this road is no longer needed.

Inset D also had slight developed within the 50 ft SMA northeastern portion of the graded flat of the greenhouses to the west of this remediation area is (Figure 7). Total disturbance present in this portion is 0.01 acres. This disturbance is minimal and has cause some de-vegetation and slope change.

The inset F area has two different areas captured within a SMA. The northern area has several harvest storage sheds, however only a portion of the southern graded flat is developed within a 50 ft SMA. The total amount of disturbance within the SMA present here is 0.20 acres. The second area consists of harvest storage sheds and domestic structures. Three of these harvest storage sheds (ea. 128 SQFT) and one residence building (960 SQFT) are completely captured within the 50 ft SMA and one domestic building (100 SQFT) is partially captured. The three harvest storage sheds are proposed to be relocated to an unknown area. A suitable area may be the graded flat directly to the northwest that already houses harvest storage sheds. This area would limit any further development to the parcels, such as grading and de-vegetation and is outside of any SMAs. A small pipe was observed in this area but an appropriate culvert should be installed to allow for proper flow (Figure 7).

Table 4. SMA development disturbance area and descriptions

ID	Area (acres)	Description
1	0.81	Previous buildings now remediation area; restoration already in progress
2	0.14	Nursey present with grading
3	0.02	Graded with water tanks present
4	0.01	Edge of graded flat
5	0.17	Several domestic structures and storage sheds with grading
6	0.13	Edge of graded flat
7	0.02	Edge of graded flat

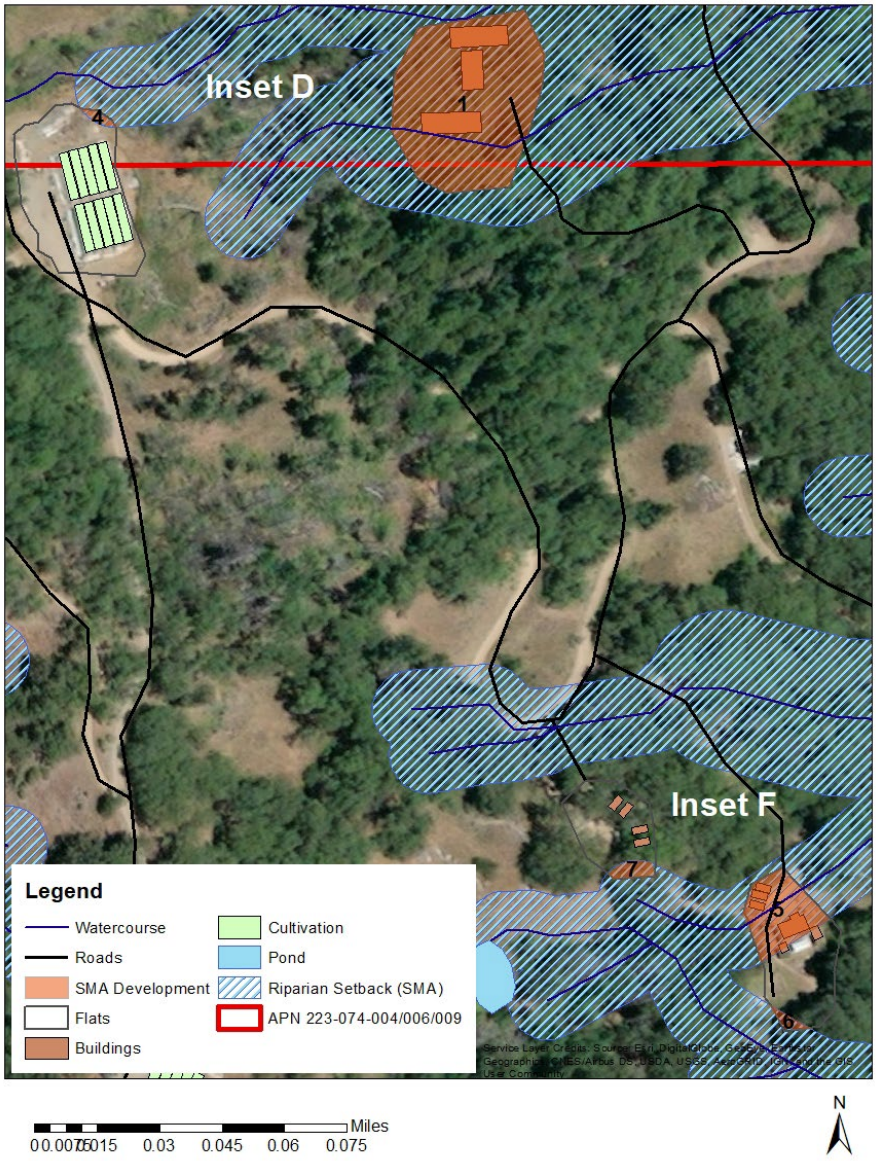

Figure 7. SMA development in Inset D and F

Vegetation Communities

Natural terrestrial communities in the Project Area are designated based on the CDFW criteria originally described in Holland (1986) to facilitate habitat available for sensitive species. Wetland communities are based on Cowardin et al. (1979). Sensitive natural communities are designated based on lists and alliances described using *A Manual of California Vegetation* (CNPS, 2020).

The property is largely dominated by the following vegetation types:

Valley and Foothill Grasslands

Canary grass (*Phalaris* sp.), Bristly dogtail grass, (*Cynosurus echinatus*), and Bent grass (*Agrostis* sp.) were present.

Non-native grassland (42200)

DESCRIPTION: A dense to sparse cover of annual grasses with flowering culms 0.2-0.5 (1.0) m high. Often associated with numerous species of showy- flowered, native annual forbs ("wildflowers"), especially in years of favorable rainfall. Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds.

SITE FACTORS: On fine-textured, usually clay soils, moist or even waterlogged during the winter rainy season and very dry during the summer and fall. Oak Woodland (71100) is often adjacent on moister, better drained soils.

CHARACTERISTIC SPECIES: *Avena barbata, Avena fatua, Bromus mollis, B. rigidus, B. rubens, Erodium botrys, E. cicutarium, Eschscholzia californica, Gilia ssp,. Hemizonia spp.* (summer)*, Lasthenia* ssp*., Layia* spp*., lolium multiflorum, Lupinus* ssp*. Lepidium dictyotum, Medicago hispida, Nemophila menziesii, Orthocarpus* spp*., Phacelia ssp., Schismus arabicua, Vulpia megalura, V. microstachys*.

DISTRIBUTION: Valleys and foothills of most of California, except for the north coastal and desert regions. Usually below 3000 ft. Intergrades with Coastal Prairie (41000) along the central coast.

This vegetation type occurred disturbed areas located in proposed relocation areas.

Wildflower Field (42300)

DESCRIPTION: An amorphous grab bag of herb-dominated types noted for conspicuous annual wildflower displays. Dominance varies from site to site and from year to year at a particular site.

SITE FACTORS: Usually on fairly poor sites (drought, low in nutrients), associated with Grassland or Oak Woodlands on surrounding, more productive sites.

CHARACTERISTIC SPECIES: *Eschscholzia californica, Gilia bicolor, Layia platyglossa, Lupinus bicolor, Orthocarpus cattenuatus, O. purpurasens*

DISTRIBUTION: Valleys and foothills of the California Floristic Province except the north coast (too wet) and desert (too dry) regions. Below about 2000 ft. in the north, 4000-5000 ft. in the south.

This vegetation type occurred throughout the parcel in areas adjacent to proposed relocation areas.

Meadow

Freshwater Seep (45400)

DESCRIPTION: Mostly perennial herbs, especially sedges and grasses, usually forming complete cover, often low growing but sometimes taller, growing throughout the year in areas with mild winters.

SITE FACTORS: Permanently moist or wet soil around freshwater seeps, often associated with grasslands or meadows.

CHARACTERISTIC SPECIES: *Carex* sp., *Juncus* sp., and *Nasturtium officinale*.

DISTRIBUTION: Scattered throughout most regions of California, probably most common in grassland habitats, uncommon in the deserts.

This vegetation type occurred in patches throughout the property.

Cismontane Woodlands

Oregon Oak Woodland (71110)

DESCRIPTION: This woodland varies from pure, closed canopy stands of *Quercus garryana* to mixtures with conifers and broadleaf trees to open savannas.
SITE FACTORS: Dries, warmer slopes and canyon bottoms within the Mixed Evergreen Forest (81100) and Douglas Fir Forest (82400). Many stands have older, open-growth form trees surrounded by more narrow-canopied, younger trees- a reflection of reduced fire-frequency.
CHARACTERISTIC SPECIES: *Arbutus menziesii, Calocedrus decurrens, Pinus ponderosa, Pseudotsuga menziesii, Quercus chrysolepis, Q. kelloggii, Q. garryana, Toxicodendron diversilobum, Umbellularia californica*.
DISTRIBUTION: Coast Ranges from the Santa Cruz Mountains north.
This vegetation type occurred in abundance throughout the property. Shown in Map 2 of the July,2018 botany survey summarized the distribution of this community type.

Lower Montane Coniferous Forests

Coast Range Mixed Coniferous Forest (84110)

DESCRIPTION: An essentially closed forest to 150-200 ft tall, dominated by *Pinus ponderosa* and *Pseudotsuga menziesii*, in varying proportions, together with *Pinus lambertiana*, *Calocedrus decurrens*, and several broadleaved trees. There is very little *Abies concolor*. Stands usually are uneven aged, with upper canopies dominated by *Pinus ponderosa*. Understories usually are sparse. Most growth occurs in late spring and early summer.
SITE FACTORS: Primarily found on mesic sites (north and east aspects, canyons, etc.) in California, usually on well-drained, coarse but relatively moist soils, sometimes occurring on serpentine. Transitional between Mixed Evergreen Forest (81100) and Sierran Mixed Conifer Forest (84230), usually at higher elevations with a more severe climate than the former and at lower elevations with a milder climate than the latter. May also intergrade with Douglas Fir Forest (82400), Knobcone Pine Forest (83210), Santa Lucia Fir Forest (84120), Coulter Pine Forest (84140) or Coast Range Ponderosa Pine Forest (84310).
CHARACTERISTIC SPECIES: *Acer macrophyllum, Arbutus menziesii, Calocedrus decurrens, Cornus nuttallii, Corylus cornuta californica, Notholithocarpus densiflorus, Pinus Coulteri (Monterey Co.), P. lmbertiana, P. ponderosa, Pseudotsuga menziesii* (N. Coast Range)*, Quercus chrysolepis, Q. kelloggii, Rosa woodsii, Trientalis latifolia, Viola lobata*
DISTRIBUTION: Klamath and NorthCoast Ranges from southwestern Oregon to Sonoma and Napa counties, thence scattered southward on summits of the Santa Lucia Mountains in Monterey County. Elevations from 2000-4000 ft. in the north, 3500-6000 ft. in the south.
This vegetation type occurred in patches throughout the property.

Summary: The Project Area was primarily composed of Nonnative grasslands were dominated by non-native grasses. Dominants of the Wildflower Field were difficult to determine as blooming season had not begun its peak. The BAA contained Meadow habitat as Freshwater Seep; soft rush (*Juncus effusus*) was the dominant species. Oregon oak woodland was prevalent throughout the property. Coast Range Mixed Coniferous Forest dominated by Douglas fir is also present.

Offsite Conditions

Offsite conditions primarily consist of adjacent woodlands, forest, watercourses, and grassy openings within the forest/woodland habitat to the north, west, and south and large grassy openings to the east.

Table 5. Plant species observed during field assessment (full floristic survey not conducted)

Layer	Scientific Name	Common Name	WMVC
Herbs	*Adenocaulon bicolor*	Trail plant	UPL
	Agrostis sp.	Bent grass	
	Allium sp.	Onion	
	Anaphalis margaritacea	Pearly everlasting	FACU
	Anthemis arvensis	Corn chamomile	UPL
	Athyrium filix-femina var. cyclosorum	Lady fern	FAC
	Briza maxima	Rattlesnake grass	NL
	Cardamine oligosperma	Western bittercress	FAC
	Centaurium erythraea	European centuary	FAC
	Chlorogalum pomeridianum var. pomeridianum	Soap plant	NL
	Cirsium arvense	Canada thistle	FAC
	Cynosurus echinatus	Bristly dogtail grass	UPL
	Eleocharis macrostachya	Creeping spike-rush	UPL
	Galium aparine	Goose grass	FACU
	Galium californicum	California bedstraw	UPL
	Geranium dissectum	Cut-leaved geranium	UPL
	Geranium molle	Dove's foot geranium	
	Hypericum perforatum subsp. perforatum	Klamathweed	FACU
	Hypochaeris radicata	Rough cat's-ear	FACU
	Iris sp.	Iris	
	Juncus bufonius	Toad rush	FACW
	Juncus effusus	Soft or lamp rush	FACW
	Juncus patens	Spreading rush	FACW
	Lupinus bicolor	Miniature lupine	UPL
	Lysimachia arvensis	Scarlet pimpernel	UPL
	Mentha pulegium	Pennyroyal	OBL
	Osmorhiza berteroi	Sweet-cicely	FACU
	Pentagramma triangularis subsp. triangularis	Goldback fern	NL
	Phalaris sp.	Canary-grass	
	Plantago lanceolata	English plantain	FACU
	Poa annua	Annual blue grass	FAC

Layer	Scientific Name	Common Name	WMVC
	Prunella vulgaris	Common self-heal	FACU
	Ranunculus occidentalis	Western buttercup	FACW
	Sanicula crassicaulis	Pacific snakeroot	UPL
	Scirpus microcarpus	Small fruited bulrush	OBL
	Sisyrinchium bellum	Western blue-eyed-grass	FACW
	Stellaria media	Common chickweed	FACU
	Trientalis latifolia	Western starflower	FACW
	Trifolium hirtum	Rose clover	UPL
	Trifolium sp.	Clover	
	Vicia hirsuta	Hairy vetch	UPL
	Vicia sativa subsp. nigra	Narrow-leaved vetch	UPL
	Vicia villosa	Hairy vetch or winter vetch	UPL
	Viola glabella	Sream violet or smooth yellow violet	FACW
	Viola ocellata	Two-eyed violet or western heart's ease	UPL
Shrubs	*Arctostaphylos manzanita subsp. manzanita*	Shiny-leaf whiteleaf manzanita	UPL
	Baccharis pilularis	Coyote brush	UPL
	Lonicera hispidula	Pink honeysuckle	FACU
	Notholithocarpus densiflorus var. densiflorus	Tanoak	UPL
	Quercus chrysolepis	Canyon live oak or maul oak	UPL
	Rosa californica	California rose	FAC
	Rosa gymnocarpa	Wood rose	FACU
	Rubus leucodermis	Whitebark raspberry	FACU
	Toxicodendron diversilobum	Poison-oak	FAC
Trees	*Arbutus menziesii*	Pacific madrone	UPL
	Pseudotsuga menziesii var. menziesii	Douglas-fir	FACU
	Quercus garryana	Oregon oak	FACU

SENSITIVE NATURAL COMMUNITIES

Natural Communities are part of the "Natural Heritage conservation triad" (CDFW, 2020) for California, tracked along with plants and animals. "Sensitive Natural Communities" are those that are rare either within the state or globally, and are currently ranked by CDFW, CNPS, and other groups within California based on Manual of California Vegetation, 2nd Edition (CNPS, 2020). CDFW considers alliances and associations with a S1 to S3 rank to be Sensitive (CDFW, 2019).

Riparian habitats may be considered to be sensitive natural communities as they qualify as wetlands or "waters of the state" or "waters of the U.S." as regulated by Regional Water Quality Control Board or U.S. Army Corps of Engineers through the *Clean Water Act* and/or the *Porter-Cologne Water Quality Control Act*.

The Montane Meadow was not assigned an alliance. The Freshwater Seeps were identified as Soft Rush Marshes herbaceous alliance, ranked S4, G4 (CNPS, 2020). The Oregon Oak Woodland ranks S3, G4 (CNPS, 2020). The Mixed Coniferous Forest is Douglas Fir Forest and Woodland alliance, ranked S4, G5 (CNPS, 2020).

The Oregon Oak Woodland was the only sensitive natural community identified in the BAA. This community is mapped in detail in the botany survey preformed for the site in 2018. The California oat grass community ranked S3, G4 (CNPS, 2020) identified in the botany survey was not observed.

INVASIVE PLANT SPECIES

Background on Controlling Invasive Species

Section 55.4.12.16 of Humboldt County Ordinance 2599 requires cooperation on the part of cannabis permit holders in the control and eradication of invasive plant species in the county. Section 55.4.12.16 states "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(s) 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" (Humboldt County Board of Supervisors, 2018, p. 44).

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 is the best approach for avoiding the loss of valuable native species that may be pushed out and replaced by pest species.

Natural pathways for the introduction and dispersal of invasive plant species 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.

The California Invasive Plant Council (Cal-IPC) inventory[14] is the most current and comprehensive database of invasive plants in California and was used to define and list the plants considered "invasive" in the BAA. Invasive species are assigned a rating based on the potential severity of their impact on the environment as follows:

- 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 rating is applied to species that currently have High or Moderate impacts outside California and limited distributions within the state but show a potential to increase their distribution and impact on the state.
- Watch. These species have been assessed as posing a high risk of becoming invasive in the future in California.

Invasive species identified on-site are subject to mitigation measures and subsequent annual inspections to ensure compliance.

Invasive Species Observed in the BAA

Invasive species observed in the BAA are listed in Table 6. Because the survey did not take place during the blooming period for some species, a full floristic list is not available and other invasive species could be present on the property. Appropriate mitigation measures should be taken to control and eradicate all invasive species on-site, as described below. Many invasive species were naturalized throughout the BAA and removal would be difficult.

Table 6. Invasive plants observed in the Project Area

[14] https://www.cal-ipc.org/plants/inventory

Scientific Name	Common Name	Rating	Comments
Briza maxima	Rattlesnake grass	limited	Growth throughout Project Area and BAA especially in grassland habitat and difficult to remove. Naturalize, low priority.
Plantago lanceolata	English plantain	limited	Growth throughout Project Area and BAA, difficult to remove. Naturalized, low priority.
Cirsium arvense	Canada thistle	moderate	Located throughout Project Area and BAA. Somewhat, naturalized and very difficult to remove. Moderate priority.
Cynosurus echinatus	Bristly dogtail grass	moderate	Located throughout Project Area and BAA. Naturalized, difficult to remove and low priority
Geranium dissectum	Cut-leaved geranium	moderate	Located throughout Project Area and BAA. Naturalized, difficult to remove and low priority
Hypericum perforatum subsp. perforatum	Klamathweed	moderate	Moderately located throughout Project Area and BAA. Naturalized, difficult to remove and low priority
Hypochaeris radicata	Rough cat's-ear	moderate	Moderately located throughout BAA. Somewhat naturalized, difficult to remove and low priority
Mentha pulegium	Pennyroyal	moderate	Located throughout Project Area and BAA. Naturalized, difficult to remove and low priority
Trifolium hirtum	Rose clover	moderate	Located throughout Project Area and BAA. Naturalized, difficult to remove and low priority.

SPECIAL STATUS BIOLOGICAL RESOURCES

The following analysis of biological resources is based on field observations and 9-quad database searches for historical or existing occurrences of special status animals and all plant species. Appendix B includes a list of all plant species recorded in the area from the CNPS inventory, their preferred habitat, and an analysis of their potential to occur in the BAA and Project Area. Special status animals in the 9-quad area from the CNDDB, their preferred habitat, and potential to be found in the BAA and Project Area are listed in Appendix C. Additionally, the CNDDB was queried for occurrences of special status species within a 1-mile radius of the BAA (Figure 8).

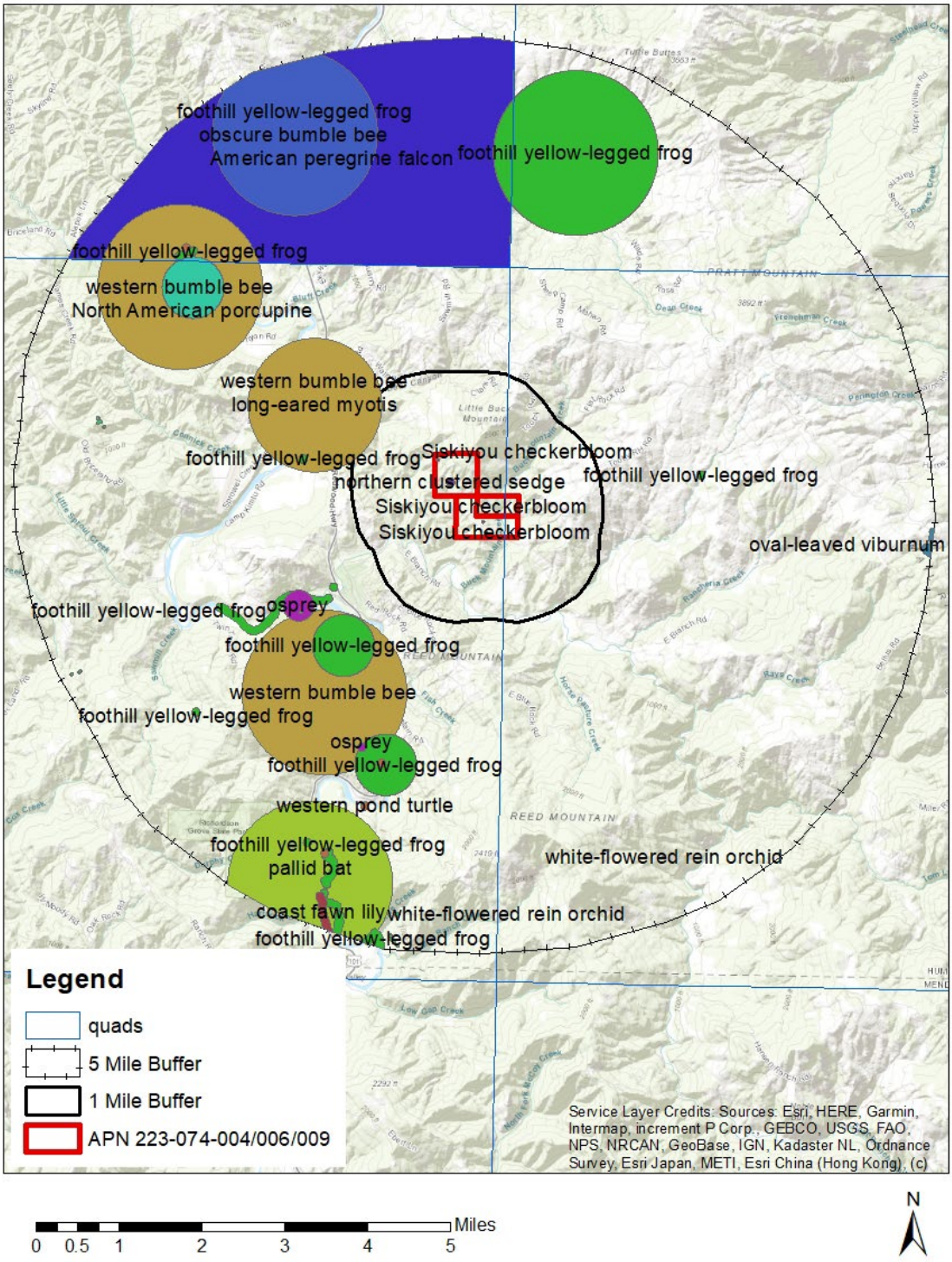

Figure 8. Map of previously recorded observations for special status species in the vicinity of the BAA

The metrics for determining the potential for species to be found in the project, as listed in Appendices B and C, are defined as:

- None: there is no appropriate habitat for the species in the Project Area or BAA.
- Low: there are no previous records of occurrence in the 9-quad area, and minimal or marginal suitable habitat in the Project Area or BAA.
- Moderate: there are some previously recorded occurrences in the 9-quad area, and there is appropriate habitat in the Project Area or BAA.
- High: there are numerous previously recorded observations in the 9-quad area, including observations near the Project Area or BAA, and the Project Area or BAA includes highly available and appropriate habitat.
- Present: species were observed during the on-site field assessment.

Special Status Plant Species

The results of the database queries identified 18 special status plant species with a CNPS ranking of 1 to 2 within the 9-quad area (Appendix B). These plant species with a moderate or high potential to occur in the BAA or Project Area are described:

1. Oval-leaved viburnum (*Viburnum ellipticum*) is ranked as 2B.3 by CNPS, meaning low populations are present in California, being more prevalent outside the state. This species is found in Chaparral, Cismontane Woodland and Lower Montane Coniferous Forest at 215-1400 m. Potential habitat for this species is present within the Cismontane Woodland located in the BAA.

2. Beaked tracyina (*Tracyina rostrata*) 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. Appropriate habitat is present in the BAA and Project Area for this species within Valley and Foothill Grassland and Cismontane Woodland.

3. Giant fawn lily (*Erythronium oregonum*) is ranked as 2B.2 by CNPS, meaning low populations are present in California, being more prevalent outside the state. It occupies Cismontane Woodland, Meadow and Seep. This species can be found ranging from 300-1435 m in elevation in openings, while sometimes on serpentine or rocky sites. Appropriate habitat for this species is found in the BAA located in the Cismontane Woodland and potential seep and serpentinite habitats.

4. Coast fawn lily (*Erythronium revolutum*) is ranked as 2B.2 by CNPS, meaning low populations are present in California, being more prevalent outside the state. It inhabits Bogs and Fens, Broadleafed Upland Forest, and North Coast Coniferous Forest. It can be found in mesic sites and streambanks around 60-1405 m. The various streambanks habitat in the BAA with streambanks provide suitable habitat for this species.

5. Pacific gilia (*Gilia capitata ssp. Pacifica*) has a CNPS ranking of 1B.2, meaning they are rare throughout their range. It occupies Coastal Bluff Scrub, Chaparral, Coastal Prairie, Valley and Foothill Grassland usually between 5-1345 m. The Valley and Foothill Grassland habitat in the BAA and Project Area provides suitable habitat for this species.

6. Howell's montia (*Montia howellii*) 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 vernally wet sites, often on compacted soil ranging from 10-1215 m. The compacted roads in the BAA and Project Area provides potential suitable habitat for this species to occur.

7. White-flowered rein orchid (*Piperia candida*) has a CNPS ranking of 1B.2, meaning they are rare throughout their range. This species is found in north coast coniferous forest, Lower Montane Coniferous Forest, and Broadleafed Upland Forest. It inhabits forest duff, mossy banks, rock outcrops, and muskeg, while sometimes on serpentine, around 20-1615 m. Multiple observations were recorded approximately 4 miles from the BAA. While preferred habitat types were not observed, the areas of potential serpentinite provides suitable habitat for this species.

8. Mendocino gentian (*Gentiana setigera*) has a CNPS ranking of 1B.2, meaning they are rare throughout their range. This species if found in Lower Montane Coniferous Forest and Meadows and Seeps habitats in mesic areas. They bloom from April to July and August to September at elevations of 1095 to 3495 m. Appropriate habitat for this species to occur in the BAA is found within the Lower Montane Coniferous Forest and seep habitat.

9. Siskiyou checkerbloom (*Sidalcea malviflora ssp. Patula*) has a CNPS ranking of 1B.2, meaning they are rare throughout their range. They are found in Coastal Bluff Scrub, Coastal Prairie, and North Coast Coniferous Forest. They occupy open coastal forest and roadcuts at 5-1255 m. While not observed during the field assessment, this species was identified in multiple location on-site during a botany survey in 2018 and is listed in the CNDDB Database.

10. Northern clustered sedge (*Carex arcta*) is ranked as 2B.2 by CNPS, meaning low populations are present in California, being more prevalent outside the state. This species occupies Bogs and Fens, and North Coast Coniferous Forest. It can be found in mesic sites at around 60-1405 m. While not observed during the field assessment, this species was observed near the old cattle pond during a botany survey in 2018.

11. Broad lobed leptosiphon (*Leptosiphon latisectus*) is ranked as 4.3 by CNPS denoting it a watchlist species. This species occupies Broadleafed Upland Forest and Cismontane Woodland and can be found ranging from 70 to 1500 m. While not observed during the field assessment, this species was observed during a botany survey performed in 2018, on the hillslope near cattle pond.

Summary: With a CNPS ranking between 1 and 2, results of the database queries showed 8 rare plant species with a moderate potential to be found in the BAA including Oval-leaved viburnum, Beaked tracyina, White-flowered rein orchid, Howell's montia, Pacific gilia, Coast fawn lily, Mendocino gentian, and Giant fawn lily. No special-status species were determined to have high potential to occur in the

Project Area, however, three species, Beaked tracyina, Howell's montia, and Pacific gilia, were determined to have a moderate potential (Appendix C).

While not observed during this field assessment, three rare species were observed on-site during a botany survey preformed in 2018, including Siskiyou checkerbloom, Northern cluster sedge, and Broad lobed leptosiphon. Results of the field assessment showed minimal suitable habitat for other rare plant species on-site, as well as no evidence for these taxa within the Project Area.

Special Status Animal Species

The results of the database queries identified 23 special status animal species in the 9-quad area (Appendix C). The following species were determined to have high to moderate potential to occur in the BAA or Project Area:

1. Pallid bat (*Antrozous pallidus*) occupies deserts, grasslands, shrublands, woodlands and forests. They are most commonly found in open, dry habitats with rocky areas for roosting. The roosts must protect bats from high temperatures as they are very sensitive to any disturbance of roosting sites. The Valley and Foothill Grassland present with surrounding woodlands, open areas, and man-made structures throughout the BAA provides potential suitable habitat; however the human disturbance make the Project Area less suitable.

2. Golden eagle (*Aquila chrysaetos*) are found throughout North America but are more common in western North America. They inhabit a variety of habitats including forests, canyons, shrub lands, grasslands, and oak woodlands. The Golden eagle breeds from late January through August and produces 1-3 eggs. Nests are constructed on platforms on steep cliffs or in large trees. The main prey species for the golden eagle are rabbits, hares and rodents, but are not exclusive to these. The Cismontane Woodland with larger trees and Valley and Foothill Grassland in the Project Area and BAA provides suitable habitat for this species.

3. Obscure bumble bee (*Bombus caliginosus*) occupies coastal areas from Santa Barbara County north to Washington state. Their food plant genera include *Baccharis* sp., *Cirsium* sp., *Lupinus* sp., *Lotus* sp., *Grindelia* sp. and *Phacelia* sp. Appropriate food plant genera including *Cirsium* sp., *Lupinus* sp., and *Baccharis* sp. are present in the BAA providing suitable habitat.

4. Western bumble bee (*Bombus occidentalis*) while once common & widespread, the species has declined precipitously from central CA to southern B.C., perhaps due particularly to the parasite microsporidian *Nosema bombi*. The BAA is present within the broad species range providing potential suitable habitat. In addition, multiple observations of this species were recorded within

5. Little willow flycatcher (*Empidonax traillii brewsteri*) is and endangered species in California. It occupies mountain meadows and riparian habitats in the Sierra Nevada and Cascades. This species nests near the edges of vegetation clumps and close to streams. The multiple streambanks with likely seeps throughout the BAA provide suitable habitat for this species to occur.

6. Western pond turtle (*Emys marmorata*) occupy ponds, lakes, rivers, streams, creeks, marshes and irrigation ditches with abundant vegetation. Threats include harvesting adults and eggs, habitat loss, invasive red-eared slider and painted turtles as well as American bullfrogs. The watercourses and pond present with open grasslands for basking in the BAA provide suitable habitat for this species.

7. North American porcupine (*Erethizon dorsatum)* is not a California state or a federal listed species. It is, however, included in the CNDDB query. It occupies 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. The Cismontane Woodland in the BAA provides suitable habitat for this species.

8. American peregrine falcon (*Falco peregrinus anatum*) is a federally, as well as California state delisted species. It is found near wetlands, lakes, rivers, or other water, usually located on cliffs, banks, dunes, mounds, or occasionally human-made structures. Their nests consist of a scrape, depression, or ledge in an open site. The woodland and open grassland habitat with numerous watercourses present and near the larger South Fork Eel River provide suitable habitat for this species to occur in the BAA.

9. Long-eared myotis (*Myotis evotis*) is found in all brush, woodland, and forest habitats ranging from sea level to about 9000 ft. It prefers coniferous woodlands and forests. This species will occupy nursery colonies in buildings, crevices, spaces under bark, and snags, while caves are used primarily as night roosts. The Cismontane Woodland with grassland openings and man-made structures for colonies, near water in the BAA and Project Area provide suitable habitat for this species to occur.

10. Yuma myotis (*Myotis yumanensis*) optimal habitats are open forests and woodlands with sources of water over which to feed. Their distribution is closely tied to bodies of water. Their maternity colonies are usually in caves, mines, buildings or crevices. Appropriate habitat for this species is present in the BAA in the Lower Montane Coniferous Forest near the large river, South Fork Eel River.

11. Foothill yellow-legged frog (*Rana boylii*) 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. Multiple observations were recorded ranging from 1 to 5 miles from the BAA in the database. Appropriate habitat is present in the BAA in the watercourses, potential seeps, and surrounding areas in the Cismontane Woodland.

12. Southern torrent salamander (*Rhyacotriton varigatus*) is found in coastal redwood, Douglas-fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats, particularly old growth forest. It prefers occupying cold, well-shaded, permanent streams and seepages, within splash zones, or on moss-covered rocks within trickling water. Appropriate habitat is present in the BAA in the Lower Montane Coniferous Forest with seeps and many watercourses.

13. Red-bellied newt (*Taricha rivularis*) occupy coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. There is also an isolated population of uncertain origin in Santa Clara County. This species lives in terrestrial habitats. The juveniles generally live underground, while adults are active at surface in moist environments. They will migrate over 1 km to breed, typically in

streams with moderate flow and clean, rocky substrate. While preferred habitat for this species is not present the multiple streams and pond on-site provides suitable habitat for this species to occur in the BAA.

Summary: Moderate potential to occur in the BAA were determine for 11 special status species. Two species, Western bumble bee and Foothill yellow-legged frog, was determined to have high potentials to occur in the BAA. While no species were determined to have a high potential to occur in the Project Area, four were determined to have moderate potentials including Obscure bumble bee, Western bumble bee, Long-eared myotis, and Foothill yellow-legged frog (Appendix C).

Existing land and vegetative disturbance with future human disturbance in the Project Area provide limited potential habitat for most special status species. Noise due to project activities may also influence the potential for these species to occur in the BAA and Project Area.

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 had been listed as Threatened under the federal Endangered Species Act since 1990. Preferred nesting habitat includes broken-top trees, tree cavities, debris accumulations, or abandoned nests built by other wildlife such as raptors or rodents. Females generally lay 1 to 2 eggs in spring and chicks fledge and leave nests in early fall. Although old growth forests with dense canopy closure are preferred for nesting and roosting, 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. The CDFW reports that threats to the Northern spotted owl are numerous and include the rapid expansion of competing populations of Barred owls; habitat loss; climate change including increased frequency of wildfires; and exposure to pathogens[15].

Northern Spotted Owl was not recorded in the CDFW database within 1 mile of the Project Area. The activity centers of HUM0927, HUM0515, HUM0012, HUM0991, and HUM0992 are located within a 5-mile radius of the BAA. Critical habitat for NSO is located approximately 6.5 miles to the southeast of the BAA (Figure 9).

[15] https://www.wildlife.ca.gov/Conservation/Birds/Northern-Spotted-Owl

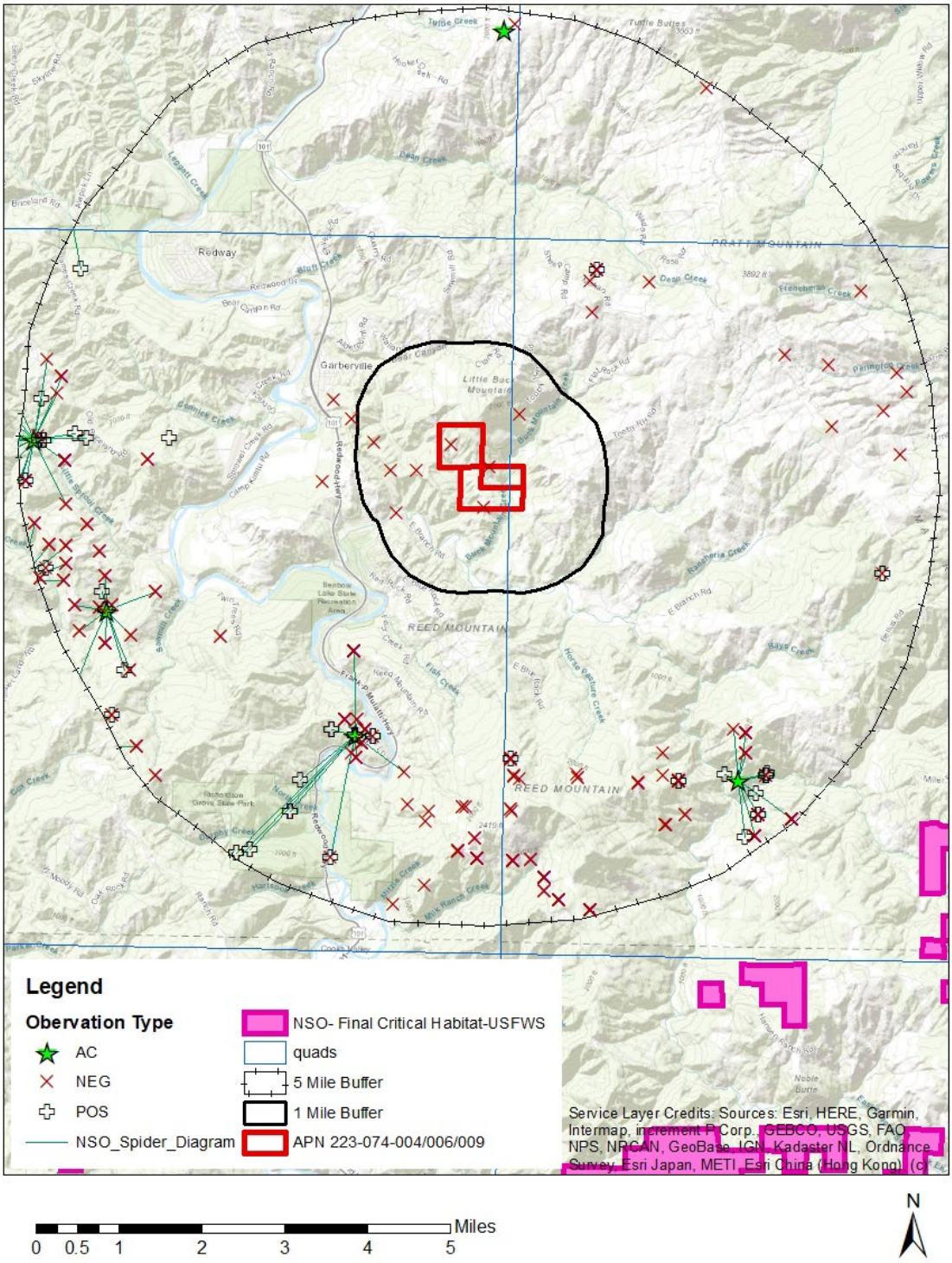

Figure 9. Map of previously recorded observations of Northern spotted owl in the vicinity of the BAA

POTENTIAL DIRECT, INDIRECT, AND CUMULATIVE IMPACTS

This impact assessment is based upon proposed activity associated with proposed cannabis cultivation.

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

The Project Area is primarily located in grassland openings with adjacent woodlands. Existing disturbance by human development including cannabis activities is present throughout the parcels. Much of the proposed project is already existing, including structures and greenhouses in the Project Area. The project currently has three generators as well as solar panels and is proposing one additional generator. However, the use and extent of noise from these generators, fans, and other tools creating noise is currently unknown.

Besides the existing development within SMAs the proposed project include work on water crossings, including approximately 100 remediation points mapped throughout the three parcels, primarily across the roadways for culverts and erosion control. Activities that cause effects such as runoff or erosion has the potential to impact these aquatic areas which shall be addressed through the Lake and Streambed Alteration Agreement (LSAA) and Water Resource Protection Plan (WRPP).

The roads throughout the property were in moderate shape with gravel and minimal visible erosion. However, several areas were in need of culverts which are proposed through the existing remediation points.

Summary: Any activities within watercourses, including erosion control and culvert installation, and any indirect impacts due to project activities could affect the adjacent aquatic species found in the BAA, which shall be addressed through the Lake and Streambed Alteration Agreement (LSAA) and Water Resource Protection Plan (WRPP) or Site Management Plan (SMP). Historic and recent vegetative clearing and grading in the BAA has disturbed the vegetation and site.

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.

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 the Pallid bat, Golden eagle, Obscure bumble bee, Western bumble bee, Little willow flycatcher, Western pond turtle, North American porcupine, Long-eared myotis, American peregrine falcon, Southern torrent salamander, Yuma myotis, Red-bellied newt, and Foothill yellow-

legged frog (e.g., Arcata Fish and Wildlife Office, 2006). If required, pre-construction reconnaissance surveys should follow the guidelines set forth in the Humboldt County Cannabis Program EIR (Ascent Environmental, Inc., 2018); the CDFW Survey and Monitoring Protocols and Guidelines (CDFW, 2020); guidelines from the Arcata Fish and Wildlife Office website on the Endangered Species Program[16]; and the CNPS Botanical Survey Guidelines (CNPS, 2001). 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 could modify existing groundwater, and surface water patterns and could impact water quality and/or hydrophytic species.

While much of the Project Area is previously disturbed, if further ground disturbance or vegetation removal is to occur botany surveys and preconstruction surveys are recommended.

In areas where SMA development has occurred, restoration efforts should be made, including planting native vegetation in these areas, removing buildings that are present in SMAs, or providing sufficient remediation if buildings are not to be relocated or removed.

Please contact me with any comments or concerns regarding this report or future work required for your project. I can be reached at tami@trans-terra.com or (707) 840-4772. I have included our staff experience as an attachment to this report as it is often requested by agency personnel reviewing work of this nature.

[16] https://www.fws.gov/arcata/es/

REFERENCES

Arcata Fish and Wildlife Office. (2006). Transmittal of Guidance: Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelet in Northwestern California. U.S. Fish and Wildlife Service. https://www.fws.gov/arcata/es/birds/MM/documents/MAMU-NSO%20Harassment%20Guidance%20NW%20CA%202006Jul31.pdf

Ascent Environmental, Inc. (2018). Final Environmental Impact Report for the Amendments to Humboldt County Code Regulating Commercial Cannabis Activities (SCH #2017042022; p. 556).

Baldwin, B. G., Goldman, D. H., Keil, D. J., Patterson, R., & Rosatti, T. J. (Eds.). (2012). The Jepson Manual: Vascular Plants of California (Second Edition). University of California Press.

CDFW - California Department of Fish and Wildlife. (2018). Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (p. 12). California Department of Fish and Wildlife.

CDFW - California Department of Fish and Wildlife. (2019). California Sensitive Natural Communities. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609&inline

CDFW - California Department of Fish and Wildlife. (2020a). Natural Communities. https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities

CDFW - California Department of Fish and Wildlife. (2020b). Survey and Monitoring Protocols and Guidelines. https://wildlife.ca.gov/conservation/survey-protocols

CNPS - California Native Plant Society. (2001). CNPS Botanical Survey Guidelines. https://cnps.org/wp-content/uploads/2018/03/cnps_survey_guidelines.pdf

CNPS - California Native Plant Society. (2020). Manual of California Vegetation, 2nd Edition (online). http://vegetation.cnps.org/

Cowardin, L. M., Carter, V., Golet, F. C., & LaRoe, E. T. (1979). Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service. https://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf

Holland, R. F. (1986). Preliminary descriptions of the terrestrial natural communities of California (p. 156). California Department of Fish and Game.

Humboldt County. (2020). Humboldt GIS Portal, Geographic Information System (GIS) Web Applications. Humboldt County, California's Redwood Coast. https://humboldtgov.org/1357/Web-GIS

Humboldt County Board of Supervisors. (2018). Ordinance No. 2599: Ordinance Amending Provisions of Title III of the Humboldt County Code Relating to the Commercial Cultivation, Processing, Manufacturing, Distribution, Testing, and Sale of Cannabis for Medicinal or Adult Use for the Areas Outside the Coastal Zone. https://humboldtgov.org/DocumentCenter/View/63734/Ord-No-2599-CCLUO-inland-certified-copy-PDF

Jepson Flora Project. (2020). Jepson eFlora, California Floristic Province. https://ucjeps.berkeley.edu/eflora/geography.html

Kelsey, H. M. (1978). Earthflows in Franciscan mélange, Van Duzen River basin, California. Geology, 6, 361–364.

Köppen, W. (1936). Das geographische System der Klimate (The Geographic System of Climate). Verlag von Gebrüder Brontraeger.

APPENDIX A

Project Site Photographs

Photo 1. General habitat types throughout the BAA

Photo 2. Large glass greenhouse to be relocated from SMA inset C

Photo 3. Restoration area (Inset D) within SMA

Photo 4. Proposed relocation area for large glass greenhouse

APPENDIX A

Project Site Photographs

Photo 5. Cultivation area within Inset D

Photo 6. Cultivation area within Inset E

Photo 7. Man-made pond above Inset C

Photo 8. Some erosion present within watercourses

APPENDIX A

Project Site Photographs

Photo 9. Harvest storage sheds in SMA to be relocated within Inset F

Photo 10. Cultivation area within Inset B

APPENDIX B

Results of the CNPS Database 9-quad Search for Rare Plants

Central USGS 7.5-minute quadrangle used for search: **Garberville/Harris**

CRPR: California Rare Plant Rank (https://www.cnps.org/rare-plants/cnps-rare-plant-ranks)

1B.1	Plants rare, threatened, or endangered in California and elsewhere; seriously threatened in California.	2B.2	Plants rare, threatened, or endangered in California, but more common elsewhere; fairly threatened in California.	4.1	Plants of limited distribution; seriously threatened in California.
1B.2	Plants rare, threatened, or endangered in California and elsewhere; fairly threatened in California.	2B.3	Plants rare, threatened, or endangered in California, but more common elsewhere; not very threatened in California.	4.2	Plants of limited distribution; fairly threatened in California.
1B.3	Plants rare, threatened, or endangered in California and elsewhere; not very threatened in California.	3.1	Plants about which we need more information; seriously threatened in California.	4.3	Plants of limited distribution; not very threatened in California.
2A	Plants presumed extirpated in California, but more common elsewhere.	3.2	Plants about which we need more information; fairly threatened in California.		
2B.1	Plants rare, threatened, or endangered in California, but more common elsewhere; seriously threatened in California.	3.3	Plants about which we need more information; not very threatened in California.		

Scientific Name	Common Name	CRPR	Blooming Period	Elevation Low (ft)	Elevation High (ft)	Habitat	Microhabitat	Potential to Occur in:	
								BAA	Project Area
Arabis mcdonaldiana	McDonald's rockcress	1B.1	May-Jul	440	5905	Lower montane coniferous forest, Upper montane coniferous forest	serpentinite	Low- Lower montane coniferous forest with potential serpentinite areas	None- Serpentinite not observed in Project Area

APPENDIX B

Results of the CNPS Database 9-quad Search for Rare Plants

Scientific Name	Common Name	CRPR	Blooming Period	Elevation Low (ft)	Elevation High (ft)	Habitat	Microhabitat	Potential to Occur in:	
								BAA	Project Area
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	1B.1	Feb-Apr	1475	3395	Chaparral, Lower montane coniferous forest (openings)	rocky, often serpentinite	Low- Lower montane coniferous forest areas with potential serpentinite but elevation on the lower end	Low- Disturbed grassland
Astragalus agnicidus	Humboldt County milk-vetch	1B.1	Apr-Sep	390	2625	Broadleafed upland forest, North Coast coniferous forest	openings, disturbed areas, sometimes roadsides	Low- Preferred habitat not present but openings, and disturbed, roadside areas	Low- Preferred habitat not present but disturbed areas with roadsides
Castilleja litoralis	Oregon coast paintbrush	2B.2	Jun-Jul	45	330	Coastal bluff scrub, Coastal dunes, Coastal scrub	sandy	None- Habitat not present	None- Habitat not present
Castilleja mendocinensis	Mendocino Coast paintbrush	1B.2	Apr-Aug	0	525	Coastal bluff scrub, Closed-cone coniferous forest, Coastal dunes, Coastal prairie, Coastal scrub		None- Habitat not present	None- Habitat not present
Ceanothus foliosus var. vineatus	Vine Hill ceanothus	1B.1	Mar-May	145	1000	Chaparral		Low- Any chaparral areas provide potential	None- Disturbed grassland
Eriogonum kelloggii	Kellogg's buckwheat	1B.2	(May)Jun-Aug	1895	4100	Lower montane coniferous forest (rocky, serpentinite)		Low- Lower montane coniferous forest present with potential serpentinite	None- Disturbed grassland areas

APPENDIX B

Results of the CNPS Database 9-quad Search for Rare Plants

Scientific Name	Common Name	CRPR	Blooming Period	Elevation Low (ft)	Elevation High (ft)	Habitat	Microhabitat	Potential to Occur in:	
								BAA	Project Area
Erythronium oregonum	giant fawn lily	2B.2	Mar-Jun(Jul)	325	3775	Cismontane woodland, Meadows and seeps	sometimes serpentinite, rocky, openings	Moderate- Cismontane woodland present with seeps and potential serpentinite	Low- Primarily disturbed grassland but some rocky areas
Erythronium revolutum	coast fawn lily	2B.2	Mar-Jul(Aug)	0	5250	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest	Mesic, streambanks	Moderate- Preferred habitat not present but several streambanks	None- Disturbed grassland habitat
Gentiana setigera	Mendocino gentian	1B.2	(Apr-Jul)Aug-Sep	1095	3495	Lower montane coniferous forest, Meadows and seeps	mesic	Moderate- Lower montane coniferous forest with some seep areas	Low- Disturbed grassland
Gilia capitata ssp. pacifica	Pacific gilia	1B.2	Apr-Aug	15	5465	Coastal bluff scrub, Chaparral (openings), Coastal prairie, Valley and foothill grassland		Moderate- Valley and foothill grassland present	Moderate- Disturbed grassland habitat
Howellia aquatilis	water howellia	2B.2	Jun	3555	4230	Marshes and swamps (freshwater)		Low- Pond habitats could provide potential habitat	None- No watercourses
Kopsiopsis hookeri	small groundcone	2B.3	Apr-Aug	295	2905	North Coast coniferous forest		Low- Preferred habitat not present	None- Disturbed grassland

APPENDIX B

Results of the CNPS Database 9-quad Search for Rare Plants

Scientific Name	Common Name	CRPR	Blooming Period	Elevation Low (ft)	Elevation High (ft)	Habitat	Microhabitat	Potential to Occur in:	
								BAA	Project Area
Montia howellii	Howell's montia	2B.2	(Jan-Feb)Mar-May	0	2740	Meadows and seeps, North Coast coniferous forest, Vernal pools	vernally mesic, sometimes roadsides	Moderate- Disturbed roadsides and seep areas	Moderate- Disturbed roadside areas
Piperia candida	white-flowered rein orchid	1B.2	(Mar)May-Sep	95	4300	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest	sometimes serpentinite	Moderate- Lower montane coniferous forest and potential serpentinite, observation within 3 miles	Low- Disturbed grassland habitat
Sedum laxum ssp. eastwoodiae	Red Mountain stonecrop	1B.2	May-Jul	1965	3935	Lower montane coniferous forest (serpentinite)		Low- Lower montane coniferous forest with potential serpentinite	None- Disturbed grassland habitat
Tracyina rostrata	beaked tracyina	1B.2	May-Jun	295	2590	Chaparral, Cismontane woodland, Valley and foothill grassland		Moderate- Valley and foothill grassland and Cismontane woodland present	Moderate- Disturbed grassland habitat
Viburnum ellipticum	oval-leaved viburnum	2B.3	May-Jun	705	4595	Chaparral, Cismontane woodland, Lower montane coniferous forest		Moderate- Cismontane woodland and Lower montane coniferous forest present	Low- Disturbed grassland habitat

APPENDIX C

Results of the CNDDB Database 9-quad Search for Special Status Animals

Central USGS 7.5-minute quadrangle used for search: **Garberville/Harris**

Abbreviations for ESA (federal Endangered Species Act) and CESA (California Endangered Species Act) status:					
E	Endangered	**CT**	Candidate Threatened	**P**	Proposed
CE	Candidate endangered	**D**	Delisted		
T	Threatened	**N**	Not listed		

Abbreviations for CDFW status:			
FP	Fully Protected	**N**	Not listed
SSC	Species of Special Concern		
WL	Watchlist		

Scientific Name	Common Name	ESA status	CESA status	CDFW status	General Habitat	Microhabitat	Potential to Occur in:	
							BAA	Project Area
Accipiter cooperii	Cooper's hawk	N	N	WL	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.	Low- Cismontane woodland present with openings but low riparian habitat throughout watercourses	Low- Valley and foothill grassland habitat within Cismontane woodland
Antrozous pallidus	pallid bat	N	N	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Moderate- Valley and foothill grassland present with surrounding woodlands and open areas and man-made structures	Low- Various man-made structures within Valley and foothill grassland but human disturbance present

APPENDIX C

Results of the CNDDB Database 9-quad Search for Special Status Animals

Scientific Name	Common Name	ESA status	CESA status	CDFW status	General Habitat	Microhabitat	Potential to Occur in:	
							BAA	Project Area
Aquila chrysaetos	golden eagle	N	N	FP WL	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.	Moderate- Woodland and lower coniferous forest set in open Valley and foothill grassland	Low- Valley and foothill grassland habitat with human disturbance
Arborimus pomo	Sonoma tree vole	N	N	SSC	North coast fog belt from Oregon border to Somona County. In Douglas-fir, redwood & montane hardwood-conifer forests.	Feeds almost exclusively on Douglas-fir needles. Will occasionaly take needles of grand fir, hemlock or spruce.	Low- Primarily Cismontane woodland present with Douglas fir	None- Disturbed Valley and grassland habitats
Ascaphus truei	Pacific tailed frog	N	N	SSC	Occurs in montane hardwood-conifer, redwood, Douglas-fir & ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	Low- Lower montane coniferous forest present	Low- Lower montane coniferous forest present
Bombus caliginosus	obscure bumble bee	N	N	N	Coastal areas from Santa Barabara county to north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	Moderate- Appropriate plant food genera present within broad species range	Moderate- Appropriate plant food genera present within broad species range
Bombus occidentalis	western bumble bee	N	C E	N	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.		High- Within broad species range with multiple observations 3 to 4 miles away	Moderate- Within broad species range, but primarily disturbed grassland
Empidonax traillii brewsteri	little willow flycatcher	N	E	N	Mountain meadows and riparian habitats in the Sierra Nevada and Cascades.	Nests near the edges of vegetation clumps and near streams.	Moderate- Low riparian habitat but some seep habitat	Low- Disturbed grassland habitat with streams adjacent, but low riparian habitat

APPENDIX C

Results of the CNDDB Database 9-quad Search for Special Status Animals

Scientific Name	Common Name	ESA status	CESA status	CDFW status	General Habitat	Microhabitat	Potential to Occur in:	
							BAA	Project Area
Emys marmorata	western pond turtle	N	N	SSC	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.	Moderate- Ponds and various watercourses with open, grassy fields for basking	Low- Disturbed grassland, but streamside areas adjacent
Erethizon dorsatum	North American porcupine	N	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- Cismontane woodland and Lower montane coniferous forest present	Low- Disturbed grassland with adjacent woodland and forest
Eumetopias jubatus	Steller (=northern) sea-lion	D	N	N	Breeds on Ano Nuevo, San Miguel and Farallon islands, Point St. George, & Sugarloaf. Hauls-out on islands & rocks.	Needs haul-out and breeding sites with unrestricted access to water, near aquatic food supply and with no human disturbance.	None- Not coastal	None- Not coastal
Falco peregrinus anatum	American peregrine falcon	D	D	FP	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- Less than a mile of South Fork Eel River with large openings	Low- Disturbed grassland but man-made structures present
Myotis evotis	long-eared myotis	N	N	N	Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests.	Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Moderate- Below 9,000 ft within woodland habitat and man-made structures for colonies	Moderate- Disturbed grassland with man-made structures

APPENDIX C

Results of the CNDDB Database 9-quad Search for Special Status Animals

Scientific Name	Common Name	ESA status	CESA status	CDFW status	General Habitat	Microhabitat	Potential to Occur in:	
							BAA	Project Area
Myotis thysanodes	fringed myotis	N	N	N	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood & hardwood-conifer.	Uses caves, mines, buildings or crevices for maternity colonies and roosts.	Low- Preferred habitat not present but man-made structures	Low- Disturbed grassland habitat with man-made structures
Myotis yumanensis	Yuma myotis	N	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- Lower montane coniferous forest present, close to large river, South Fork Eel River	Low- Disturbed grassland habitat and openings within woodland/forest but close to large river, South Fork Eel River
Noyo intersessa	Ten Mile shoulderband	N	N	N	Found in coastal dunes, coastal scrub, and riparian redwood forest habitats.		None- Habitat not present	None- Habitat not present
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	T	T	N	Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.	State listing refers to populations between the Oregon border and Punta Gorda, California.	None- Non-fish bearing streams	None- No watercourses in Project Area
Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	N	C E	SSC	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.	None- Non-fish bearing streams	None- No watercourses in Project Area
Pandion haliaetus	osprey	N	N	WL	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- BAA near South Fork Eel River, but low riparian habitat areas	Low- Disturbed grassland habitat

APPENDIX C

Results of the CNDDB Database 9-quad Search for Special Status Animals

Scientific Name	Common Name	ESA status	CESA status	CDFW status	General Habitat	Microhabitat	Potential to Occur in:	
							BAA	Project Area
Pekania pennanti	Fisher	N	N	SSC	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- Preferred habitat not present but some forest habitat	Low- Preferred habitat not present
Rana boylii	foothill yellow-legged frog	N	E	SSC	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- Cismontane woodland habitat with several watercourses and ponds and multiple observations recorded within 1 to 5 miles	Moderate- Disturbed grassland with streams adjacent
Rhyacotriton variegatus	southern torrent salamander	N	N	SSC	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- Lower montane coniferous forest habitat present but many watercourses	Low- Preferred habitat not present
Taricha rivularis	red-bellied newt	N	N	SSC	Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County.	Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate.	Moderate- Preferred habitat not present but many watercourses	Low- Preferred habitat not present

APPENDIX D

Measures to Prevent the Introduction and Spread of Invasive Species

Recommendations for preventing the spread of invasive species, and rehabilitating areas currenting impacted by invasive species, are as follows:

- Minimize ground 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 the spread of invasive plant species. 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.

APPENDIX D

Measures to Prevent the Introduction and Spread of Invasive Species

- 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, invasive plant debris should not be composed, but should be destroyed or carefully collected and discarded with trash to prevent reestablishment, particularly the seeds and roots/rhizomes.
- 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 been observed. 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) planning. This procedure for preventing introduction does not require each land manager to have detailed knowledge of invasive species present at a site. Instructions are available online at: https://nctc.fws.gov/courses/HACCP/haccp.html.
- 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

APPENDIX E

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 over 20 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, 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
Biologist/Planner

Holly Vadurro
Biologist/Botanist

Holly earned a Bachelor's degree in Biology from College of Charleston, in 1996. She came to Humboldt State University through the student exchange program and knew she had found her home. During her first years here, her job enabled her to explore the expanse of Humboldt County and perform various biological field surveys including botanical, fishery, mollusk, amphibian, bryophyte and migratory birds. She also performed landslide analyses. Later on, she worked at Winzler and Kelly Consulting Engineers (now GHD) as an Environmental Scientist and conducted wetland delineations, botanical surveys, and collected and analyzed water quality data.

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
Botanist

APPENDIX F

Regulatory Setting for Biological Resources

F.1.0 REGULATORY BACKGROUND

F.1.1 CANNABIS CULTIVATION

Commercial cannabis was recognized as an agricultural crop under the Medical Cannabis Regulation and Safety Act while Proposition 64 determined legalization of use. The California Department of Food and Agriculture implements the CalCannabis program which regulates commercial cannabis licensing from a state level. At the local level Humboldt County regulates commercial cannabis licensing through the Commercial Cannabis Land Use Ordinance (CCLUO). Both state and local licensing must be obtained to operate commercial cannabis cultivation in the state of California.

F.1.2 HYDROLOGICAL HABITATS

F.1.2.1 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 "water 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).

F.1.2.2 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.

F.1.2.3 CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

APPENDIX F

Regulatory Setting for Biological Resources

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.

F.1.2.4 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 (Board of Supervisors et. al 2017).

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 Activities (Ascent Environmental 2018).

F.1.3 SENSITIVE SPECIES

F.1.3.1 SENSITIVE NATURAL COMMUNITIES

APPENDIX F

Regulatory Setting for Biological Resources

Sensitive Natural Communities have been defined by CDFW and the California Native Plant Society (CNPS) as vegetation types with a state rank of S1-S3. Ranks are assessed by the most recent scientific information of the community's range, distribution, and the proportion of occurrences that are of good ecological integrity including threats and trends. While CEQA presents no specific protocols for avoiding or mitigating impacts to these communities, considerations are afforded during environmental review.

F.1.3.2 SENSITIVE AND PROTECTED SPECIES

Sensitive and protected species include those plants and wildlife species that have been formally listed or are candidates for either listings under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford legal protection to both listed and candidate species. CEQA affords special consideration to species listed by CDFW as Species of Special Concern and Fully Protected. Additionally, the Migratory Bird Treaty Act (MBTA) protects many birds in the United States, including those not having special-species status. Under MBTA destroying active nests, eggs, and young is illegal.

F.1.3.3 CALIFORNIA RARE PLANT RANK

"All of the plants constituting California Rare Plant Rank 1 [through 2] meet the definitions of the California Endangered Species Act of the California Fish and Game Code, and are eligible for state listing. Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, or those considered to be functionally equivalent to CEQA, as they meet the definition of Rare or Endangered under CEQA Guidelines §15125 (c) and/or §15380."

F.1.4 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