BRUNSWICK MINE AND EAST BENNET ROAD RIGHT OF WAY CNPS RANKED PLANTS AND SPECIAL STATUS PLANT SURVEY REPORT

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I. INTRODUCTION

In June of 2019, a botanical survey was initiated at the request of Rise Grass Valley, Inc. at their Brunswick Road Mine site for rare, threatened and endangered and other special status and CNPS ranked plants in the areas located in Nevada County, California. The botanical survey was conducted when CNPS ranked plants and special status vascular plant species having the potential to occur in the study area were identifiable. This report documents the methods and results of the botanical surveys conducted in July and August of 2019, and of prior reconnaissance surveys and botanical assessment conducted in December of 2018.

II. STUDY AREA LOCATION

The study area totals 118.9 acres and includes the entirety of the Brunswick Mine Site. The Brunswick Mine site is bordered by Brunswick Road along the eastern boundary, East Bennett Road along the northern boundary, and private property to the south and west of the site. Additionally, a 10.3-acre East Bennett Road ROW was included as part of the survey area for a total Brunswick Area of 129.23 acres; see Appendices for a Brunswick Mine Site figure and an East Bennett Road Right of Way figure included to document the study area surveyed as part of this reporting effort.

It is shown on the *Grass Valley, California* 7.5-minute U.S. Geological Survey quadrangle in Township T16N, R8E Section 36 and T16N, R9E Sections 31.

III. DESCRIPTION OF THE STUDY AREA

Climate in the area is characterized as Mediterranean with cool, wet winters and hot, dry summers. Precipitation primarily occurs as rain with an average annual rainfall of approximately 53 inches. Annual average high temperature is approximately 68 degrees Fahrenheit (°F), while the average low is 42°F (Western Regional Climate Center 2019). Topography of the study area is flat to moderately sloping. Elevation of the study area is approximately 2,600-2,800 feet above mean sea level.

The study area was part of the historic Idaho Maryland Mine operations and was developed with mine and mill operations facilities.

The study area includes South Fork Wolf Creek. South Fork Wolf Creek begins within the Brunswick Mine site and runs within the northwestern section of the Brunswick Mine heading in a northwest direction along the southern side of East Bennett Road, where it eventually connects with the main stem of Wolf Creek.

SOIL

Brunswick Mine

The USDA Soil Survey Mapper (USDA, 2018) indicates that the Brunswick Mine includes 10 soil types: Aiken loam on 9 to 15 percent slopes (AfC), Aiken loam on 15 to 30 percent slopes (AfD), Aiken loam on 30 to 50 percent slopes (AfE), Alluvial land, clayey (Ao), Cohasset loam, summits, on 2 to 15 percent slopes (CmB), Cohasset loam, shoulders, on 3 to 20 percent slopes (CmC), Cohasset loam, backslopes, on 5 to 30 percent slopes (CmD), Cohasset cobbly loam on 5 to 30 percent slopes (CoD), Placer diggings (Pr), and Sites loam on 15 to 30 percent slopes (SID). Soils in the Sites soils series are derived from gabbrodiorite parent material (see attached Soils Series Table from the Nevada County Soils Survey regarding parent material for specific soil series, August 1993) and therefore, areas within the Brunswick Mine Site mapped as Sites soils were included as a focal soils series during site surveys for potential special-status plant species that associate with gabbro soils.

East Bennett Road Right of Way

The USDA Soil Survey Mapper (USDA, 2019) indicates that the East Bennett Road ROW includes 10 soil types: Aiken loam on 9 to 15 percent slopes (AfC), Aiken loam on 30 to 50 percent slopes (AfE), Boomer loam, hard bedrock, 7 to 28 percent slopes (BoD), Boomer-Rock outcrop complex on 5 to 30 percent slopes (BrD), Boomer-Rock outcrop complex on 30 to 50 percent slopes (BrE), Cohasset loam on 15 to 30 percent slopes (CmD), Cut and fill land (Ct), Placer diggings (Pr), Sierra sandy loam on 15 to 30 percent slopes (SfD), and Sites loam on 15 to 30 percent slopes (SID). Soils in the Sites and Boomer soils series are derived from gabbrodiorite parent material (see attached Soils Series Table from the Nevada County Soils Survey regarding parent material for specific soil series, August 1993) and therefore, areas within the East Bennett Road

ROW mapped as Sites and Boomer soils were included as a focal soils series during site surveys for potential special-status plant species that associate with gabbro soils.

However, based on the field surveys of the entire study area including both the Brunswick Mine Site and the East Bennett Road ROW, it was determined that there are no apparent soil types in the study area that have edaphic factors that signal highly suitable special status plant habitat. Instead, the soils from the study area are known to be associated with multiple special status plants, and microhabitat (eg. moisture) is likely more of a driver of habitat suitability for potential special status plants within the study area.

PLANT COMMUNITIES

Plant communities were classified by Environmental Science Associates (ESA 2006) during a previous environmental review process encompassing the study area (hereby incorporated by reference). ESA (2006) mapped and classified wildlife habitats/vegetation types using the California Department of Fish and Game's (CDFG) *A Guide to Wildlife Habitats* (Mayer and Laudenslayer 1988). Their classifications and mapping were more accurate when compared in the field than the existing CWHR layers. Therefore, the ESA vegetation descriptions were used as background to determine initial vegetation types for the study area.

The study area does not contain any mapped CDFW sensitive communities (see Appendix C for a CDFW CNDDB map of the study area and a 5-mile buffer). Therefore, CDFW sensitive communities are not discussed within this reporting effort further given the lack of mapping provided for such sensitive communities by CDFW within and adjacent to the study area.

Primary upland habitats within the study areas include the following habitats:

Ponderosa Pine

Ponderosa pine (*Pinus ponderosa)* habitat is found near the Brunswick Mine. The structure and composition of the ponderosa pine forest varies widely according to the amount of soil moisture available during the summer. The canopy closure tends to be low in the Study areas ranging from 5-35%. In the Study areas black oak (*Quercus kelloggii)*, madrone (*Arbutus menziesii)*, foothill pine (*Pinus sabieniana)*, and incense cedar (*Calocedrus decurrens)* are common associates of ponderosa pine. A variety of understory shrub species occur throughout the ponderosa pine forest. In the Study areas the more common understory shrubs are white leaf manzanita (*Arctostaphylos viscida* ssp. *viscida)*, poison oak *(Toxicodendron diversilobum)*, and honeysuckle (*Lonicera hispidula).* These understory shrubs form often dense, impenetrable stands, especially on open rocky slopes, and in areas of recent disturbance.

Montane Hardwood

Montane hardwood habitat can be found in the study area, in small, localized stands. Montane hardwood is characterized here by stands of an overstory of black oak and occasionally canyon live oak (*Quercus chrysolepis)*. There is often homogeneity in the canopy structure, and canopy

closure is variable between seasons as the dominant overstories species is deciduous, ranging from 5-45%. Due to the historic disturbance, there is abundant Himalayan blackberry (*Rubus armenicus)* in the understory along with other nonnatives including bristly dogtail (*Cynosurus echinatus)* and hedgenettle (*Torilis arvensis).*

Montane Hardwood-Conifer

Montane hardwood-conifer habitat in the Sierra Nevada occurs at elevations between 1,000 and 4,000 feet above mean sea level. It is comprised of a mosaic of hardwoods and conifers and within the study area, is likely a midpoint on the gradient between hardwood forest and conifer forest both hardwood and conifer tree species, often in a mosaic pattern with small pure stands of conifers interspersed with small stands of hardwoods. Species associated with montane hardwood-conifer include ponderosa pine, black oak, canyon live oak, madrone and Douglas fir.

Annual Grassland

Annual grassland are open vegetation types that are dominated by annual plant species, often nonnative. These species will occur in the understory of other vegetation types, but in annual grasslands there is little to no overstory or shrub cover. This vegetation type is common where there has been historic disturbance and there is little to no water source other than rainfall. The fall rainfall will spark germination and plants will grow through the cool months and in spring will grow rapidly and flower, fruit and senesce. Common to the study areas in this habitat type are yellow star thistle (*Centaurea solstitalis),* garden burnett (*Poterium sanguisorba),* soft chess (*Bromus hordeaceous),* bisnaga (*Ammi visnaga),* and patches of Himalayan blackberry.

Sierran Mixed Conifer

The Sierran mixed conifer forest is generally a multi strata forest dominated by conifers with hardwood as a component of the understory. This vegetation type is found along the hillslope on the western and southern portions of the Brunswick Mine study area. The forest here is more mesic, occurring on east facing slopes. It is dominated by Douglas fir, incense cedar, and black oak. It has high canopy closure. It often has a midstory strata of madrone, dogwood (*Cornus nuttellii),* hazelnut (*Corylus cornuta ssp. californica)* and younger black oak. The understory has high litter cover and Himalayan blackberry and honeysuckle area common in the understory.

Montane Riparian

Generally, a structural gradient generally happens from neighboring vegetation into montane riparian, resulting in oaks or pines grading in with the more riparian species. This vegetation type is characterized by two different ecological conditions, placer diggings and the South Fork of Wolf Creek. The montane riparian in the placer diggings and areas created from earth movement where the mill was located within the Brunswick Mine study area, are characterized by black cottonwood (*Populus tremuloides),* red willow (*Salix laevigata),* arroyo willow *(Salix lasiolepis),* and occasionally ponderosa pine in the overstory. Dense thickets are often resultant

with Himalayan blackberry and Baltic rush (*Juncus balticus* ssp. *atar)* in the herbaceous layer. The montane riparian vegetation along the South Fork of Wolf Creek are dominated by white alder (*Alnus rhombifolia)* with other overstory species from adjacent vegetation types, including black oak, pine and Douglas fir. The understory of montane riparian along the creeks are dominated by Himalayan blackberry.

Wet Meadow and Seasonal Wetlands

Wet meadows generally are of a single vegetation strata, dominated by forbs and gramanoids. Shrub and trees are sometimes present but generally a small portion of this vegetation type. This is typically a diverse plant community driven by hydrologic influences. The wet meadows in the sturdy area have been typically created where extreme disturbance has occurred in the past, diggings, or mill sites. These wet meadows are characterized by *Agrostis, Juncus* spp. and Baltic rush. There is also a very large wet meadow (7.13 acres) within the northwestern section of the Brunswick Mine study area adjacent to the South Fork of Wolf Creek that is likely a natural meadow and is dominated by reed canarygrass (*Phalaris arundinacea),* planted presumably for hay production. The single seasonal wetland mapped within the Brunswick Mine is 3.7 acres in size and is located within a seasonal pond that at the time of the surveys (December 2018) was dry, but still contained a similar composition of vegetation as found within the wet meadows mapped in the northwestern section of the Brunswick Mine.

Freshwater Emergent Marsh Wetlands

Freshwater emergent marsh wetlands are characterized by hydrophyllic plants and generally standing water. All emergent wetlands have soils that are saturated to the extent that the soils are always anaerobic. Within the Brunswick Mine study area, these features appear to have been created by historic disturbance coupled with the presence of some water source (spring, etc.). They are dominated at the study area sites by cattails (*Typha* spp.), arroyo willow, and pacific rush (*Juncus effuses* ssp. *pacificus).*

Large Pond

A large, manmade pond lies within the Brunswick Mine. The large pond is approximately 3.25 acres and is a manmade clay lined pond that was constructed during the previous operation of the mill within the Mill Site. The large pond is however dominated along the edges by cattails (*Typha* spp.) and willow (*Salix* ssp.).

IV. METHODS

Methods used in preparation of this report comprised a review of existing resource databases and vegetation community information gathered during its preparation of a biological resources assessment for the study. These reviews were followed by a protocol-level field survey for CNPS ranked plants and special-status plant species in the study area.

EXISTING RESOURCE REVIEW

For the purpose of this evaluation, special status plant species include plants that are: 1) listed as threatened or endangered under the California Endangered Species Act or the federal Endangered Species Act; 2) proposed for listing as endangered or threatened by the U.S. Fish and Wildlife Service; 3) designated as rare by the California Department of Fish and Wildlife (CDFW); 4) a state or federal candidate species for listing as threatened or endangered; and/or 5) have a California Rare Plant Rank (CRPR) of 1 or 2 (i.e. rare or endangered).

The following datasets were accessed to determine the special status plant species within the study area.

Idaho-Maryland Mine Special Status Plant Survey Report prepared by Environmental Science Associates (ESA) for study area (2006)

United States Fish and Wildlife Service list of federally protected species occurring near the study area (USFWS 2019) (Appendices).

California Department of Fish and Wildlife's California Natural Diversity Database records search of the Study area and 5 miles radius around the Study area (CDFW 2019, see Appendix C).

The California Native Plant Society's online Inventory of Rare and Endangered Plants of California for the Grass Valley, Nevada City, North Bloomfield, Chicago Park, Colfax, Rough and Ready, Lake Combie, French Corral, Camptonville, Challenge, Auburn, Greenwood and Wolf 7.5-minute USGS quadrangles (CNPS 2018)[1];

California Department of Fish and Wildlife's California Natural Diversity Database Biogeographic Information and Observation System (BIOS) 9 Quad search for Grass Valley, Nevada City, North Bloomfield, Chicago Park, Colfax, Rough and Ready, Lake Combie, French Corral and Wolf 7.5-minute USGS quadrangles (CDFW 2019)[2].

The Consortium of California Herbaria records (Consortium of California Herbaria 2019).

CNPS RANKED PLANTS AND SPECIAL STATUS PLANTS

Based on the results of the searches, 23 CNPS ranked plants and special status plants were identified (Appendix B). Ten of these plant species were dropped from further consideration due to a lack of suitable habitat in the study area, the study area being substantially outside of the known range and distribution for the plant species, or both. These plant species are:

Jepson's onion (*Allium jepsonii*)

[1] Accessed December 4, 2018
[2] Accessed January 2, 2019

Mosquin's clarkia (*Clarkia mosquinii)*
Ahart's buckwheat (*Eriogonum umbellatum* var. *ahartii)*
Jepson's coyote thistle (*Eryngium jepsonii)*
Minute pocket moss (*Fissidens pauperculus)*
Yosimite tarplant (*Jensia yosimitana)*
Inundated bog club-moss (*Lycopodiella inundata)*
Follett's monardella (*Monardella follettii)*[3]
Sticky pyrrocoma (*Pyrrocoma lucida)*
Oval-leaved viburnum (*Viburnum ellipticum)*

The remaining thirteen plant species having the potential to occur are considered in greater detail in Table 1 and are the species that were emphasized when conducting field surveys. The identification period for each of the species considered in Table 1 were determined through a review of Calflora database, Consortium of California Herbaria, University of California Jepson eFlora Project, and was also based on the intimate knowledge of the lead botanist, Wendy Boes, for each target species within the greater project area. Wendy Boes most recently served as a US Forest Service botanist with the local Tahoe National Forest and has also been a local botanical expert consultant in the greater project area for many years.

In addition, 17 CNPS Rare Plant Rank 4 plant species were identified as having the potential to occur in the area. If these plants are identified during field surveys they have been documented and reported, though they are not listed at the state or federal level and are not considered rare or threatened.

[3] There is a record in CalFlora from an unidentified CNPS staff person from an Inventory. There is no herbarium specimen or other supporting evidence to confirm its presence. The other closest known occurrences are from Plumas County. This species is easily confused with its close relatives (Boes, personal observation 2016) and it is dropped from consideration here as most likely an erroneous sighting.

TABLE 1. CNPS List 1, 2, and 3 PLANT SPECIES WITH THE POTENTIAL TO OCCUR IN THE VICINITY OF THE STUDY AREAS.

Common and Scientific Name	Legal Status[1] Federal/State/ CNPS	Habitat Association	Identification Period	Potential for Species/Habitat Presence
Stebbins' morning-glory *Calystegia stebbinsii*	FE/CE/1.B2	Gabbroic or serpentinite soils. Openings in chaparral, cismontane woodland, lower montane coniferous forest, from 980-4,330 feet.	Apr- Jul	**Low** Known 4 miles to east on gabbroic chaparral on Oceola Ridge. Gabbroic soils not present in study area. Was not observed during 2019 protocol level field surveys.
Sierra arching sedge *Carex cyrtostachya*	--/--/1B.2	Lower montane mesic coniferous forest, meadows and seeps, marshes and swamps, Riparian forests (margin), from 2,000-4,460 feet.	May -Aug	**Low.** Potential for occurrence in mesic forests. Within the known distributional and elevational range for this species, though nearest known occurrence 16 miles to the north. This species was recently described so the full extent of its range and distribution are unlikely yet known. Marginal habitat present in study area, and it was not observed during 2019 field surveys.
Chaparral sedge *Carex xerophila*	--/--/1B.2	Chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, from 1,400 – 2,525 feet.	Mar- Jun	**Low.** Known 4 miles away on Oceola Ridge in gabbroic chaparral. Gabbroic soils not present in study area. Was not observed during 2019 protocol level field surveys.
Red Hills soaproot *Chlorogalum grandiflorum*	--/--/1B.2	Chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, from 800 – 5,545 feet.	May-Jun	**Low.** Known over 10 miles south in Bunch Canyon south of Colfax, with no known occurrences to north. Gabbroic soils not present in study area. Was not observed during 2019 protocol level field surveys.
Pine Hill flannelbush *Fremontodendron decumbens*	FE/CR/1B.2	Chaparral, cismontane woodland on serpentinite and gabbroic substrates, from 1,390 – 2,495 feet.	Apr- July	**Low.** Known from two miles to the north. Gabbroic soils not present in study area. Was not observed during 2019 protocol level field surveys.

Common and Scientific Name	Legal Status[1] Federal/State/ CNPS	Habitat Association	Identification Period	Potential for Species/Habitat Presence
Butte County fritillary *Fritillaria eastwoodiae*	--/--/3.2	Openings in chaparral, cismontane woodland, and lower montane coniferous forest, sometimes serpentinite, from 160-4,920 feet.	Mar-Jun	**Low.** Potential for occurrence in open areas in the study area. There is a 1979 record for this species on the south side of the South Yuba River canyon approximately 7 miles north of the study area, and other occurrences on the Washington Ridge. Surveys were not conducted during the appropriate phenological period for this species (April-May), but fruits would have been visible for individuals from this genus and they were not observed during 2019 protocol level field surveys.
Finger rush *Juncus digitatus*	--/--/1B.1	Seasonal wet areas, cismontane woodland openings, openings in lower montane coniferous forest, xeric vernal pools, from 2,165-2,590 feet.	Apr-Jun	**Low.** Potential for the occurrence in gravelly, seasonally moist openings. Known less than one mile to the north near the intersection of Idaho Maryland and Brunswick. Was not observed during 2019 protocol level field surveys.
Dubious pea *Lathyrus sulphureus* var. *argillaceus*	--/--/3	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest, from 490-3,050 feet.	Apr-May	**Low.** Potential to occur in forested areas. Known within 3 miles of study areas from a 1926 collection. Also known to SW 5 miles away near Wolf Mountain. Plant list from 2006 surveys have a *Lathyrus sulfureus* with no variety designation, but not was not observed during 2019 protocol level field surveys.
Cantelow's lewisia *Lewisia cantelovii*	--/--/1B.2	Moist, granitic areas in broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest mesic, sometimes serpentinite seeps, from 1,080-4,495 feet.	May-Oct	**Low.** Potential for occurrence in any rocky outcrops with seeps on the parcel. There are records for this species in the Middle Yuba and South Yuba river canyons within 7 miles of the study area. The preferred habitat for this species in the study area has been disturbed and is of reduced quality. Was not observed during 2019 protocol level field surveys.

Common and Scientific Name	Legal Status[1] Federal/State/ CNPS	Habitat Association	Identification Period	Potential for Species/Habitat Presence
Cedar Crest popcornflower *Plagiobothrys glyptocarpus* var. *modestus*	--/--/3	Cismontane woodland, valley and foothill grasslands (mesic), from 2,850-2.855 feet.	Apr-Jun	**Moderate.** Known from historic collection potentially from nearby Cedar Ridge. Also known from historic collections in Nevada City. Suitable habitat for this species is present. Was not observed during 2019 protocol level field surveys.
Sierra blue grass *Poa sierrae*	--/--/1B.3	Openings in lower montane coniferous forest, 1,195-4,920 feet.	Apr-Jul	**Moderate.** There is only marginal suitable habitat for this species in the study area, primarily in the Sierran mixed conifer, ponderosa pine forest, and in the forested areas along South Fork of Wolf Creek. Known 7 miles to the east of the study area at Steephollow Creek from a collection from 1964. Was not observed during 2019 protocol level field surveys.
Brownish beaked-rush *Rhynchospora capitellata*	--/--/2B.2	Wet areas (marshes, swamps, meadows, and seeps) in montane coniferous forest, from 145-6,560 feet.	Jul-Aug	**Moderate.** Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 protocol level field surveys.
Scadden Flat checkerbloom *Sidalcea stipularis*	--/CE/1B.1	Marshes and swamps (montane freshwater), from 2,295-2,395 feet.	Jul-Aug	**Moderate.** Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 protocol level field surveys.

[1]Status explanations:

FE = Federally Endangered
CR = State Rare
CE = State Endangered
-- = no listing.

California Native Plant Society Rare Plant Rank (formerly known as CNPS lists)
1B = Rank 1B species: rare, threatened, or endangered in California and elsewhere.
2B = Rank 2B species: rare, threatened, or endangered in California but more common elsewhere.
3 = Rank 3 species are usually not considered rare or threatened and lack the necessary information to assign them to one of the other ranks.
4 = Rank 4 plants are not rare or threatened but may be of limited distribution or infrequent throughout a broader area in California.

0.1	=	Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
0.2	=	Moderately threatened in California (20%-80% occurrences threatened/moderate degree and immediacy of threat)
0.3	=	Not very threatened in California (less than 20% of occurrences threatened/low degree and immediacy of threat or no current threats known)

Source: CNPS 2018; CNDDB 2019; USFWS 2019, and Calflora 2019.

BOTANICAL SURVEYS

The botanical field survey was conducted in general accordance with the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (CDFW 2018). Wendy Boes, botanist, served as the lead investigator for the botanical survey. Denise Della Santina, biologist, provided additional field assistance. The field survey was floristic in nature and consisted of identifying each species observed to the taxonomic level necessary to determine whether the plant is a federal or state listed special-status species. Plant taxonomy followed Baldwin et al. (2012), including applicable errata and supplements (Jepson Flora Project 2019). The field surveys were performed by walking meandering transects through microhabitats with the potential to support CNPS ranked plants and special-status plant species. Survey intensity was heightened in areas corresponding to vegetation communities having the potential to support the CNPS ranked plant and special status plants identified in the pre-field resource review.

V. RESULTS

Reconnaissance level surveys were conducted December 9-12, 18 & 19, 2018. These surveys were conducted in concurrence with wetland delineation efforts. The result of these surveys was to assess the potential habitat for CNPS list 1, 2, and 3 plant species but were not conducted within the appropriate phenological timeframe for detection and confirmation for most, if not all, of the CNPS list 1, 2, and 3 plants included in Table 1 above.

Field surveys were conducted by Wendy Boes and Denise Della Santina on July 1 and 14, and August 16, 2019. The field survey was conducted at a time when all potentially occurring CNPS list 1, 2, and 3 plant species could be identified if they were present, except for Butte County fritillary. A nearby reference population of finger rush was visited on June 24th, prior to commencing field surveys to ensure this species was still detectable, which was confirmed. No other reference sites were required to be visited given the botanists local knowledge of the other target species as part of the survey effort. No adverse conditions (e.g., drought, herbivory) were encountered that would affect the identification of potential CNPS ranked special-status plant species. A complete list of observed plant species identified in the study area during the botanical survey is provided as Appendix A.

CNPS LIST 1, 2, 3, and 4 SPECIES

Based on the results of the reconnaissance-level botanical surveys conducted, historic surveys conducted in 2006, field surveys in 2019, and the desktop research using various resources, a total of two small populations of the CRPR List 4 plant species, Humboldt lily, are known to occur in the study area. A small population was identified within the Brunswick Mine Site and a second small population was identified along East Bennet Road within the study area (see Appendix D, Figures 3 and 4).

HUMBOLDT LILY (*LILIUM HUMBOLDTII* SSP. *HUMBOLDTII)*

Federal Status: not listed; State Status: not listed; CNPS Status: 4.2

Humboldt lily is known to occur in openings in chaparral, cismontane woodland and lower montane coniferous forests. It is known from Amador, Butte, Calaveras, El Dorado, Fresno, Mariposa, Nevada, Placer, Tehama, Tuolumne, and Yuba Counties. It occurs at elevations ranging from 295-4,200 feet. Its threats include development, urbanization, horticultural collecting, deer browsing, nonnative plants, and road maintenance (CNPS 2019).

Humboldt lily is a perennial bulb that blooms May through August. It can reach 7-8' in height, and has bright orange lily flowers.

The study area has suitable habitat for the species and a single occurrence consisting of 10 individuals in an area less than 10 sq. meters was documented within the southwestern section of the Brunswick Mine Site and another small population consisting of just a few individuals was identified and mapped along the northern side of East Bennet Road within the study area (see attached).

VI. RECOMMENDATIONS AND MITIGATION MEASURES FOR SENSITIVE PLANT SPECIES

PRE CONSTRUCTION SURVEYS

Conduct full coverage pre-construction surveys for rare or endangered plants (any state or federally listed plant as well as any CNPS plant ranked 1 or 2) in the appropriate phenological blooming period when each species is identifiable.

If any rare or endangered plants are identified during the full coverage pre-construction surveys, avoidance of impacts to rare or endangered plants where identified within the proposed disturbance areas. However, if full avoidance of impacts to such protected plants is not feasible, the following minimization and mitigation measures are recommended to avoid and minimize potential impacts to sensitive plants.

MINIMIZATION AND MITIGATION

Consultation with CDFW and USFWS is recommended for the development of minimization and mitigation measures if sensitive plants will be impacted by the project. Transplantation of sensitive plants to be impacted by the project is recommended to avoid mortality to impacted plants. Additionally, the development of measures to minimize indirect impacts to such sensitive plants, including erosion control measures to minimize sedimentation within the areas where such sensitive plants are located, is recommended. A Transplantation Plan should be developed and submitted to CDFW and/or USFWS (based on State and federal level of protection of the species impacted) and such a plan should be implemented based on the approval of CDFW and/or USFWS.

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Appendices

APPENDIX A: VASCULAR PLANTS OCCURRING IN BRUNSWICK MINE AND EAST BENNETT ROAD STUDY AREA

Scientific Name	Common Name	Origin	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Acer macrophyllum	Bigleaf maple	Native	-	FACU	-
Acer negundo	Boxelder	Native	-	FAC	-
Acmispon americanus var. americanus	Spanish lotus	Native	-	FACU	-
Adenocaulon bicolor	Trail plant	Native	-	-	-
Aegilops triuncialis	Goatgrass	non-native (invasive)	-	-	High
Agoseris retrorsa	Spear leaved agoseris	Native	-	-	-
Agrostis sp.	-	-	-	-	-
Ailanthus altissima	Tree of heaven	non-native (invasive)	-	FACU	Moderate
Aira caryophyllea	Silvery hairgrass	non-native (invasive)	-	FACU	-
Alnus rhombifolia	White alder	Native	-	FACW	-
Ammi visnaga	Bisnaga	non-native	-	-	-
Andropogon sp.	-	-	-	-	-
Arbutus menziesii	Madrono	Native	-	-	-
Arctostaphylos viscida	Whiteleaf manzanita	Native	-	-	-
Asyneuma prenanthoides	California harebell	Native	-	-	-
Avena sp.	-	-	-	-	-

Scientific Name	Common Name	Origin	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Baccharis pilularis	Coyote brush	Native	-	-	-
Berberis aquifolium var. aquifolium	Oregon grape	Native	-	FACU	-
Bromus diandrus	Ripgut brome	non-native (invasive)	-	-	Moderate
Bromus hordeaceus	Soft chess	non-native (invasive)	-	FACU	Limited
Bromus madritensis	Foxtail chess, foxtail brome	non-native	-	FACU	-
Bromus suksdorfii	Suksdorf's bromegrass	Native	-	-	-
Bromus tectorum	Downy chess	non-native (invasive)	-	-	High
Calocedrus decurrens	Incense cedar	Native	-	-	-
Calycanthus occidentalis	Spicebush	Native	-	FAC	-
Calystegia occidentalis ssp. occidentalis	Modoc morning glory	Native	-	-	-
Carex feta	Green sheathed sedge	Native	-	FACW	-
Ceanothus integerrimus	Deer brush	Native	-	-	-
Centaurea solstitialis	Yellow starthistle	non-native (invasive)	-	-	High
Chamaebatia foliolosa	Sierran mountain misery	Native	-	-	-

Scientific Name	Common Name	Origin	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Chondrilla juncea	Skeleton weed	non-native (invasive)	-	-	Moderate
Cichorium intybus	Chicory	non-native	-	FACU	-
Cirsium vulgare	Bullthistle	non-native (invasive)	-	FACU	Moderate
Cornus nuttallii	Mountain dogwood	Native	-	FACU	-
Cornus sericea ssp. occidentalis	Western dogwood	Native	-	FACW	-
Cornus sessilis	Western cornelian cherry	Native	-	FAC	-
Cortaderia jubata	Andean pampas grass	non-native (invasive)	-	FACU	High
Corylus cornuta ssp. californica	Beaked hazelnut	Native	-	FACU	-
Crataegus monogyna	Hawthorn	non-native (invasive)	-	FAC	Limited
Croton setiger	Turkey-mullein	Native	-	-	-
Cynodon dactylon	Bermuda grass	non-native (invasive)	-	FACU	Moderate
Cynosurus echinatus	Dogtail grass	non-native (invasive)	-	-	Moderate
Cyperus eragrostis	Tall cyperus	Native	-	FACW	-
Cytisus scoparius	Scotch broom	non-native (invasive)	-	-	High
Dactylis glomerate	Orchardgrass	non-native (invasive)	-	FACU	Limited

Scientific Name	Common Name	Origin	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Danthonia californica	California oatgrass	Native	-	FAC	-
Deschampsia elongata	Hairgrass	Native	-	FACW	-
Dicentra Formosa	Pacific bleedinghearts	Native	-	FACU	-
Elymus caput-medusae	Medusa head	non-native	-	-	-
Elymus glaucus	Blue wildrye	Native	-	FACU	-
Elymus hispidus	Intermediate wheatgrass	non-native	-	-	-
Epilobium brachycarpum	Willow herb	Native	-	-	-
Epilobium densiflorum	Willow herb	Native	-	FACW	-
Festuca arundinacea	Reed fescue	non-native (invasive)	-	FAC	Moderate
Festuca occidentalis	Western fescue	Native	-	-	-
Fraxinus latifolia	Oregon ash	Native	-	FACW	-
Galium triflorum	Sweet bedstraw	Native	-	FACU	-
Gnaphalium palustre	Lowland cudweed	Native	-	FACW	-
Goodyera oblongifolia	Rattlesnake plantain	Native	-	FACU	-
Hedera helix	English ivy	non-native (invasive)	-	FACU	-
Holcus lanatus	Common velvetgrass	non-native (invasive)	-	FAC	Moderate

Scientific Name	Common Name	Origin	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Hypericum perforatum ssp. perforatum	Klamathweed	non-native	-	FACU	-
Ilex aquifolium	Holly	non-native (invasive)	-	FACU	Moderate
Juncus balticus ssp. ater	Baltic rush	Native	-	FACW	-
Juncus bufonius	Common toad rush	Native	-	FACW	-
Juncus effusus ssp. pacificus	Pacific rush	Native	-	FACW	-
Kickxia elatine	Sharp point fluellin	non-native	-	FAC	-
Lactuca serriola	Prickly lettuce	non-native (invasive)	-	FACU	-
Lactuca sp.	-	-	-	-	-
Lathyrus latifolius	Sweet pea	non-native	-	-	-
Lathyrus nevadensis var. nevadensis	Sierra nevada pea	Native	-	-	-
Lilium humboldtii ssp. humboldtii	Humboldt lily	Native	Rank 4.2	-	-
Lonicera hispidula	Pink honeysuckle	Native	-	FACU	-
Lotus corniculatus	Bird's foot trefoil	non-native (invasive)	-	FAC	-
Lysimachia latifolia	Pacific starflower	Native	-	FACW	-
Madia gracilis	Gumweed	Native	-	-	-

Scientific Name	Common Name	Origin	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Maianthemum racemosum	Feathery false lily of the valley	Native	-	FAC	-
Marrubium vulgare	White horehound	non-native (invasive)	-	FACU	Limited
Matricaria chamomilla	German chamomile	non-native	-	-	-
Melilotus albus	White sweetclover	non-native (invasive)	-	-	-
Mentha spicata	Spearmint	non-native	-	FACW	-
Mimulus guttatus	Yellow monkey flower	Native	-	OBL	-
Petrorhagia dubia	Windmill pink	non-native	-	-	-
Phytolacca americana var. Americana	American pokeweed	non-native	-	FACU	-
Pinus lambertiana	Sugar pine	Native	-	-	-
Pinus ponderosa	Yellow pine	Native	-	FACU	-
Piperia transversa	Mountain piperia	Native	-	-	-
Plantago lanceolata	Ribwort	non-native (invasive)	-	FACU	Limited
Polygala cornuta	Sierra milkwort	Native	-	FACW	-
Polypogon monspeliensis	Annual beard grass	non-native (invasive)	-	FACW	Limited
Populus fremontii ssp. fremontii	Cottonwood	Native	-	FAC	-

Scientific Name	Common Name	Origin	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Potamogeton sp.	-	-	-	-	-
Poterium sanguisorba	Garden burnet	non-native	-	UPL	-
Prosartes hookeri	Drops of gold	Native	-	-	-
Prunella vulgaris	Self heal	Native	-	FACU	-
Prunus sp.	-	-	-	-	-
Pseudotsuga menziesii var. menziesii	Douglas fir	Native	-	FACU	-
Pteridium aquilinum var. pubescens	Western bracken fern	Native	-	FACU	-
Pyracantha sp.	-	-	-	-	-
Quercus chrysolepis	Gold cup live oak	Native	-	-	-
Quercus kelloggii	California black oak	Native	-	-	-
Ribes roezlii	Sierra gooseberry	Native	-	-	-
Robinia pseudoacacia	Black locust	non-native (invasive)	-	FACU	Limited
Rosa canina	Dog rose	non-native	-	-	-
Rosa gymnocarpa	Wood rose	Native	-	FACU	-
Rosa rubiginosa	Sweet brier	non-native	-	FACW	-
Rubus armeniacus	Himalayan blackberry	non-native (invasive)	-	FACU	High

Scientific Name	Common Name	Origin	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Rubus leucodermis	White bark raspberry	Native	-	FACU	-
Rubus parviflorus	Thimbleberry	Native	-	FACU	-
Rubus ursinus	California blackberry	Native	-	FACU	-
Rumex acetosella	Sheep sorrel	non-native (invasive)	-	FACU	Moderate
Rumex crispus	Curly dock	non-native (invasive)	-	FAC	Limited
Salix exigua	Narrowleaf willow	Native	-	FACW	-
Salix gooddingii	Gooding's willow	Native	-	FACW	-
Salix laevigata	Polished willow	Native	-	FACW	-
Salix lasiandra	Pacific willow	Native	-	FACW	-
Salix lasiolepis	Arroyo willow	Native	-	FACW	-
Salix lutea	Yellow willow	Native	-	OBL	-
Sambucus nigra ssp. caerulea	Blue elderberry	Native	-	FACU	-
Spartium junceum	Spanish broom	non-native (invasive)	-	-	High
Spiranthes porrifolia	Western ladies tresses	Native	-	FACW	-
Symphoricarpos albus var. laevigatus	Snowberry	Native	-	FACU	-

Scientific Name	Common Name	Origin	Rarity Status	Wetland Status (WMVC 2014)	CAL-IPC Status
Taraxacum officinale	Red seeded dandelion	non-native (invasive)	-	FACU	-
Taxus brevifolia	California yew	Native	-	FACU	-
Torilis arvensis	Field hedge parsley	non-native (invasive)	-	-	Moderate
Toxicodendron diversilobum	Poison oak	Native	-	FAC	-
Tragopogon dubius	Goat's beard	non-native (invasive)	-	-	-
Trillium angustipetalum	Narrow petaled wakerobin	Native	-	-	-
Typha domingensis	Cattail	Native	-	OBL	-
Typha latifolia	Boradleaf cattail	Native	-	OBL	-
Verbascum blattaria	Moth mullein	non-native	-	UPL	-
Verbascum thapsus	Woolly mullein	non-native (invasive)	-	FACU	Limited
Vicia villosa	Hairy vetch	non-native (invasive)	-	-	-
Vinca major	Vinca	non-native (invasive)	-	-	Moderate
Woodwardia fimbriata	Western chain fern	Native	-	-	-

APPENDIX B: CNPS RANKED PLANTS AND SPECIAL STATUS PLANT SCOPING LIST

Scientific Name	Common Name	Justification	CRPR	CESA	FESA
Allium jepsonii	Jepson's onion	Known 16 miles to south and 44 miles to north. Suitable habitat of serpentinite or volcanic substrates not present in study area.	1B.2	None	None
Calystegia stebbinsii	Stebbins' morning-glory	known 4.5 miles to east on serpentine. Potential to occur. Surveyed for in 2006 with negative results.	1B.1	CE	FE
Carex cyrtostachya	Sierra arching sedge	Nearest known occurrence 16 miles to the north. Within known range of species and with potential habitat in the Brunswick study area. Low to moderate potential for this species to occur.	1B.2	None	None
Carex xerophila	chaparral sedge	known 4 miles away. Was not surveyed for in 2006. High potential to occur.	1B.2	None	None
Chlorogalum grandiflorum	Red Hills soaproot	known over 10 miles south in Bunch Canyon south of Colfax, with no known occurrences to north. Surveyed for in 2006 with negative results. Very Low probability of occurrence.	1B.2	None	None
Clarkia mosquinii	Mosquin's clarkia	known 22 miles to the north, drop from consideration.	1B.1	None	None
Eriogonum umbellatum var. ahartii	Ahart's buckwheat	known 21 miles to the north. Habitat of serpentinite rocky outcrops no present. Drop from further consideration.	1B.2	None	None
Eryngium jepsonii	Jepson's coyote thistle	known 60+ miles to SW. Not sure why it was queried. Habitat also not present. Dropped from further consideration.	1B.2	None	None

Scientific Name	Common Name	Justification	CRPR	CESA	FESA
Fissidens pauperculus	minute pocket moss	We are clearly south of known occurrences and beyond habitat preferences. Known 16 miles to north. Minute taxa with good probability of being overlooked. Not surveyed for in 2006 surveys. Unknown probability of occurring.	1B.2	None	None
Fremontodendron decumbens	Pine Hill flannelbush	Unlikely to occur due to absence of gabbroic soils. Known 1-2 miles to the north.	1B.2	CR	FE
Fritillaria eastwoodiae	Butte County fritillary	Study area within range of species. Known 7 miles to the north. Surveyed for in 2006 but surveys were conducted out of season for this species.	3.2	None	None
Jensia yosemitana		Known from historic collection outside of Colfax. Otherwise known only far to the south, Dropped from further consideration.			
Juncus digitatus	finger rush	Known less than one mile to the north. Marginal habitat in seasonally wet areas. Moderate potential to occur.	1B.1	None	None
Lathyrus sulphureus var. argillaceus	dubious pea	Known within 3 miles of study areas from a 1926 collection. Also known to SW 5 miles away. Plant list from 2006 surveys have a *Lathyrus sulfureus* with no variety. Moderate to high potential to occur.	3	None	None
Lewisia cantelovii	Cantelow's lewisia	Known 7 miles to the north. Marginal suitable habitat for this plant is found in the Brunswick Mine Study area. This species was surveyed for in the 2006 surveys but was not found. There is a (very) low potential for this species to occur.	1B.2	None	None
Lycopodiella inundata	inundated bog club-moss	Known from 9 miles to the north. The habitat present in the study area is not suitable for this plant. In area known from freshwater marsh created by hydraulic mining. No probability of occurring, dropped from further consideration.	2B.2	None	None
Monardella follettii	Follett's monardella	Closest confirmed occurrence over 40 miles to the north. The preferred habitat of rocky serpentinite not present in study area. Very low, to no potential for this species to occur.	1B.2	None	None

Scientific Name	Common Name	Justification	CRPR	CESA	FESA
Plagiobothrys glyptocarpus var. modestus	Cedar Crest popcornflower	Known from historic collection potentially from nearby Cedar Ridge. Also known from historic collections in Nevada City. In a generic sense, the suitable habitat for this species is present in both study areas (IM and NB) and has a moderate to high probability of occurring.	3	None	None
Poa sierra	Sierra blue grass	Known 7 miles to the east of the Brunswick Mine. study area. There is suitable habitat for this species in the Brunswick study area especially in the forested areas along the South Fork of Wolf Creek. This species has a moderate to high probability of occurring.	1B.3	None	None
Pyrrocoma lucida	sticky pyrrocoma	Suitable habitat for this species not present. No probability of occurring in the study area.	1B.2	None	None
Rhynchospora capitellata	brownish beaked-rush	Suitable habitat for this species present in the perennial marsh wetlands in both areas. It is known 3 miles to the west. It has not been documented during the 2006 surveys, but does have a moderate potential to occur.	2B.2	None	None
Sidalcea stipularis	Scadden Flat checkerbloom	Suitable habitat for this species present in the perennial marsh wetlands in both areas. It is known 3 miles to the west. It has not been documented during the 2006 surveys, but does have a moderate potential to occur.	1B.1	CE	None
Viburnum ellipticum	oval-leaved viburnum	Known 18 miles to the south, than over 100 miles to the NNW. Based on known range and distribution, and the study area lying far beyond, this species will be dropped from further consideration.	2B.3	None	None

APPENDIX C: CNPS RANKED PLANTS AND SPECIAL STATUS PLANT SPECIES KNOWN FROM FIVE MILE RADIUS

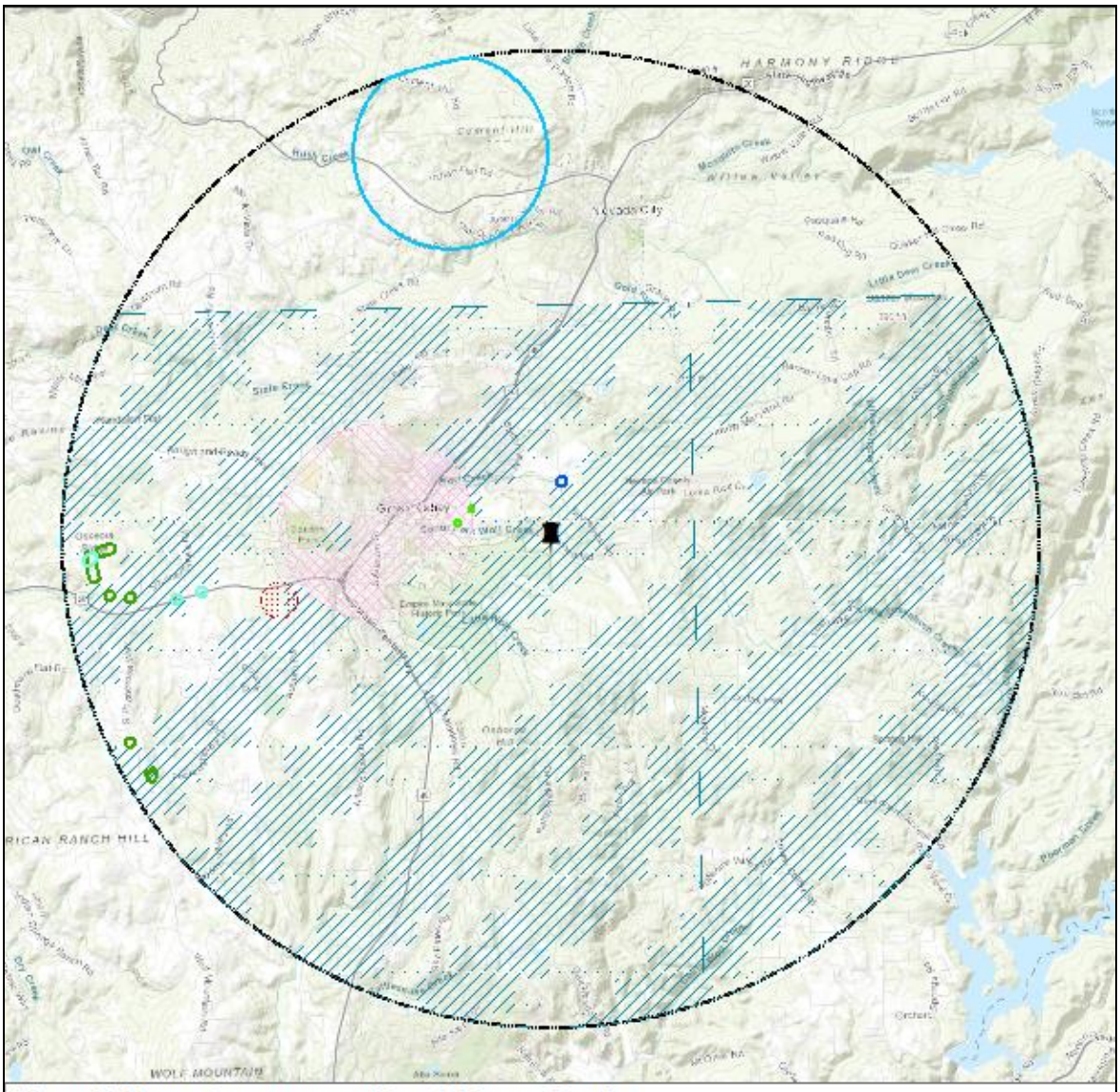


Figure X. Known Occurrences of Special Status Species

Legend

- FiveMileProjectBuffer
- Project Area

Common Name, Scientific Name, FESA, CESA, CNPS

- Brandegee's clarkia, Clarkia biloba ssp. brandegeeae, none, none, 4.2
- Pine Hill flannelbush, Fremontodendron decumbens, Endangered, Rare, 1B.2
- Scadden Flat checkerbloom, Sidalcea stipularis, none, Endangered, 1B.1
- Stebbins' morning-glory, Calystegia stebbinsii, Endangered, Endangered, 1B.1
- brownish beaked-rush, Rynchospora capitellata, none, none, 2B.2
- chaparral sedge, Carex xerophila, none, none, 1B.2
- dubious pea, Lathyrus sulphureus var. argillaceus, none, none, 3
- finger rush, Juncus digitatus, none, none, 1B1

0 1 2 Miles

1 in = 1 miles

APPENDIX D: PROJECT LOCATION AND CNPS RANKED PLANT SPECIES LOCATION FIGURES

Figure 1. Overview of Study Area

Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R8E Section 36 &
T16N, R9E Section 31

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

SCALE: 1 inch = 500 feet

Legend

= Brunswick Industrial Site 118.93 ac.

Figure 2. East Bennett Road Right of Way Overview

Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R8E Section 25

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

SCALE: 1 inch = 600 feet

This delineation has been conducted in accordancewith the 1987 Corps of Engineers Wetlands Delineation Manual and the Western Mountains Regional Supplement (2010). The identification of ordinary high water mark (OHWM) was based on A Guide to Ordinary High Water Mark (OHWM) for Non-Perennial Streams in the Western Mountains (2014).

Created January 1, 2019

Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R9E Section 31 &
T16N R8E Sections 36

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

Figure 3. CRPR 4 Plant: Humboldt Lily

SCALE: 1 inch = 500 feet

Legend

Brunswick Industrial Site

Special-Status Plant

Humboldt Lily

Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R8E Section 25

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

Figure 4. CRPR List 4 Plant: Humbold Lily
East Bennett Road Right-of-Way (ROW)

SCALE: 1 inch = 100 feet

Legend

= Humboldt Lily

= East Bennett Street ROW

Created October 25, 2019

APPENDIX E: SERPENTINE AND GABBRODIORITE SOIL TYPES

Type of parent material	*Soil series or land type name*
Stratified mixed alluvium (recent)	Loamy and clayey alluvium
Stratified mixed alluvium (Tertiary river gravels)	Horseshoe
Andesitic conglomerate (Mehrten formation)	Ailken, Cohasset, Iron Mountain, Josephine, McCarthy
Granodiorite	Ahwahnee, Auberry, Chaix, Hoda, Hotaw, Musick, Sierra, Shenadoah, Trabuco
Gabbrodiorite	Boomer, Chaix variant, Secca, Sites
Serpentine	Dubakella, Dubakella variant
Slate (Mariposa group)	Mariposa, Josephine
Metamorphosed volcanic rock, greenstone, amphibolite schist	Auburn, Argonaut, Boomer, Cohasset, Josephine, Rescue, Secca, Sobrante, Sites
Slates and Schists (Calaveras group)	Mariposo, Maymen, Sites, Josephine

APPENDIX F: USFWS IPaC REPORT

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Nevada County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS

California Red-legged Frog Rana draytonii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Flowering Plants

NAME	STATUS
Pine Hill Flannelbush Fremontodendron californicum ssp. decumbens No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4818	Endangered
Stebbins' Morning-glory Calystegia stebbinsii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3991	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

California Spotted Owl Strix occidentalis occidentalis — Breeds Mar 10 to Jun 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/7266

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Rufous Hummingbird selasphorus rufus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Williamson's Sapsucker Sphyrapicus thyroideus — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8832

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

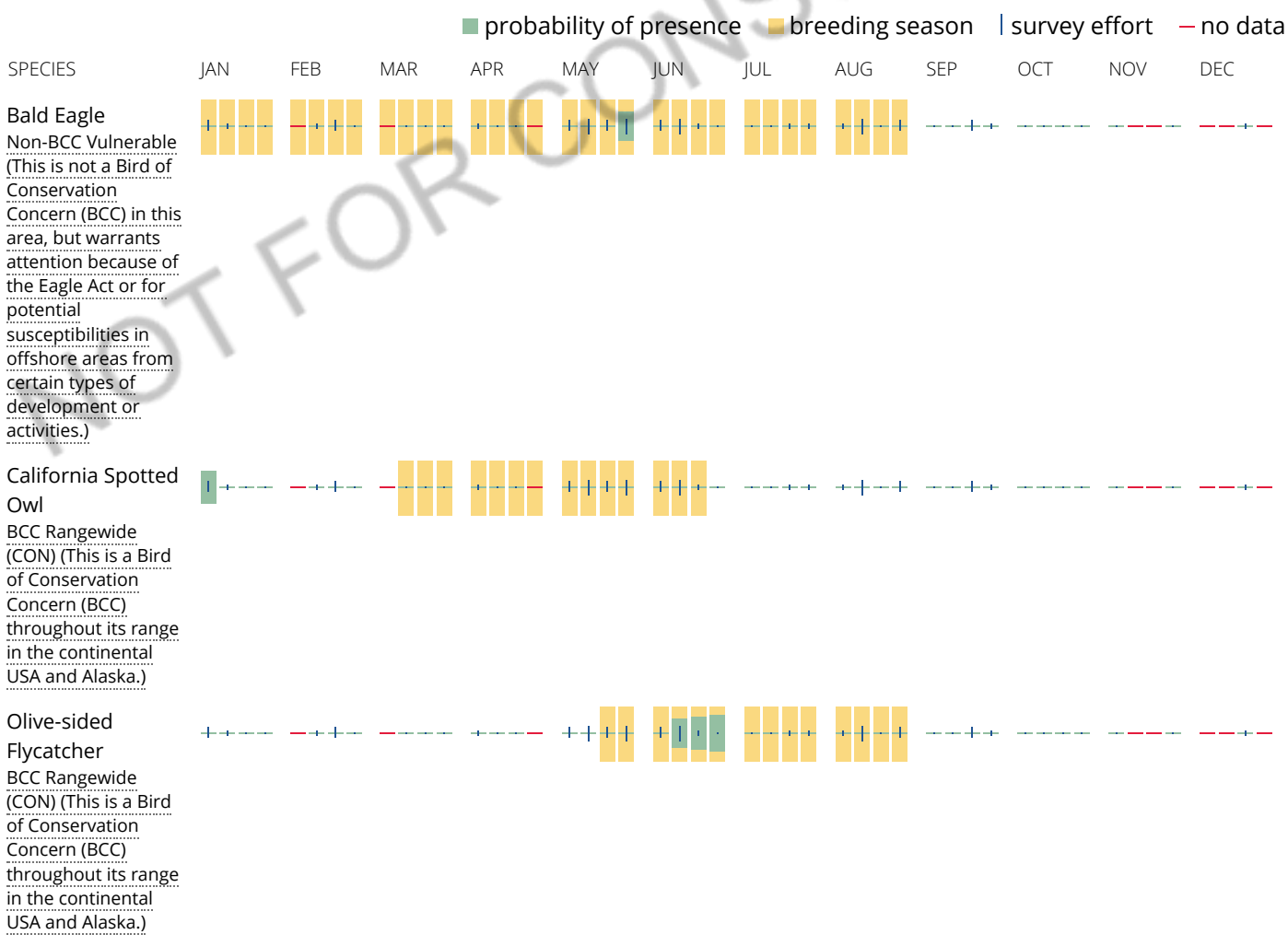
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

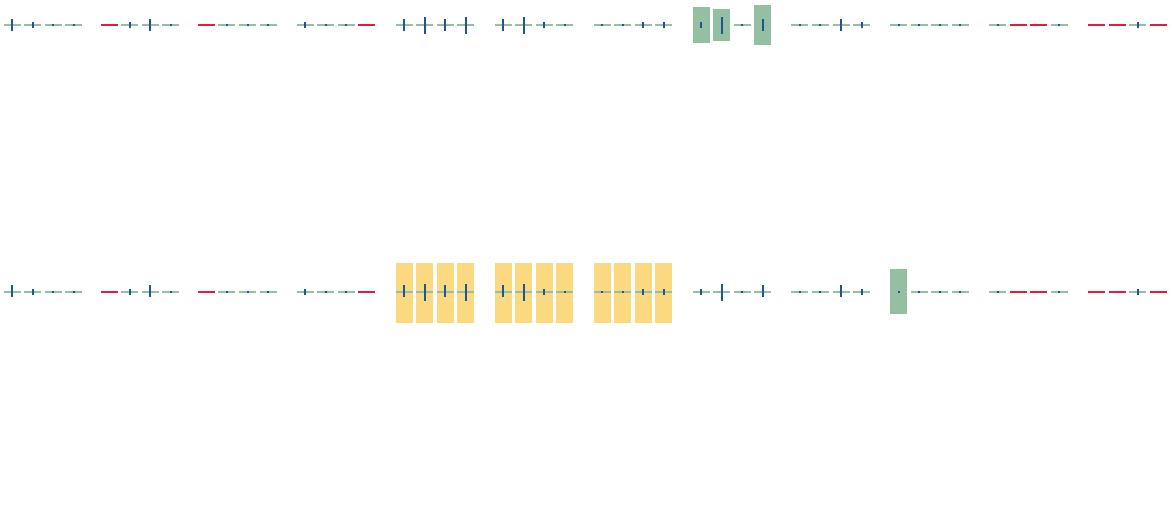
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Williamson's Sapsucker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to

confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

- PFOC
- PSSA

RIVERINE

- R4SBC
- R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.