Biological Resources Assessment Little Lakes Former Industrial Site

Assessor's Parcel Numbers:
503-232-004, 503-232-013, and 503-232-016
Arcata, California

Prepared for:

City of Arcata

September 2024

024041.200

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Reference: 024041

September 11, 2024

City of Arcata
Kelsey Fletterick, Community Development Specialist
736 F Street
Arcata, California 95521

Subject: Biological Resources Assessment , Arcata, California

Dear Kelsey Fletterick,

SHN has prepared this Biological Resources Assessment for the Little Lakes Property adjacent to the Arcata Marsh and Wildlife Sanctuary. This report documents environmentally sensitive habitat areas (ESHA) and special-status botanical and animal species present or potentially occurring within the study area.

Fieldwork was conducted on May 8 and 21, and July 15 and 16, 2024, which included the bloom period for special-status plant species potentially occurring onsite. Two special-status botanical species and three sensitive vegetation communities (considered non-wetland ESHA) were observed within the study area. Three special-status animals were observed in the study area and several others have the potential to occur onsite, at least seasonally.

Please email me at gobrien@shn-engr.com or call me at 707-441-8855 if you have any comments or concerns.

Sincerely,

SHN

Gretchen O'Brien
Senior Wildlife Biologist

GAO:cet
Enclosure: Biological Resources Assessment

Biological Resources Assessment

City of Arcata
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Prepared for:

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Prepared by:

812 W. Wabash
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Abbreviations and Acronyms

Terms of Measure

°C	degrees Celsius
Cm	centimeters
°F	degrees Fahrenheit
ft	feet
km	kilometers
ppt	parts per thousand

Additional Terms

APN	Assessor's Parcel Number
BIOS	Biogeographical Information and Observation System
BMP	best management practice
C	candidate species status
Cal-IPC	California Invasive Plant Council
CCR	California Code of Regulations
CDC	California Department of Conservation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNRA	California National Resources Agency
CRPR	California Rare Plant Rank
CT	candidate threatened species status
CWA	Clean Water Act
D	delisted species status
DPS	Distinct population segment/species status
E	endangered species status
EPA	United States Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Area
ESU	evolutionarily significant unit/species status
FESA	Federal Endangered Species Act
FP	fully protected species status
G	global rank
G1/S1	critically imperiled species heritage rank
G2/S2	imperiled species heritage rank
G3/S3	vulnerable species heritage rank
G4/S4	apparently secure species heritage rank
G5/S5	secure species heritage rank
IPaC	Information for Planning and Conservation
LSA	Lake and Streambed Alteration
MBTA	Migratory Bird Treaty Act
MHHW	Mean Higher High Water
NCCP	Natural Community Conservation Planning
NCDC	National Climatic Data Center
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic & Atmospheric Administration
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
PE	proposed endangered species status
PT	proposed threatened species status
S	state rank
SCP	Site Cleanup Plan
SSC	species of special concern
SWRCB	State Water Resources Control Board
T	threatened species status

Abbreviations and Acronyms (cont'd)

USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VegCAMP	Vegetation Classification and Mapping Program
WL	watch list species status

1.0 Introduction

SHN has conducted literature review, seasonally appropriate surveys, and habitat assessments to determine biological resources present within the Little Lakes Property in Arcata, California (see Figure 1). This Biological Resources Assessment documents the presence or absence of special-status and sensitive biological resources within the study area, and if observed, the extent and condition of these resources. Additionally, this report includes applicable existing regulations for the protection of sensitive biological resources, scoping lists, and documentation of all botanical and wildlife species occurring within the study area.

1.1 Project Location and Site Description

The study area (project site) includes the entirety of the three Assessor's Parcel Numbers (APNs), 503-232-004, 503-232-013, and 503-232-016 within the City of Arcata and is situated adjacent to the Arcata Marsh and Wildlife Sanctuary (Appendix 1, Figure 1). The site is within the U.S. Geological Survey (USGS; USGS, 2020) Arcata South 7.5-minute quadrangle, with a center point at latitude 40.863126° and longitude -124.090452° (Google Earth, 2024). The study area covers 11.6 acres (ac), which are currently vacant and consist of a highly manipulated former industrial site (Appendix 1, Photos 1-4) with some ongoing storage and light use (Figure 2).

1.2 Project Description

This Biological Resources Assessment has been completed to determine what biological resources occur within the subject parcels, which can be used to inform future project planning and potential site development. This includes implementation of a site cleanup plan (SCP) for remediation activities at the site. The SCP proposes soil excavation in the northwestern portion of the site in an area that extends for approximately 170 feet along "I" Street and is approximately 30 feet in width at its widest point (SHN, 2020). Additionally, the results from this Biological Resources Assessment can be used in permitting any future project, provided permitting is completed within the five-year life span of the results of this study.

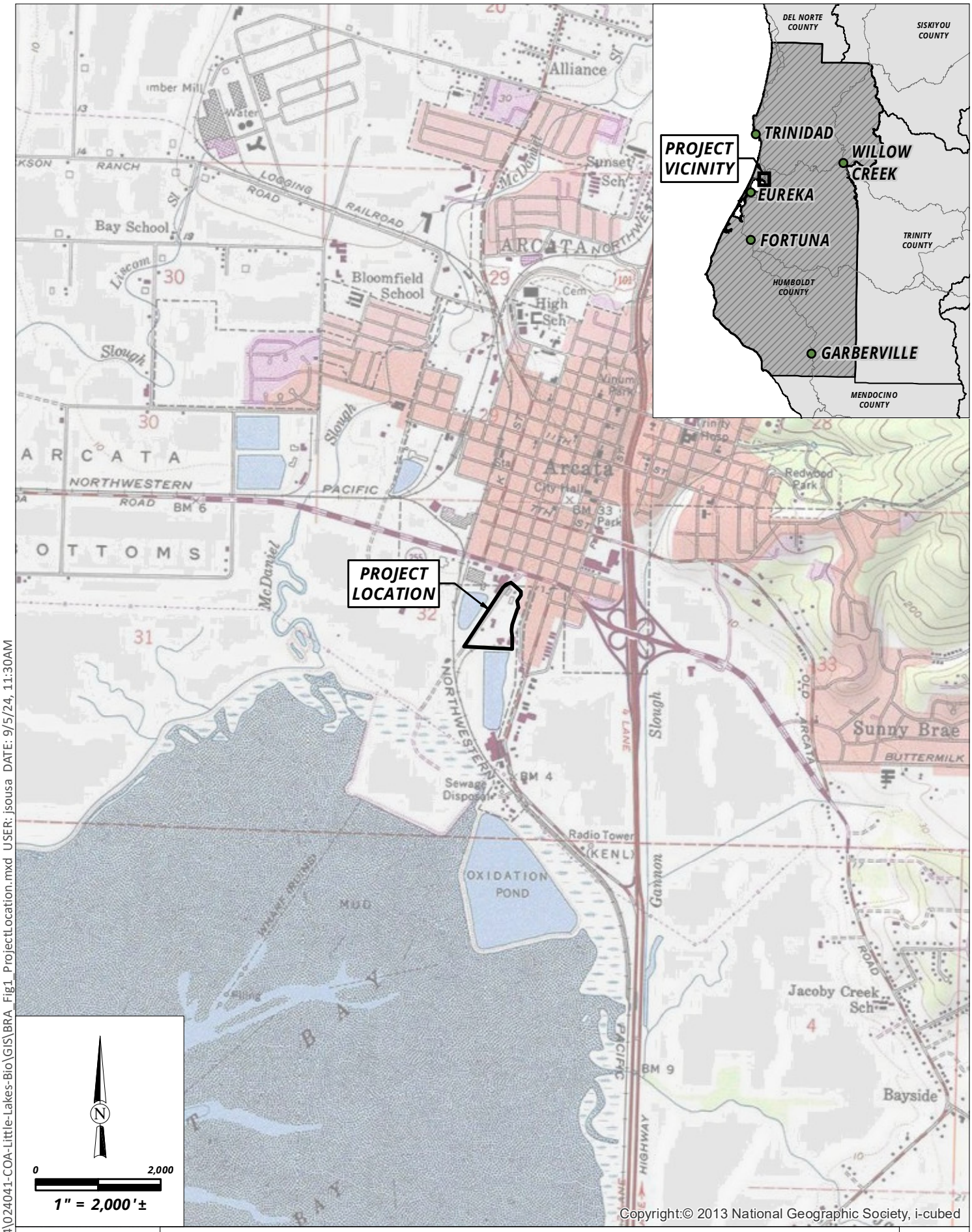
2.0 Methods

2.1 Literature Review

This Biological Resources Assessment includes a review of pertinent literature on habitat characteristics of the site, and a review of information related to special-status plant and animal species that could potentially use the described habitats.

The findings for this report are the result of several sources, including a review of existing literature regarding sensitive resources that have the potential to occur within the site. Resources for this determination included:

- California Natural Diversity Database (CNDDB) query for the Arcata South and surrounding USGS 7.5-minute topographic quadrangles (Tyee City, Arcata North, Blue Lake, Eureka, Korbel, Fields Landing, McWhinney Creek, and Iaqua Buttes; California Department of Fish and Wildlife [CDFW], 2024a; Appendix 2, Table 2-1)
- Biogeographical Information and Observation System (BIOS; CDFW, 2024b)



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City of Arcata
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Arcata, California

Project Location Map

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Figure 1

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EXPLANATION

- VEGETATION ASSESSMENT REFERENCE POINT
- HUMB. BAY OWL'S-CLOVER OCCURRENCE
- LYNGBYE'S SEDGE OCCURRENCE
- HUMB. BAY OWL'S-CLOVER POPULATION
- LYNGBYE'S SEDGE POPULATION
- COAST DUNE WILLOW THICKET
- FRESHWATER MARSH
- BRACKISH MARSH
- CREEK CENTERLINE
- STUDY AREA

N

0 100

1" = 100'±

IMAGE SOURCE:
GOOGLE, 2024

SAMOA BLVD.

SOUTH I ST

R1

R2

R3

R4

R5

R6

JOLLY GIANT CREEK / BUTCHER SLOUGH

JOLLY GIANT CREEK / BUTCHER SLOUGH

City of Arcata
Little Lakes Former Industrial Site, Biological Resources Assessment
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Biological Resources

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Figure 2

- Electronic Inventory of Rare and Endangered Vascular Plants of California (California Native Plant Society, [CNPS], 2024) queried for a list of all plant species reported for the Arcata South and surrounding USGS 7.5-minute topographic quadrangles
- Special Vascular Plants, Bryophytes, and Lichens of California List (CDFW, 2024c)
- Special Animals of California List (CDFW, 2024d)
- United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) was queried for threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of the proposed project and/or may be affected by the proposed project (USFWS, 2024a; Appendix 3).
- United States Fish and Wildlife Service (USFWS) Critical Habitat Portal (USFWS, 2024b).
- Natural Resources Conservation Service (NRCS) web soil survey map (USDA-NRCS, 2024; Appendix 4).

The aforementioned databases were queried for historical and existing occurrences of State- and federally-listed threatened, endangered, and candidate plant and animal species; species proposed for listing; and all plant species listed by the CNPS (Online 2024 inventory). An evaluation was conducted for the potential presence or absence of habitat for special-status plant and animal species.

Each species was evaluated for its potential to occur in the study area according to the following criteria:

- None. Species listed as having "none" are those species for which:
  - there is no suitable habitat present in the study area (that is, habitats in the study area are unsuitable for the species requirements [for example, elevation, hydrology, plant community, known distribution, disturbance regime, etc.]).
- Low. Species listed as having a "low" potential to occur in the study area are those species for which:
  - there is no known record of occurrence in the vicinity,
  - there is marginal or very limited suitable habitat present within the study area,
  - the location is outside the known range of the species.
- Moderate. Species listed as having a "moderate" potential to occur in the study area are those species for which:
  - there are known records of occurrence in the vicinity,
  - there is suitable habitat present in the study area,
  - the location is within the known range of the species.
- High. Species listed as having a "high" potential to occur in the study area are those species for which:
  - there are known records of occurrence in the vicinity (there are many records and/or records in close proximity),
  - there is highly suitable habitat present in the study area,
  - the location is within the known range of the species.

- **Present**. Species listed as "present" in the study area are those species for which:
    - the species was observed in the study area.

From the database queries, a list of species potentially occurring within the study area was compiled. Table 2-1 in Appendix 2 includes all plant species reported from the queries, their preferred habitat, and if there is suitable habitat present within the study area for the species. Table 2-2 in Appendix 2 includes all animal species reported from the queries, their preferred habitat, and if there is suitable habitat present within the study area for the species. The potential for occurrence of those species included on the list were then evaluated based on the habitat requirements of each species relative to the conditions observed during the field surveys.

2.2 Field Observations and Studies

SHN's biologists conducted site visits on May 8 and 21, and July 15 and 16, 2024 for biological surveys and habitat assessments for a total of 11 hours of surveying. Plant surveys were conducted according to CDFW protocol as outlined in *Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Sensitive Natural Communities* (CDFW, 2018a). Surveys were conducted with an attempt to identify all species present within the project-related study area, including possible species of special concern. In addition to surveying for target species, a list of all botanical and animal species encountered was compiled and is included in Appendix 5 (Tables 5-1 and 5-2). Plants were identified to the lowest taxonomic level possible to distinguish special-status species from others. Nomenclature for special-status animals conforms to CDFW guidelines (CDFW, 2024a and 2024d). Plant community names conform to *A Manual of California Vegetation, Second Edition* (Sawyer et al., 2009) and subsequent online updates (CNPS, 2024b) as well as the VegCAMP (Vegetation Classification and Mapping Program) Natural Communities List (CDFW, 2018b). Botanical nomenclature of species in this assessment follows the *Jepson Manual* (Baldwin et al., 2012) and subsequent online revisions. The May and July site visits were conducted at seasonally-appropriate times to best detect mid- and late-blooming special-status plant species, such as those with moderate or high potential to occur within the study area, special-status animals, and a number of nesting bird species. Analysis of the habitat and vegetation communities present within the study area during the site visits indicates that suitable habitat for several special-status plant and animal species exists onsite. The areas most likely to support special-status species include areas with native vegetation, wetland characteristics, or shrubby, early successional vegetation. All portions of the study area were investigated for the presence of special-status species and habitat availability for special-status species. Sensitive natural communities and special-status species were mapped as part of this report (Figure 2) and will be discussed further in Section 5.3.

Photographs from the site visits are included in Appendix 1.

3.0 Environmental Setting

The study area has an average elevation of 12 feet above sea level. The geology at the site is mapped as marine and non-marine sedimentary rocks (geologic map unit Q), which consists of alluvium, lake, playa, and terrace deposits–unconsolidated and semi-consolidated. Proximity to the coast indicates these are likely uplifted marine deposits (California Department of Conservation [CDC], 2024).

The underlying soils in the study area have the United States Department of Agriculture (USDA)- NRCS soil map unit designation 127—Jollygiant, 0 to 2 percent slopes and soil map unit designation 140 – Occidental, 0 to 2 percent slopes (Appendix 4; USDA-NRCS, 2024). A review of historical photos shows

that this site had been an industrial lumber mill site since at least the 1940s, (Appendix 1, Photo 22), with significant industrial development of the site occurring within the late 1940s and early 1950's (Appendix 1, Photo 23), which remained until it was demolished sometime in the 1990s (Google Earth, 2024). Buildings and other industrial structures have been removed, although several concrete pads and extremely compacted gravelly areas remain. This site is now used primarily for soils and building materials storage, and large portions have become vegetated where there has been minimal use or large-scale disturbance.

The average 30-year precipitation data for this area is 40.33 inches (National Oceanic and Atmospheric Administration [NOAA], 2024) with the majority of precipitation occurring between October and April. Temperatures in the Humboldt Bay Area range from an average low of 41 degrees Fahrenheit (°F) in the winter to an average high of 64°F in the summer; extremes in temperatures are relatively uncommon due to the regional maritime influence.

3.1 Vegetation

Vegetation composition in the study area reflects the industrial history of the site, ongoing disturbance, and reclaimed suburban wildland interface. Consequently, vegetation within the study area is composed primarily of non-native and invasive plant species with large patches of native plant dominance in freshwater wetland and brackish marsh areas along the southern and eastern border of the study area (Appendix 1, Photos 1-19). The study area is adjacent to urban development to the north and east, industrial development to the west, and semi-natural habitat conditions to the south. Former industrial areas are dominated by non-native and invasive species in upland areas such as sweet vernal grass (*Anthoxanthum odoratum*), Himalayan blackberry (*Rubus armeniacus*), sheep sorrel (*Rumex acetosella*), velvet grass (*Holcus lanatus*), large quaking grass (*Briza maxima*), and dogtail grass (*Cynosurus echinatus*), among others. Within the mosaic of non-native-dominated areas exist native shrub-dominated patches primarily consisting of coastal willow (*Salix hookeriana*), or coyote brush (*Baccharis pilularis* ssp. *consanguinea*), among others. Trees in the area are a mix of primarily native species that were both planted and naturally recruited, including beach pine (*Pinus contorta* var. *contorta*), Sitka spruce (*Picea sitchensis*), cherry plum (*Prunus cerasifera*), Scouler's willow (*Salix scouleriana*), and Pacific willow (*Salix lasiandra* var. *lasiandra*).

Freshwater wetland and brackish marsh along the eastern and southern boundary of the study area support the highest quality habitat within the study area with a mix of primarily native species. Species dominance is graduated across Butcher Slough and Jolly Giant Creek in relation to tidal influence. Brackish marsh areas are largely dominated by both native and nonnative herbaceous species such as dense-flowered cordgrass (*Spartina densiflora*), Lyngbye's sedge (*Carex lyngbyei*), and seaside arrowgrass (*Triglochin maritima*). Freshwater wetlands are dominated by creeping bentgrass (*Agrostis stolonifera*), Italian ryegrass (*Festuca perennis*), small-fruited bulrush (*Scirpus microcarpus*), and Lyngbye's sedge.

Three sensitive vegetation communities occur within the study area and are discussed in Section 5.3 and summarized in Table 1 in Section 5.4. A complete list of plants observed within the study area is compiled in Appendix 5, Table 5-1.

3.2 Wildlife Habitats

Common wildlife species expected within the study area are those typically associated with coastal scrub, salt marsh and freshwater wetlands, urban settings, and forest openings of northwestern California. The project site contains areas of tall grasses, dense shrubs, and riparian vegetation that

may provide food and shelter for animals, however the site experiences periodic human disturbance and is surrounded by urban development and recreational trails. The dense vegetative cover along the eastern boundary provides the highest quality wildlife habitat within the study area, with connectivity to the surrounding coastal marsh area. Animal species observed during fieldwork are presented in Appendix 5, Table 5-2. Other wildlife species are likely to inhabit the study area and surrounding habitats for cover, foraging, or nesting.

3.3 Wildlife Movement Corridors

Wildlife movement includes seasonal migration, inter-population movement (genetic flow), and small, daily travel pathways within an animal's territory. Although small travel pathways usually facilitate movement for daily home range activities (such as, foraging or escape from predators), they also provide connection between outlying populations and the main corridor, permitting an increase in genetic flow among populations.

Where patches of habitat are fragmented, the movement between wildlife populations is facilitated through habitat linkages, migration corridors, and movement corridors. Depending on the condition of the corridor, genetic flow between populations may be high in frequency, thus allowing high genetic diversity within the population, or may be low in frequency. Low-frequency genetic flow may potentially lead to complete isolation and, if pressures are strong, potential extinction (McCullough, 1996; and Whittaker, 1998).

Jolly Giant Creek runs along the eastern and southern boundaries of the study area. Riparian corridors are often used for movement as they tend to provide food and adequate cover from predators. In addition, mammals may create well-worn paths that are frequently used for movement across a landscape.

Heavy vegetative cover along the eastern boundary of the study area provides an adequate wildlife movement corridor past the project area (Figure 2; Appendix 1, Photo 3). There were no well-defined frequently traveled animal trails observed within the study area. However, suitable resting, nesting, and foraging habitat is available for migratory birds.

3.4 Offsite Conditions

Offsite conditions are highly influenced by the proximity of the site to the City of Arcata. Suburban, mostly residential and light industrial development occurs east of the study area, city streets, and denser downtown development occurs to the north of the study area, and industrial development exists to the west of the study area. Arcata Marsh is to the south of the study area, which contains well-used recreational trails and other semi-natural areas (Figure 1).

4.0 Regulatory Setting

Regulatory authority over biological resources is shared by federal, State, and local authorities under a variety of legislative acts. The following section summarizes the federal, State, and local regulations for special-status species and other sensitive biological resources. This section provides a listing and overview of these federal, State and local laws; only select regulations will be applicable to this project.

4.1 Federal Laws

4.1.1 Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (16 United States Code [USC] Sections 661-667e, March 10, 1934, as amended 1936, 1946, 1947, 1948, 1949, 1958, 1965, 1978, and 1995; USFWS, 1934) requires that whenever waters or channel of a stream or other body of water are proposed or authorized to be modified by a public or private agency under a federal license or permit, the federal agency must first consult with the USFWS and/or National Marine Fisheries Service (NMFS) and with the head of the agency exercising administration over the wildlife resources of the state where construction will occur (in this case the CDFW), with a view to conservation of birds, fish, mammals, and all other classes of wild animals and all types of aquatic and land vegetation upon which wildlife is dependent.

If direct permanent impacts will occur to Waters of the U.S. from a proposed project, then a permit from United States Army Corps of Engineers (USACE) under Clean Water Act (CWA;USACE/EPA, 2008 and EPA,1948) Section 404 is required for the construction of the proposed project. USACE is required to consult with USFWS and/or NMFS as appropriate regarding potential impacts to federally-listed species under Federal Endangered Species Act (FESA). Such action may prompt consultation with CDFW, which would review the project pursuant to California Endangered Species Act (CESA) and issue a consistency letter with USFWS and/or NMFS, if required.

4.1.2 Federal Endangered Species Act

The United States Congress passed the FESA in 1973 to protect species that are endangered or threatened with extinction. The FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend and within which they live. The USFWS and the NMFS are the designated federal agencies responsible for administering the FESA.

The FESA prohibits the "Take" of endangered or threatened wildlife species. A "Take" is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1531, 50 Code of Federal Regulations [CFR] 17.3; USFWS, 1973). An activity can be defined as a "Take" even if it is unintentional or accidental. Taking can result in civil or criminal penalties. Activities that could result in "Take" of a federally-listed species require an incidental "Take" authorization resulting from FESA Section 7 consultation or FESA Section 10 consultation (USACE/Environmental Laboratory, 1973). Plants are legally protected under the FESA only if "Take" occurs on federal land or from federal actions, such as, issuing a wetland fill permit.

A federal endangered species is one that is considered in danger of becoming extinct throughout all, or a significant portion, of its range. A federal threatened species is one that is likely to become endangered in the foreseeable future. The USFWS also maintains a list of species proposed for listing as threatened or endangered. Proposed species are those for which a proposed rule to list as endangered

or threatened has been published in the Federal Register. In addition to endangered, threatened, and proposed species, the USFWS maintains a list of candidate species. Candidate species are those for which the USFWS has on file sufficient information to support issuance of a proposed listing rule.

Pursuant to the requirements of the FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed endangered or threatened species may be present in the study area and determine whether the proposed project will have a potentially significant impact on such a species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under the FESA or result in the destruction or adverse modification of critical habitat designated or proposed to be designated for such species (16 USC 1536[3], [4]; USFWS, 1973). Project-related impacts to species on the FESA endangered or threatened list would be considered significant and thus, would require mitigation.

4.1.3 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) of 1918 makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in CFR Part 10, including feather or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21; USFWS, 1918). The MBTA also prohibits disturbance and harassment of nesting migratory birds at any time during their breeding season. The USFWS is responsible for enforcing the MBTA (16 USC 703; USFWS, 1918). The migratory bird nesting season is generally considered to be between March 15 and August 15 within the study region.

4.2 State Laws

4.2.1 California Coastal Act

Legislature passed the Coastal Act in 1976, which made the Coastal Commission a permanent agency with broad authority to regulate coastal development. The Coastal Act guides how the land along the coast of California is developed, or protected from development. It emphasizes the importance of the public being able to access the coast, and the preservation of sensitive coastal and marine habitat and biodiversity. It dictates that development be clustered in areas to preserve open space, and that coastal agricultural lands be preserved. It prioritizes coastal recreation as well as commercial and industrial uses that need a waterfront location. It calls for orderly, balanced development, consistent with these priorities, and taking into account the constitutionally protected rights of property owners.

The Coastal Act defines the area of the coast that comes under the jurisdiction of the California Coastal Commission, which is called the “coastal zone.” The Coastal Zone extends seaward to the state’s outer limit of jurisdiction (three miles), including offshore islands. The inland boundary varies according to land uses and habitat values. In general, it extends inland 1,000 yards from the mean high tide line of the sea, but is wider in areas with significant estuarine, habitat, and recreational values, and narrower in developed urban areas. Coastal Zone boundary maps are available on the Coastal Commission website (https://www.coastal.ca.gov/).

4.2.2 California Endangered Species Act

The State of California enacted the CESA in 1984. The CESA is similar to the FESA but pertains to state-listed endangered and threatened species. Under the CESA, the CDFW has the responsibility for maintaining a list of threatened and endangered species designated under state law (California Fish and

Game Code [CFGC] 2070; CDFW, 1984). Section 2080 of the CFGC prohibits "Take" of any species that the commission determines to be an endangered or threatened species. "Take" is defined in Section 86 of the CFGC as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

The State and federal lists of threatened and endangered species are generally similar; however, a species present on one list may be absent from the other. CESA regulations are also somewhat different from the FESA in that the State regulations included threatened, endangered, and candidate plants on non-federal lands within the definition of "Take." CESA allows for "Take" incidental to otherwise lawful development projects.

Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the study area and determine whether the proposed project will have a potentially significant impact on such species. Project-related impacts to species on the CESA endangered or threatened list (or, in addition, designated by the CDFW as a "Species of Special Concern," which is a level below threatened or endangered status) would be considered significant and would require mitigation.

4.2.3 California Environmental Quality Act

California Environmental Quality Act (CEQA) Guidelines Sections 15125(c) and 15380(d) provide that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria (California Natural Resources Agency [CNRA], 1970). Thus, CEQA provides the ability to protect a species from potential project impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

The CNPS maintains a list of plant species native to California whose populations that are significantly reduced from historical levels, occur in limited distribution, or are otherwise rare or threatened with extinction. This information is published in the Inventory of Rare and Endangered Plants of California (CNPS, 2024a). Taxa with a California Rare Plant Rank (CRPR) of 1A, 1B, 2A, 2B, and 3 in the CNPS inventory consist of plants that meet the definitions of the CESA of the CFGC, are eligible for state listing, and meet the definition of Rare or Endangered under CEQA Guidelines Sections 15125(c) and 15380(d). Some taxa with a CRPR 4 may meet the definitions of the CESA of the CFGC. CRPR 4 populations may qualify for consideration under CEQA if they are peripheral or disjunct populations; represent the type locality of the species; or exhibit unusual morphology and/or occur on unusual substrates.

Additionally, CDFW maintains lists of special animals and plants. These lists include a species conservation ranking status from multiple sources, including FESA, CESA, and federal departments with unique jurisdictions, CNPS, and other non-governmental organizations. Based on these sources, CDFW assigns a heritage rank to each species according to their degree of imperilment (as measured by rarity, trends, and threats). These ranks follow NatureServe's Heritage Methodology, in which all species are listed with a G (global) and S (state) rank (NatureServe, 2024). Species with state ranks of S1-S3 are also considered highly imperiled.

CEQA Guidelines checklist IV(b) calls for the consideration of riparian habitats and sensitive natural communities. Sensitive vegetation communities are natural communities and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. However, these communities may or may not necessarily contain special-status species. Sensitive natural communities are usually identified in local or regional plans, policies, or regulations, or by CDFW (that is,

the CNDDB and VegCAMP programs; CDFW, 2018b) or the USFWS. Impacts to sensitive natural communities and habitats must be considered and evaluated under CEQA (California Code of Regulations [CCR]: Title 14, Div. 6, Chap. 3, Appendix G; CNRA, 1970).

Although sensitive natural communities do not (at present) have legal protection, CEQA calls for an assessment of whether any such resources would be affected, and requires a finding of significance if there will be substantial losses. High-quality occurrences of natural communities with heritage ranks of three or lower are considered by CDFW to be significant resources and fall under the CEQA Guidelines for addressing impacts. Local planning documents (such as general plans) often identify these resources as well. Avoidance, minimizations, or mitigation measures should be implemented if project-affected stands of rare vegetation types or natural communities are considered high-quality occurrences of the given community.

As a trustee agency under CEQA, CDFW reviews potential project impacts to biological resources, including wetlands. In accordance with the CEQA thresholds of significance for biological resources, areas that meet the state criteria of wetlands and could be impacted by a project must be analyzed. Pursuant to CFGC Section 2785, CDFW defines wet areas as "lands which may be covered periodically or permanently with shallow water and which include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, fens, and vernal pools" (CDFW, 1998).

4.2.4 California Fish and Game Code Sections 3503 and 3513

According to Section 3503 of the CFGC, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (except English sparrows [*Passer domesticus*] and European starlings [*Sturnus vulgaris*]). Section 3503.5 specifically protects birds in the orders Falconiformes and Strigiformes (birds-of-prey). Section 3513 essentially overlaps with the MBTA, prohibiting the "Take" or possession of any migratory non-game bird (CDFW, 1998). Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "Take" by the CDFW.

4.2.5 Fully Protected Species and Species of Special Concern

The classification of "fully protected" was the CDFW's initial effort to identify and provide additional protection to those animals that were rare or faced with possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under CESA and/or FESA. The CFGC sections (fish at Sec. 5515, amphibian and reptiles at Sec. 5050, birds at Sec. 3511, and mammals at Sec. 4700) dealing with "fully protected" species states that these species "…may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected species," (CDFW, 1998) although "Take" may be authorized for necessary scientific research. This language makes the "fully protected" designation the strongest and most restrictive regarding the "Take" of these species. In 2003, the code sections dealing with fully protected species were amended to allow the CDFW to authorize "Take" resulting from recovery activities for state-listed species.

Species of special concern (SSC) are broadly defined as animals not listed under the CESA, but that are nonetheless of concern to the CDFW because they are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist. This designation is intended to result in special consideration for these animals by the CDFW, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under CESA and cumbersome recovery efforts that might ultimately be required.

This designation is also intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. Although the SSC designation provides no special legal status, they are given special consideration under CEQA during project review.

4.2.6 Native Plant Protection Act of 1973

The Native Plant Protection Act (NPPA) of 1973 (Sec.1900-1913 of the CFGC; CDFW, 1998) includes provisions that prohibit the taking of endangered or rare native plants from the wild and a salvage requirement for landowners. The CDFW administers the NPPA and generally regards as "rare" many plant species included on Lists 1A, 1B, 2A, 2B, 3, and 4 of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2024a).

4.2.7 Natural Community Conservation Planning Act

The Natural Community Conservation Planning (NCCP) Act of 1991 is an effort by the State of California, and numerous private and public partners that is broader in its orientation and objectives than the CESA and FESA (refer to discussions above; CDFW, 1991). The primary objective of the NCCP Act is to conserve natural communities at the ecosystem scale while accommodating compatible land use. The NCCP Act seeks to anticipate and prevent the controversies and gridlock caused by species listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.

4.3 Local Laws

4.3.1 City of Arcata Local Coastal Element (Draft) and City of Arcata General Plan

The City of Arcata Local Coastal Element (City of Arcata, 2022) identifies land uses and standards by which development will be evaluated within the Coastal Zone. This includes a description of habitats considered Environmentally Sensitive Habitat Area (ESHA), as well as suitable protection and buffers for ESHA that may occur within a proposed project area. The City of Arcata Local Coastal Element is used in conjunction with the City of Arcata General Plan.

5.0 Results - Special-status Biological Resources

This section describes the results from the botanical surveys, wildlife surveys, and sensitive natural communities mapping effort.

5.1 Special-status Botanical Species

During botanical surveys, a total of 173 botanical species were observed within the study area (see Appendix 5, Table 5-1), which includes 15 tree species, 16 shrub species, 17 sedge and rush species, 3 fern and allies species, 31 graminoid species, 87 herbaceous species, and 4 woody vine species. This represents taxa from 49 different plant families. Plant species composition was 38 percent native, reflecting the history of use onsite (see Appendix 5, Table 5-1). Vegetation composition in the study area reflects the industrial history of the site, ongoing disturbance, and reclaimed suburban wildland interface. Consequently, vegetation within the study area is composed primarily of non-native and invasive plant species with large patches of native plant dominance in freshwater wetland and brackish marsh areas along the southern and eastern border of the study area resulting in a moderate level of species diversity.

One special-status[1] CRPR 1B species and one CRPR 2B species were observed within the study area. This included one large occurrence[2] of Humboldt Bay owl's clover (*Castilleja ambigua* var. *humboldtiensis;* CRPR 1B.2); and one large occurrence of Lyngbye's sedge (CRPR 2B.2); and are shown on Figure 2. These species and the occurrences within the study area are described in detail in Section 5.1.1.

Additionally, occurrences of Point Reyes bird's-beak (*Chloropyron maritimum* ssp. *palustre*; CRPR 1B.2) and northern sand spurrey (*Spergularia canadensis* var. *occidentalis*; CRPR 2B.1) occur within the vicinity of the project and were observed outside of the project area during the botanical surveys. These occurrences were within Butcher Slough, south of the study area and these species were not observed within the study area. These occurrences were not mapped because they are outside of the study area.

Habitat of varying quality was present within the study area for an additional 33 CRPR plant taxa on the scoping list (see Appendix 2, Table 2-1) that were not observed within the study area. In general, habitats present for these CRPR taxa included coastal dunes, coastal salt marsh, coastal bluff scrub, coastal prairie, and disturbed areas (see discussion on natural communities below). Of the 33 CRPR species with potential habitat within the study area, 18 were considered to have a low potential of occurrence and 15 were considered to have a moderate or high potential of occurrence within the study area based on habitat requirements or observations within the vicinity, but were not observed within the study area. Species with moderate or high potential of occurence are listed below:

- sea-watch (*Angelica lucida*)
- coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*)
- Lyngbye's sedge (*Carex lyngbyei*)
- Humboldt Bay owl's-clover (*Castilleja ambigua* var. *humboldtiensis*)
- Oregon coast paintbrush (*Castilleja litoralis*)
- Point Reyes salty bird's-beak (*Chloropyron maritimum* ssp. *palustre*)
- small spikerush (*Eleocharis parvula*)
- Pacific gilia (*Gilia capitata* ssp. *pacifica*)
- short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*)
- harlequin lotus (*Hosackia gracilis*)
- marsh pea (*Lathyrus palustris*)
- Howell's montia (*Montia howellii*)
- Wolf's evening primrose (*Oenothera wolfii*)
- Siskiyou checkerbloom (*Sidalcea malviflora* ssp*. patula*)
- western sand-spurrey (*Spergularia canadensis* var. *occidentalis*)

There was no habitat present for 28 species on the scoping list. These species typically occur within a variety of habitats not found within the study area, which included forests, bogs and fens, chaparral, cismontane woodland, habitats with serpentine soils (serpentinite), lower and upper montane coniferous forests, riparian scrub, rocky coastal bluff scrub, subalpine coniferous forests, valley and foothill grassland, and vernal pools (see Appendix 2, Table 2-1).

[1] Special-status as defined in this report and the *Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Sensitive Natural Communities* (CDFW, 2018a).

[2] Occurrence is informally defined here as a single individual or patches of individuals of a given species generally separated by at least 98 feet (30 meters) from another individual or patch of the same species. This definition differs from the CNDDB definition of an occurrence (see CNDDB Management Framework, dated 7/28/2020).

5.1.1 Special-status Botanical Species Observed

In summary, one special-status CRPR 1B species and one CRPR 2B species were observed within the study area during the surveys. This included one large occurrence of Humboldt Bay owl's clover (CRPR 1B.2); and one large occurrence of Lyngbye's sedge (CRPR 2B.2) as shown on Figure 2. No state- or federally-listed plants were observed within the study area. A general description of the species and occurrences within the study area is included below.

Humboldt Bay owl's clover (CRPR 1B.2) is considered rare, threatened, or endangered in California and elsewhere and is moderately threatened in California. This species is an annual hemiparasitic herb in the Orobanchaceae family with somewhat showy purple flowers that typically bloom between April and August (CNPS, 2024a; see Appendix 1, Photos 29 and 30). Humboldt Bay owl's clover typically grows in coastal salt marsh from 0-10 feet, but is most common around the high tide line, which experiences regular tidal inundation by brackish water (CNPS, 2024a and Jepson Flora Project (eds.), 2024). This species is differentiated from other annual *Castilleja* species by three bract lobes that are white or pale yellow and seeds less than 1millimeter (mm) with a shallow coat. It is further differentiated from other *Castilleja ambigua* varieties by being fleshy, having zero to few branches, and by its occurrence in and adaptation to salt marsh habitat.

Humboldt Bay owl's clover is endemic to California and is distributed along the California coastline, but is most concentrated in the Humboldt Bay area with other scattered observations along the coast. Its distribution stretches from Humboldt Lagoons State Park in the north, to Tomales Bay in the south (CNPS, 2024a and Jepson Flora Project (eds.), 2024). Many local observations in salt marsh around Humboldt Bay are recorded and it can be locally abundant where conditions are right. This species was historically much more common in proper habitat but has been reduced by development and salt marsh alteration. CNPS lists several ongoing threats for this species, including coastal development, foot traffic and trampling, and non-native plants with development and foot traffic and associated trampling as impacting the greatest percentage of populations (CNPS, 2024a).

One large occurrence of Humboldt Bay owl's clover was recorded within the study area during the 2024 field surveys. This occurrence consisted of 14 populations comprised of over 1,000 individuals mapped within 14 discrete polygons, covering 5,791 square feet. Additionally, 11 individuals greater than 2 meters from dense population centers were also mapped. This large occurrence occurs within the brackish marsh and stretches along the southern and eastern boundary of the study area as shown on Figure 2. This entire area was restored in the past by removing industrial fill, and this large occurrence of Humboldt Bay owl's clover demonstrates the success of the restoration effort.

Site quality was good for all populations of Humboldt Bay owl's clover within the study area due to high quality mid-elevation salt marsh habitat, limited disturbance, minimal invasive species cover and slight variations in topography, representing potential habitat for this species. High-quality salt marsh conditions exist along the majority of the eastern and southern portion of the study area and extend south to Humboldt Bay. Common associated species included salt grass (*Distichlis spicata)*, marsh jaumea (*Jaumea carnosa)*, seaside arrow grass (*Triglochin maritima)*, perennial pickleweed (*Salicornia pacifica)*, dense-flowered cordgrass, Lyngbye's sedge, and coastal tufted hairgrass (*Deschampsia caespitosa* ssp. *holciformis),* among others.

Lyngbye's Sedge (CRPR 2B.2) is considered rare, threatened, or endangered in California but is common elsewhere and is moderately threatened in California. This species is a perennial rhizomatous herb in the Cyperaceae family with lateral spikelets on long nodding stalks that typically bloom between April and August (CNPS, 2024a; see Appendix 1, Photos 29 and 30). Lyngbye's sedge typically grows in coastal brackish marsh and intertidal habitat from 0-35 feet, but is most common around the mid- to high-tide

line which experiences regular tidal inundation by brackish water (CNPS, 2024a and Jepson Flora Project (eds.), 2024). It can also be found in freshwater marsh above the high tide line. This species is differentiated from other perennial rhizomed *Carex* species by having two stigmas, drooping or nodding spikelets between 1.8 and 5 centimeters (cm) and fruit that is indented on 1-2 sides and its occurrence in and adaptation to intertidal brackish and freshwater marsh habitat.

Within California, Lyngbye's sedge is distributed along the northern California coastline but is most concentrated in the Humboldt Bay area with other scattered observations along the coast. Its distribution stretches from San Fransisco Bay in the south, to Alaska and elsewhere in the north (CNPS, 2024a and Jepson Flora Project (eds.), 2024). Many local observations in salt marsh around Humboldt Bay are recorded and it can be locally abundant where conditions are right. This species was historically much more common in proper habitat but has been reduced by development and salt marsh alteration. CNPS lists several ongoing threats for this species including non-native plants, grazing, and foot traffic and trampling, with non-native plants impacting the greatest percentage of populations (CNPS, 2024a).

One large occurrence of Lyngbye's sedge was recorded within the study area during the 2024 field surveys. This occurrence consisted of 15 populations comprised of numerous individuals (difficult to determine the number as a result of the rhizomatous habit) mapped within 15 discrete polygons covering 21,924 square feet. Additionally, seven individuals greater than 2 meters from dense population centers were also mapped. This large occurrence occurs within the brackish marsh and stretches along the southern and eastern boundary of the study area as shown on Figure 2. This entire area was restored in the past by removing industrial fill, and this large occurrence of Lyngbye's sedge demonstrates the success of the restoration effort.

Site quality was good for all occurrences of Lyngbye's sedge within the study area due to high-quality mid-elevation salt marsh habitat, limited disturbance, minimal invasive species cover, and slight variations in topography, representing potential habitat for this species. High-quality salt marsh conditions exist along the majority of the eastern and southern portion of the study area and extend south to Humboldt Bay. Common associated species included salt grass, marsh jaumea, seaside arrow grass, perennial pickleweed, dense-flowered cordgrass, Humboldt Bay owl's clover, and coastal tufted hairgrass, among others.

5.2 Special-status Animal Species

Based on a review of special-status animal species, 80 special-status animal species have been reported with the potential to occur in the project region consisting of the Arcata South quadrangle and the surrounding quadrangles (Appendix 2, Table 2-2). Of the special-status animal species reported as potentially occurring in the region, 54 animal species are considered to have a no or low potential to occur at the project site and 26 species have a moderate to high potential to occur. Species with a moderate or high potential for occurrence within the study area are described below.

5.2.1 Amphibians

The northern red-legged frog (*Rana aurora*) occupies flowing water or ponds. This species can be found in humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover. They are generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.

Status: Federal None, State None, Species of Special Concern, Sensitive, Global Rank Apparently Secure, State Rank Vulnerable.

Although this species was not detected, suitable non-breeding habitat exists throughout portions of the study area.

5.2.2 Birds

The Cooper's Hawk (*Accipiter cooperii*) occupies woodlands, open and interrupted and marginal habitats. Nests are primarily in riparian areas with deciduous trees, in canyons bottoms, and also among live oaks.

Status: Federal None, State None, Watch List, Global Rank Secure, State Rank Apparently Secure.

Although this species was not detected, suitable habitat exists for this species within the forested and forest edge portions of the study area.

The great egret (*Ardea alba*) occurs in estuary, freshwater and brackish marsh, riparian forest, and wetlands. This species is a colonial nester in large trees. These rookery sites are typically located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.

Status: Federal None, State None, Sensitive, Global Rank Secure, State Rank Apparently Secure.

Although this species was not observed during surveys, it is known to frequent the area and suitable habitat is available for foraging and nesting.

The great blue heron (*Ardea herodias*) is found in estuaries, marshes, riparian forest, and wetlands. This species is a colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas such as marshes, lake margins, tide-flats, rivers and streams, and wet meadows.

Status: Federal None, State None, Sensitive, Global Rank Secure, State Rank Apparently Secure.

Although this species was not observed during surveys, it is known to frequent the area and suitable habitat is available for foraging.

The short-eared owl (*Asio flammeus*) is typically associated with large, open areas with low vegetation such as prairie, coastal grasslands, and meadows for breeding. Wintering ground habitat is similar but may also be in woodlots, dumps, marshes, and gravel pits.

Status: Federal None, State None, Species of Special Concern, Global Rank Secure, State Rank Imperiled.

Although this species was not detected during surveys, it is known to occur in the vicinity seasonally, and suitable habitat is available.

The American bittern (*Botaurus lentiginosus*) breed mainly in freshwater marshes with tall vegetation. In winter they move to areas where water bodies don't freeze, especially near the coast, where they occasionally use brackish marshes.

Status: Federal None, State None, Global Rank Secure, State Rank Vulnerable/Apparently Secure.

Although this species was not detected during surveys, it is known to occur in the vicinity seasonally, and suitable habitat is available.

The Vaux's swift (*Chaetura vauxi*) occupies forests with coastal redwood, grand fir, ponderosa pine, western hemlock, Douglas-fir, and western red cedar. This species uses mature and old-growth coniferous and mixed forests for nesting, especially those with plenty of hollow trees. They also roost in trees and chimneys in winter and migration.

Status: Federal None, State None, Species of Special Concern, Global Rank Secure, State Rank Vulnerable.

This species was observed flying over the study area, likely foraging. Suitable habitat is available on site.

The northern harrier (*Circus hudsonius*) occurs in coastal salt and freshwater marsh, riparian scrub, and valley and foothill grassland. They nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. This species nests on ground in shrubby vegetation, usually at marsh edges. The nest is built of a large mound of sticks in wet areas.

Status: Federal None, State None, Species of Special Concern, Bird of Conservation Concern, Global Rank Secure, State Rank Vulnerable.

Although this species was not detected during surveys, it is known to occur in the vicinity, and suitable habitat is available.

The snowy egret (*Egretta thula*) occurs within marshes, wetlands, and riparian forest. They are a colonial nester, with nest sites situated in protected beds of dense tules.

Status: Federal None, State None, Global Rank Secure, State Rank Apparently Secure.

Although this species was not detected during surveys, it is known to occur in the vicinity, and suitable habitat is available.

White-tailed kite (*Elanus leucurus*) occurs in open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.

Status: Federal None, State Fully Protected, Sensitive, Global Rank Secure, State Rank Vulnerable/ Apparently Secure.

Although this species was not detected, it is known to occur and nest in the vicinity and suitable habitat is available.

The merlin (*Falco columbarius*) is found along seacoast, in tidal estuaries, open woodlands, savannahs, edges of grasslands, deserts, farms, and ranches. Breeding occurs in the far north (primarily Canada and Alaska).

Status: Federal None, State None, Watch List, Global Rank Secure, State Rank Vulnerable/ Apparently Secure.

This species was not observed during surveys, though suitable foraging habitat is available and may occur during the non-breeding season.

The American peregrine falcon (*Falco peregrinus anatum*) can be found near wetlands, lakes, rivers, or other water. They nest on cliffs, banks, dunes, and mounds, as well as on human-made structures.

Status: Federal Delisted, State Delisted, Sensitive, Global Rank Apparently Secure/subspecies Apparently Secure, State Rank Vulnerable/Apparently Secure.

This species was not observed during surveys, though suitable foraging habitat is available.

The yellow-breasted chat (*Icteria virens*) is usually found in shrubby habitats along rivers. This species breeds in areas of dense shrubbery, including abandoned farm fields, clearcuts, powerline corridors, fencerows, forest edges and openings, swamps, and edges of streams and ponds.

Status: Federal None, State None, Species of Special Concern, Global Rank Secure, State Rank Apparently Secure.

Although this species was not detected, it is known to occur in the vicinity and suitable habitat is available.

The double-crested cormorant (*Nannopterum auritum*) occurs in riparian forest and scrub as well as lakes and coastal areas. They are a colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. This species nests along the coast on sequestered islets, usually on the ground with a sloping surface, or in tall trees along lake margins.

Status: Federal None, State None, Watch List, Global Rank Secure, State Rank Apparently Secure.

Although this species was not detected, it is known to occur in the vicinity and suitable habitat is available.

The black-crowned night heron (*Nycticorax nycticorax*) occupies riparian forest and wetland. They are a colonial nester, usually in trees, but occasionally in tule patches. Rookery sites are usually located adjacent to foraging areas such as lake margins, mud-bordered bays, and marshes.

Status: Federal None, State None, Global Rank Secure, State Rank Apparently Secure.

Although this species was not detected, it is known to occur in the vicinity and suitable habitat is available.

The Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*) lives in grasslands with few trees, tidal salt marshes and estuaries.

Status: Federal None, State None, Species of Special Concern, Global Rank Secure/subspecies Imperiled/Vulnerable, State Rank Imperiled/Vulnerable.

Although this species was not detected, it is known to occur in the vicinity and suitable habitat is available.

The black-capped chickadee (*Poecile atricapillus*) is a bird in the Paridae family. This species inhabits riparian woodlands in Del Norte and northern Humboldt Counties. It is mainly found in deciduous trees, especially willows and alders, along large or small watercourses. The chickadee excavates its nest cavity in rotten wood, or nests in old woodpecker holes.

Status: Federal None, State None, Watch List, Global Rank Secure, State Rank Vulnerable.

This species was detected during surveys and suitable habitat is available on site.

5.2.3 Fishes

Pacific lamprey (*Entosphenus tridentatus*) is found in Pacific Coast streams north of San Luis Obispo County, however regularly runs in Santa Clara River. The size of runs is declining. This species requires swift-current gravel-bottomed areas for spawning with water temperatures between 12-18 degrees Celsius (˚C). Ammocoetes need soft sand or mud.

Status: Federal None, State None, Species of Special Concern, Vulnerable, Sensitive, Global Rank Apparently Secure, State Rank Vulnerable.

Although focused fish surveys were not conducted, this species has a moderate potential to occur within the slough bordering the study area to the east and south.

Tidewater goby (*Eucyclogobius newberryi*) occurs in brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County, to the mouth of the Smith River. It is found in shallow lagoons and lower stream reaches They need fairly still but not stagnant water and high oxygen levels.

Status: Federally Endangered, State None, Global Rank Vulnerable, State Rank Vulnerable.

Focused fish surveys were not conducted, although this species is known to occur within the nearby connected Butcher's Slough channel.

Coho salmon - southern Oregon / northern California ESU (*Oncorhynchus kisutch pop. 2*) occur in small coastal streams, as well as larger rivers, such as the Klamath River system and the Shasta River. Coho Salmon in northern California coastal streams are typically associated with low gradient reaches of tributary streams, which provide suitable spawning areas and good juvenile rearing habitat.

Status: Federal Threatened, State Threatened, Global Rank Secure/Subspecies Imperiled, State Rank Secure.

Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California. Although focused fish surveys were not conducted, this species has a moderate potential to occur within the slough bordering the study area to the east and south. Juveniles have been documented in upper Jolly Giant Creek, upstream from the study area.

5.2.4 Insects

The obscure bumble bee (*Bombus caliginosus*) occurs along the coast, although populations have declined significantly. This species nests underground or above ground in abandoned bird nests. Habitats include open grassy coastal prairies and coast range meadows and whose food plants include

Ceanothus, Cirsium, Clarkia, Keckiella, Lathyrus, Lotus, Lupinus, Rhododendron, Rubus, Trifolium, and *Vaccinium*. Dispersal occurs primarily in spring by queens while searching for suitable nest sites (NatureServe, 2024).

Status: Federal None, State None, Vulnerable, Global Rank Imperiled/Vulnerable, State Rank Critically Imperiled/Imperiled.

Although this species was not identified during surveys and no capture of insects was conducted, suitable habitat is available within the study area for this species.

5.2.5 Mammals

The silver-haired bat (*Lasionycteris noctivagans*) occupy coniferous and riparian forest. They are primarily a coastal and montane forest dweller, feeding over streams, ponds, and open brushy areas. This species roosts in hollow trees, beneath exfoliating bark, in abandoned woodpecker holes, and rarely under rocks. They require drinking water.

Status: Federal None, State None, Global Rank Vulnerable/Apparently Secure, State Rank Vulnerable/Apparently Secure.

Although this species was not detected, no acoustic monitoring was conducted, and suitable habitat exists within and adjacent to the study area.

Hoary bat (*Lasiurus cinereus*) prefers open habitats or habitat mosaics, access to trees for cover and open areas or habitat edges for feeding. It roosts in dense foliage of medium to large trees, feeds primarily on moths, and requires water.

Status: Federal None, State None, Global Rank Secure, State Rank Apparently Secure.

Although this species was not detected, no acoustic monitoring was conducted, and suitable habitat exists within and adjacent to the study area.

The Yuma myotis (*Myotis yumanensis*) occurs in coniferous and riparian forests. 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 are usually in caves, mines, buildings, or crevices.

Status: Federal None, State None, Sensitive, Global Rank Secure, State Rank Apparently Secure.

Although this species was not detected, no acoustic monitoring was conducted, and suitable habitat exists within and adjacent to the study area.

5.2.6 Mollusks

The Newcombs littorine snail (*Littorina subrotundata*) occurs in Humboldt Bay, California, and north to the Gulf of Alaska and westward throughout the Aleutian Island chain within tidelands and tidal wetlands.

Status: Federal None, State None, Global Rank Secure, State Rank Critically Imperiled/Imperiled.

Although this species was not detected, focused aquatic mollusk surveys were not conducted, and suitable habitat exists along the eastern and southern borders of the study area.

5.2.7 Reptiles

The western pond turtle (*Emys marmorata*) is a thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. This species requires basking sites and suitable upland habitat, such as sandy banks or grassy open fields, up to 500 meters from water for egg-laying.

Status: Proposed Threatened, State None, Species of Special Concern, Vulnerable, Sensitive, Global Rank Vulnerable/Apparently Secure, State Rank Vulnerable.

Although this species was not observed during surveys, it is known to occur in the vicinity and suitable habitat is available adjacent.

5.3 Special-status Animal Species Observed

Three special-status animal species were observed within the study area during surveys: black-capped chickadee, Vaux's swift, and yellow warbler (*Setophaga petechia*).

The yellow warbler was not included in the database query results but was detected within suitable habitat during surveys. This species spends the breeding season in thickets and other disturbed or regrowing habitats, particularly along streams and wetlands. On their wintering grounds, yellow warblers live in mangrove forests, dry scrub, marshes, and forests, typically in lowlands but occasionally up to 8,500 feet elevation.

Status: Federal None, State None, Global Rank Secure, State Rank Vulnerable.

These three special-status species observations are considered transient in nature and were not associated with a nest, therefore they are not included in Figure 2 Biological Resources.

5.4 Sensitive Natural Communities and Non-Wetland ESHA

A sensitive natural community is an assemblage of plants that together are defined by their structure, species composition, and the environmental conditions they reflect, and are increasingly restricted in abundance and distribution (Sawyer, 2009). Recognition of natural communities is an ecosystem-based approach to maintaining biodiversity in California. Sensitive natural communities considered ESHA with predominantly natural conditions occur along the eastern and southern boundary of the study area as well as in discrete locations throughout the rest of the study area, supporting a mix of native and non-native species and habitat conditions (Figure 2). Many of the ESHA areas occur within highly manipulated situations on compacted gravels or other formerly developed areas; however, many of these are considered ESHA on account of naturalized conditions or intact habitat present. High quality ESHA occurs within the restored Jolly Giant Creek /Butcher slough brackish and freshwater marsh along the periphery of the study area.

Isolated areas with a single willow or wax myrtle growing within asphalt, concrete, or other developed substrate are not considered ESHA. These locations are generally impacted by invasive species cover

and present minimal habitat value. Rather than representing sensitive habitat, these locations represent a response to abandonment or unmaintained development. As such, these are not mapped as ESHA.

In total, three non-wetland ESHA habitat types occur within the study area. These non-wetland ESHA, totaling 2.028 acres are summarized in Table 1 and are described below.

Table 1. Non-Wetland ESHA within the Study Area

Non-Wetland ESHA Type	Total Area (acres)
Sensitive Natural Communities	
Coastal dune willow-Sitka willow thickets	0.653
Brackish marsh	1.088
Freshwater marsh	0.287
Total Non-Wetland ESHA within the Study Area:	**2.028**

5.4.1 Coastal Dune Willow-Sitka Willow Thickets

Coastal dune willow-Sitka willow thickets (*Salix hookeriana - Salix sitchensis - Spiraea douglasii* Shrubland Alliance; G4 S3; hereinafter referred to as coast willow thickets) is a sensitive natural community in California that is at apparently secure globally based on worldwide abundance, but is vulnerable to extirpation within California (CDFW, 2024b; CNPS, 2024b). Coast willow thickets are distinguished by the dominance or co-dominance of coast willow and Sitka willow as shrubs or trees which can grow up to 26 feet (<8 meters) in height (CNPS, 2024b). Both coast willow and Sitka willow fast-growing short-lived species in the Salicaceae family and produce abundant short-leaved seeds that sprout readily on bare mineral soil but are viable for only a few days. Both willow species sprout from their root crown or stem base after fire or cutting, and branches readily root when in contact with moist soil. (CNPS, 2024a; Jepson Flora Project (eds.), 2024).

Coastal dune willow-Sitka willow thickets are defined by a relative cover of coastal dune willow greater than 50 percent or Sitka willow with relative cover greater than 30 percent in the shrub canopy with *Salix lasiolepis* and *Rubus* spp., or a combined cover by coast willow and/or Sitka willow of greater than 30 percent relative cover in the shrub canopy with *Salix lasiolepis, Morella californica, Rubus* spp. and other shrubs (CNPS, 2024b). Coast dune willow thickets are distributed along the Pacific Coast from San Luis Obispo County in the south, with both willow species having a range into Alaska in the north (CNPS, 2024b; Jepson Flora Project (eds.), 2024). Within coastal Humboldt County and along the moist, northwestern coastal belt of California, it is the major willow scrub vegetation community and provides valuable habitat for birds and wildlife, and is an important soil and bank stabilizer critical for the health of coastal riparian areas. Furthermore, it is a frequent colonizer of disturbed areas and is important in restoration of naturally and anthropogenically-disturbed areas (CNPS, 2024b).

Coastal dune willow thickets grow along coastal streams, tidal swamps, riparian areas, and areas near the ocean where water stands and seasonally floods, as in deflation plains and swales among stabilized dunes, lagoon margins, and floodplains. It also commonly occurs in road banks and other disturbed areas. Many willow stands observed from Mendocino County north are dominated by *S. hookeriana*, while other stands both north of Mendocino County and further south, at least to San Luis Obispo County, are dominated by *S. sitchensis* (CNPS, 2024b). While both willow species can grow up to at least

1,000 m, this natural community is coastal and occurs from sea level up to 400 meters (m) within moist coastal areas influenced by summer fog (CNPS, 2024b). Coast dune willows typically occur on alluvial soils and often on mucky soils or soils with abundant organic material such as is found in wetlands.

Coastal dune willow-Sitka willow thickets are the second-most abundant sensitive natural community within the study area (0.653 acre). In total, three polygons of coastal dune willow thickets were mapped within the study area (Figure 2 and Appendix 1, Photos 5-9). Vegetation dominance varied between polygons, but was dominated by coast willow, with lesser dominance by Sitka willow and Scouler's willow (*Salix scouleriana*). The coastal dune willow-Sitka willow thickets occupy both wetland and upland areas. This vegetation community was observed frequently in formerly developed areas such as cracks in asphalt, former foundations or former drainage features, and all occurrences of the vegetation community date back to the cessation of industrial activity and demolition of infrastructure, or completion or restoration activities along Jolly Giant Creek. Vegetation descriptions of this vegetation community are based on three rapid assessments (R1-R3) conducted within these thickets (Appendix 6), as well as field notes, photographs, and aerial imagery.

Two of the three coastal dune willow thickets within the study area are discrete isolated polygons likely reflecting soil moisture conditions and establishment following demolition of industrial facilities. The other occurrence of coastal dune willow thicket is well developed and occurs in the northeastern corner of the study area upslope from the freshwater marsh. All three occurrences of coastal dune willow thicket within the study area had disturbed, former industrial soils present, including concrete and asphalt in some places and these occurrences have originated after the cessation of industrial activities. Most examples of this vegetation community within the study area have a significant non-native and invasive species component that reflects the history of disturbance. All three occurrences are associated with wetlands that have developed in former drainage ditches or depressions resulting from past development, however in all instances the willow canopy extends well beyond the extent of the wetlands and the associated species typically reflect the hydrology of the area.

Some of the common species within the understory of upland willow thickets include Himalayan blackberry, sweet vernal grass, creeping bentgrass, and common horsetail (*Equisetum arvense*), among others. Mixed willow cover within the coastal dune willow thickets averaged 82 percent cover, comprised primarily of coast willow, and to a slightly lesser extent, Scouler's willow and Sitka willow. Shrub cover was generally moderate to low with an average of 22 percent cover. Most of the shrub cover occurred at the edge of the willow canopy, with Himalayan blackberry displaying the highest shrub cover at all locations. Herbaceous vegetation cover averaged 53 percent, and diversity was non-native-dominated within the coastal dune willow thickets in the study area. There was an average of 18 herbaceous species present at each Releve' point within coastal dune willow thicket, of which 72 percent were non-native species. Herbaceous species cover and percentage of native species varied widely, but was in general, highest in the examples with less disturbance or that were adjacent to other vegetation communities.

No special-status botanical species were observed within the coast dune willow thicket within the study area. The habitat within the coast dune willow thickets in the study area are generally degraded, however they do represent habitat for some special-status species.

5.4.2 Brackish Marsh

Brackish marsh around Humboldt Bay is remarkably diverse, and in many places, does not meet the definition of a described vegetation community. Environmental factors that affect brackish marsh

species distribution include time and duration of tidal inundation, soil and water salinity, soil aeration, soil type and development, air and water temperature, drainage patterns, nutrient availability, water table height, precipitation, and light (Barnhart, 1992). The brackish marsh species grow along intermixed environmental gradients. The most obvious gradient, and the one that is most often measured in tidal marshes, is elevation (Barnhart, 1992), which is used in this report to differentiate the marsh types occurring in the study area, rather than specific vegetation communities.

Salt marsh and brackish marsh have been significantly reduced around Humboldt Bay, with an estimated 90 percent of the historical extent having been lost. This leaves the remaining 10 percent of the tidal marsh critically important for salt marsh-dependent species, including several special-status species. For the purposes of this report, brackish marsh refers to tidal marsh that has some freshwater input from Jolly Giant Creek and roughly starts just below the mean higher high water (MHHW) and extends above the MHHW in elevation, until conditions become too elevated to be influenced by the tide and associated saturation and salt input or until conditions become more freshwater influenced. In addition to elevation, this habitat type was mapped using the dominant species that characterize this marsh type, namely, Lyngbye's sedge, dense-flowered cordgrass, seaside arrow grass, saltmarsh bulrush (*Bolboschoenus maritimus* ssp. *paludosus*), and coastal tufted hairgrass. Additional common associates with lesser cover include salt grass, coastal gumplant (*Grindelia stricta* var. *stricta*), and marsh jaumea, among others. Vegetation descriptions of this vegetation community are based on two releve's (R5 and R6) conducted within mid-high salt marsh (Appendix 6), as well as field notes, rare plant occurrence data, photographs, and aerial imagery.

Portions of the brackish marsh within the study area differ in terms of species composition, canopy density, distribution patterns, and other features. Brackish marsh is characterized primarily by native brackish marsh-dependent herbaceous species, however there is a non-native species component that becomes more prominent with increasing elevation. Large portions of the brackish marsh are dominated by near-monodominant stands of Lyngbye's sedge. These areas meet the criteria for Lyngbye's sedge swathes (*Carex lyngbyei* Provisional Alliance) with a rarity rank of S1, meaning critically imperiled within the State of California. These areas are mapped as Lyngbye's sedge on Figure 2.

Brackish marsh occupies 1.088 acres of the study area (see Figures 2 and Appendix 1, Photos 10-14). Brackish marsh occupies brackish wetland areas from below the MHHW of 6.65 feet, to the upper edge of tidal influence where it transitions into upland vegetation dominance, or where it transitions into freshwater marsh along Jolly Giant Creek in the northeast corner of the study area.

One special-status CRPR 1B species—Humboldt Bay owls clover and one CRPR 2B species—Lyngbye's sedge—were observed within the brackish marsh in the study area. Brackish marsh is incredibly diverse and limited in extent and represents moderate- to high-quality potential habitat for other special-status botanical species, such as Pt. Reyes bird's beak, coastal marsh milkvetch, small spikerush, and western sand-spurrey (see Appendix 2, Table 2-1).

5.4.3 Freshwater Marsh

Coastal freshwater marsh occurs upgradient from brackish marsh around Humboldt Bay, along streams and other freshwater sources. Herbaceous species diversity is rich within unmanaged freshwater marshes in the Humboldt Bay area; however, many do not meet the definition of a described vegetation community as a result of the diverse mosaic of vegetation, or encroachment by non-native and invasive species. Much of the freshwater marsh within the Humboldt Bay area has been converted to agriculture

or other uses, and the history of use has resulted in much of the remaining or restored freshwater marshes having a large component of non-native and invasive species. The remaining unconverted or restored freshwater wetlands represent critically important habitat for many wetland-dependent species, including special-status species.

For the purposes of this report, freshwater wetlands are upgradient from the brackish marsh and occur along Jolly Giant Creek. A distinct line is shown dividing brackish marsh from freshwater marsh on Figure 2 for ease of visualization, however the distinction between these two habitat types is over a much larger gradation, and species found in brackish marsh habitat do occur within the freshwater habitat, but at different coverages. Tidal influences, saltwater intrusion, freshwater flows in Jolly Giant Creek, and elevation all play a role in the gradual change from brackish marsh to freshwater marsh, additionally, opportunistic invasive species further blur the distinction between these two marsh types, by inhabiting both.

Dominant species that characterize freshwater marsh along Jolly Giant Creek within the study area include, creeping bentgrass, pacific silverweed (*Potentilla anserina* ssp. *pacifica*), Lyngbye's sedge, and Italian rye grass. Additional common associates with lesser cover include curly dock (*Rumex crispus*), canary reedgrass (*Phalaris arundinacea*), and Pacific aster (*Symphyotrichum chilense*), among others, with woody vegetation dominant along the perimeter of the marsh. Vegetation descriptions of this vegetation community are based on one releve' (R4) conducted within the freshwater marsh (Appendix 6), as well as field notes, rare plant occurrence data, photographs, and aerial imagery.
Much of the freshwater marsh is dominated by creeping bentgrass. These areas meet the criteria for the non-native Creeping bentgrass meadow Semi-natural Alliance. These areas typically have low floristic diversity and are of low wildlife value (CNPS, 2024a).

Freshwater marsh occupies 0.287 acre of the study area (Figure 2; Appendix 1, Photos 15-17). Freshwater marsh occupies the northeast corner of the study area along Jolly Giant Creek, upgradient from the brackish marsh and is bounded by fill on the west and east edges, with the eastern edge containing residential development, and the western edge consisting of former industrial fill that now supports woody vegetation growth.

One special-status CRPR 2B species—Lyngbye's sedge—was observed within the freshwater marsh at a much lower density than was observed in the adjacent brackish marsh. Although the freshwater marsh within the study area is dominated by non-native and invasive species, it still represents sensitive habitat and potential habitat for other special-status botanical species, such as harlequin lotus and marsh pea (see Appendix 2, Table 2-1).

5.4.4 Wetlands and Riparian Habitats

A site-specific wetland delineation was conducted within the study area (SHN, 2024). All federal and state jurisdictional wetlands were delineated within the study area and are described in detail within the Wetland and Other Waters Delineation Report for the Little Lakes Former Industrial Site (SHN, 2024). This report shows the location and extent of federal and state jurisdictional wetlands, including the Army Corp of Engineers, State Water Resources Control Board, California Department of Fish and Wildlife, and California Coastal Act wetlands.

5.4.5 Designated Critical Habitat

The USFWS Critical Habitat Portal was queried for habitat designated as critical for species listed under the FESA (USFWS, 2024b). No critical habitat is designated within the study area. The nearest designated critical habitat areas are for a marine estuary species, the tidewater goby (*Eucyclogobius newberryi*), approximately 340 feet to the west of the study area.

6.0 Conclusions

The Little Lakes former industrial site contains ESHA, including special-status plant populations, special-status wildlife occurrences, and sensitive vegetation communities. The majority of the ESHA occurs within Jolly Giant Creek/Butcher slough along the eastern and southern boundary of the study area. However, three examples of coastal dune willow thicket occur on fill soils within the former industrial portion of the parcel. The remainder of the parcel is severely degraded, reflecting the history of use, previous development, and ongoing use of the site. Two special-status botanical species occur within the study area: Humboldt Bay owl's clover and Lyngbye's sedge. All occurrences of these species occur within the brackish marsh and freshwater marsh along the eastern and southern edge of the study area, as shown on Figure 2. Three special-status wildlife species, black capped chickadee, yellow warbler, and Vaux's swift were observed foraging within the study area. These occurrences were determined to be transitory in nature and were not mapped, however their presence indicates that suitable habitat is present, as represented by sensitive natural communities within the study area. Sensitive natural communities within the study area include coast dune willow thicket, brackish marsh, and freshwater marsh. Brackish marsh and freshwater marsh occur along the eastern and southern boundary of the study area and represent the highest quality habitat within the study area. Coast dune willow thicket was observed in three discreet locations throughout the study area. Two are low quality and are associated with former industrial drainage features and have a high component of non-native and invasive species in the understory. One occurrence is adjacent to the freshwater marsh and is of better quality, creating a mosaic of contiguous habitat types, but is still elevated above the marsh and occurs on industrial fill.

Any future project proposed within the study area has the potential to impact sensitive natural communities and special-status species occurring within the study area. Proper avoidance and setbacks from the brackish and freshwater marsh along the eastern and southern boundary of the study area will avoid impacts to the majority of sensitive biological resources occurring within the study area and will maintain wildlife movement corridors within the area. Impacts to coast dune willow thickets are likely to be unavoidable as a result of their occurrence in the center of the study area. Suitable high quality mitigation potential occurs along the perimeter of the brackish and freshwater marsh. It is anticipated that any impacts to sensitive natural communities could be mitigated through the creation of coast dune willow thicket within the vicinity of the marsh habitat, which would enhance the habitat at this location and provide a better mosaic of habitat within the area.

The findings in this report represent conditions at the time of fieldwork and it is possible that false negative surveys for special-status plant species could occur. This report documents the 2024 field investigations, and the findings presented here are based on best professional judgment.

7.0 Recommendations

Project specific measures should be taken to minimize the potential impacts to special-status plant and animal species, sensitive habitat, and waterways occurring within the study area. Avoidance and

minimization measures recommended at this site are dependent upon the type of project proposed for the study area. No project has been proposed at the time of the writing of this report, therefore no specific avoidance and minimization measures are provided at this time.

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Site Photographs

1

Photo 1: Study area, looking south. Conditions are representative of the northern portion of the study area with a mosaic of non-native herbaceous-dominated areas and shrub-dominated areas. Photo taken March 21, 2024.

Photo 2: Study area, looking south. Conditions are representative of the west mid-portion of the study area with a mosaic of ruderal species over concrete or compacted gravel surrounded by non-native herbaceous-dominated areas and shrub-dominated areas. Photo taken April 9, 2024.

Photo 3: Study area, looking north. Conditions are representative of the eastern mid-portion of the study area with a mosaic of ruderal species over concrete or compacted gravel surrounded by non-native herbaceous-dominated areas and shrub-dominated areas. Photo taken May 23, 2024.

Photo 4: Study area, looking northeast. Conditions are representative of the southeastern portion of the study area with a mosaic of ruderal species over compacted gravel surrounded by non-native herbaceous-dominated areas and shrub-dominated areas. Photo taken May 29, 2024.

Photo 5: R1, Coast dune willow thicket, looking south. Photo taken July 16, 2024.

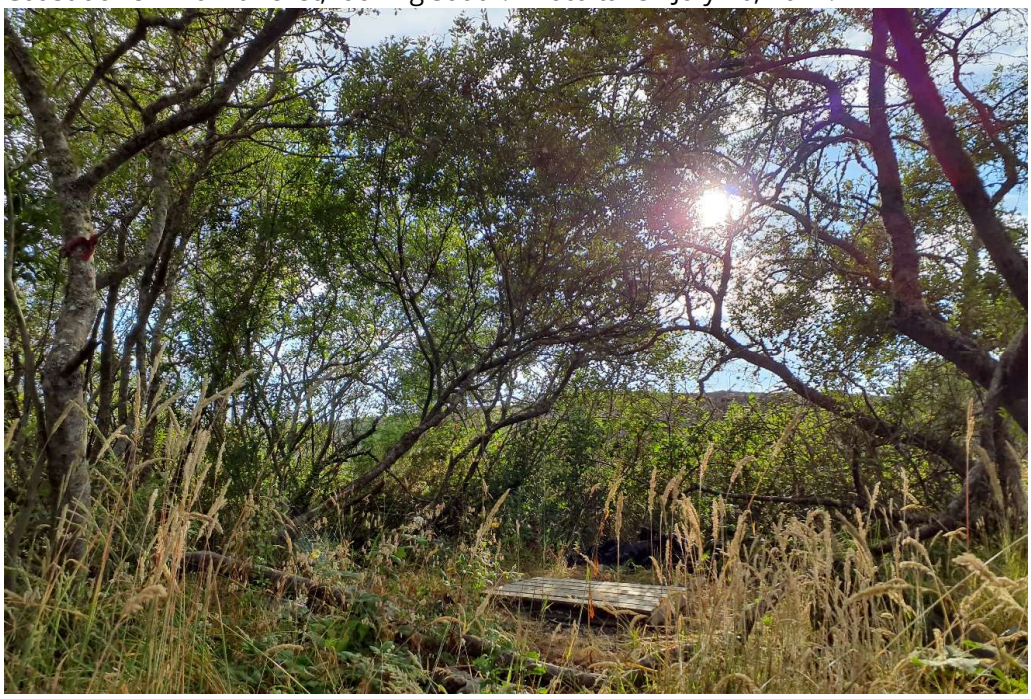

Photo 6: R1, Coast dune willow thicket, looking west. Note debris placed by houseless individuals. Photo taken July 16, 2024.

Photo 7: R2, Coast dune willow thicket, looking north. Photo taken July 16, 2024.

Photo 8: R2, Coast dune willow thicket, looking south. Photo taken July 16, 2024.

Photo 9: R2, Coast dune willow thicket, looking west. Note more upright Scouler's willow. Photo taken July 16, 2024.

Photo 10: R6, Brackish marsh, looking north up stream of the slough. Photo taken July 18, 2024.

Photo 11: R6, Brackish marsh, looking west and downstream. Note Lyngbye's sedge cover is extensive in the center of the brackish marsh. Photo taken July 18, 2024.

Photo 12: R5, Brackish marsh, looking north, toward the upper limits of tidal influence. Photo taken July 18, 2024.

Photo 13: R5, Brackish marsh, looking south along the eastern edge of the study area. Photo taken July 18, 2024.

Photo 14: R5, Brackish marsh, looking west. Note elevation increases and is dominated by a mix of woody and herbaceous vegetation. Photo taken July 18, 2024.

Photo 15: R4, Freshwater marsh, looking south. Note some Lyngbye's sedge, with creeping bentgrass dominant. Photo taken September 5, 2024.

Photo 16: R4, Freshwater marsh, looking north. Note adjacent residential development and woody vegetation. Photo taken September 5, 2024.

Photo 17: R4, Freshwater marsh, looking east. Note proximity of residential development. Photo taken 9/5/2024.

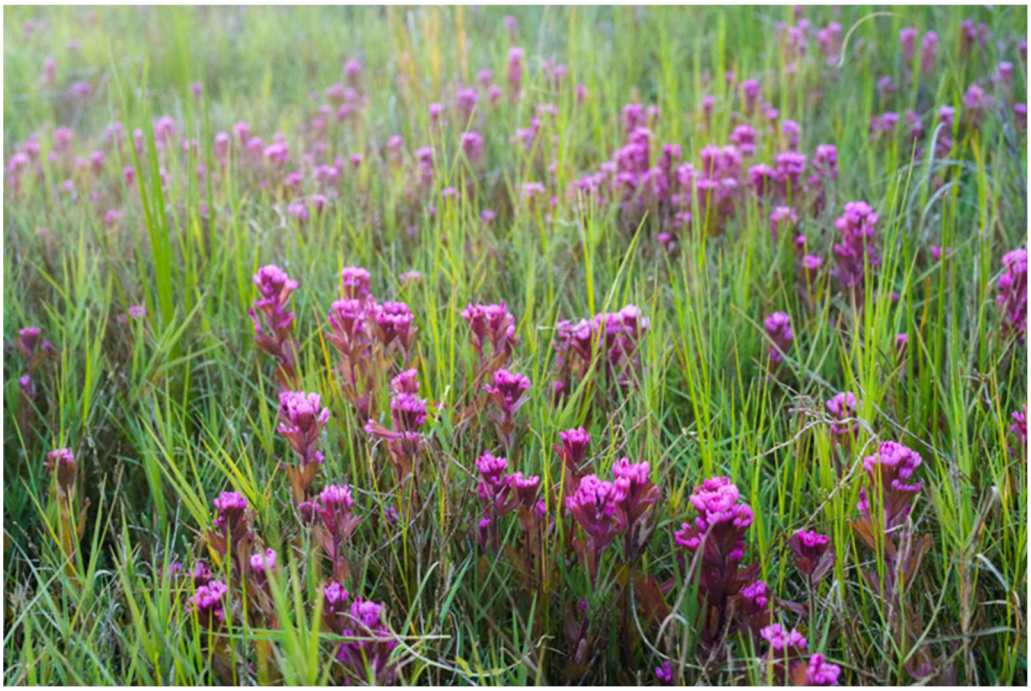

Photo 18: Humboldt Bay owl's clover within the study area at peak bloom. Photo taken May 5, 2024.

Photo 19: Humboldt Bay owl's clover within the brackish marsh in the southern edge of the study area, looking west. Photo taken May 5, 2024.

Photo 20: Lyngbye's sedge within the study area during peak foliar extent. Photo taken June 9, 2024.

Photo 21: Lyngbye's sedge within the study area during peak foliar extent. Photo taken June 9, 2024.

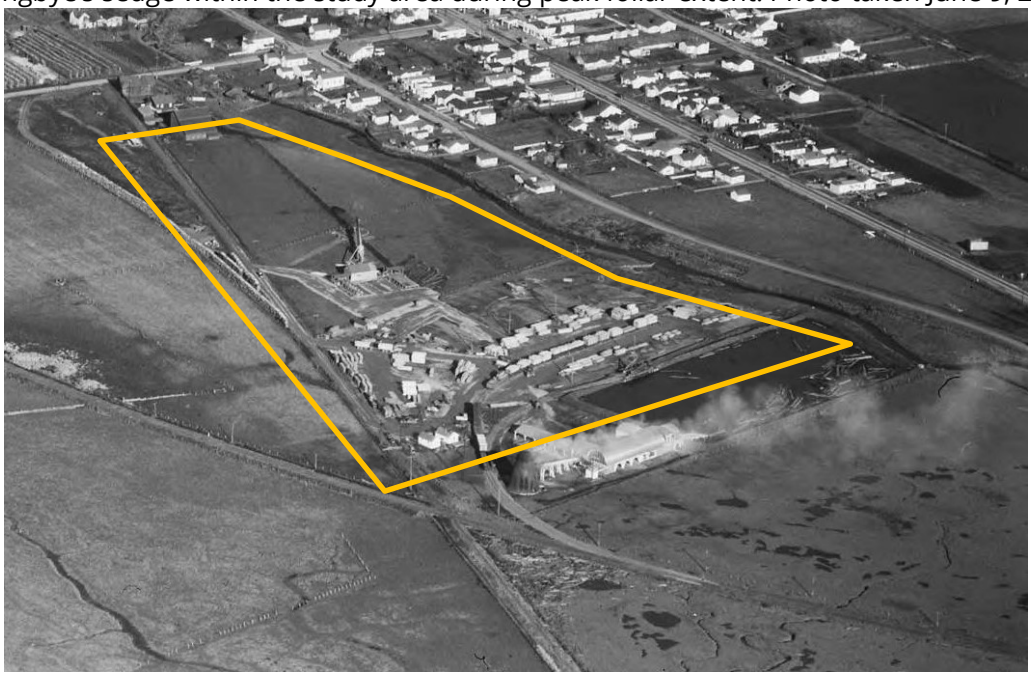

Photo 22: Little Lakes Industrial Development in the mid-1940s, looking northeast. Approximate location of the study area is outlined. Note, the majority of the northern portion of the study area is undeveloped and appears to be used for agriculture.

Species Scoping Lists

2

Table 2-1
Regionally Occurring Special Status Plant Species Scoping List CNDDB, CNPS, IPaC
Arcata South and Surrounding 7.5 min Quadrangles
Little Lake Biological Assessment 03/19/2024

Scientific Name	Common Name	Family	Fed List	State List	G Rank	S Rank	CA Rare Plant Rank	Bloom Period	Habitat	Potential of Occurrence
Abronia umbellata var. *breviflora*	pink sand-verbena	Nyctaginaceae	None	None	G4G5T2	S2	1B.1	Jun-Oct	Coastal dunes and coastal strand. Foredunes and interdunes with sparse cover. Usually, the plant closest to the ocean. 0-10 m.	Low
Angelica lucida	sea-watch	Apiaceae	None	None	G5	S3	4.2	Apr-Sep	Coastal strand, coastal bluff scrub, coastal dunes, coastal scrub, coastal salt marshes. 0-150 m	High
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	Fabaceae	None	None	G2T2	S2	1B.2	(Apr) Jun-Oct	Coastal dunes, marshes & swamps, coastal scrub. Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.	High
Astragalus rattanii var. *rattanii*	Rattan's milk-vetch	Fabaceae	None	None	G4T4	S4	4.3	Apr-Jul	Chaparral, cismontane woodland, lower montane conifer forest. Open grassy hillsides, gravelly flats in valleys, & gravel bars of stream beds. 30-825 m.	None
Cardamine angulata	seaside bittercress	Brassicaceae	None	None	G4G5	S3	2B.2	(Jan) Mar-Jul	Lower montane, conifer forest, N. coast conifer forest, wetland areas, streambanks. 90-155 m.	None
Carex arcta	northern clustered sedge	Cyperaceae	None	None	G5	S1	2B.2	Jun-Sep	Bogs and fens, north coast conifer forest. Mesic sites. 60-1405 m.	None
Carex leptalea	bristle-stalked sedge	Cyperaceae	None	None	G5	S1	2B.2	Mar-Jul	Bogs and fens, meadows and seeps, marshes and swamps. Mostly known from bogs and wet meadows. 3-1395 m.	None
Carex lyngbyei	Lyngbye's sedge	Cyperaceae	None	None	G5	S3	2B.2	Apr-Aug	Marsh & swamp (brackish or freshwater). 0-200 m.	High
Carex praticola	northern meadow sedge	Cyperaceae	None	None	G5	S2	2B.2	May-Jul	Meadows and seeps. Moist to wet meadows. 15-3200 m.	None
Castilleja ambigua var. *humboldtiensis*	Humboldt Bay owl's-clover	Orobanchaceae	None	None	G4T2	S2	1B.2	Apr-Aug	Marshes and swamps. Coastal saltmarsh with *Spartina, Distichlis, Salicornia, Jaumea*. 0-20 m.	High
Castilleja litoralis	Oregon coast paintbrush	Orobanchaceae	None	None	G3	S3	2B.2	Jun	Coastal bluff scrub, coastal dunes, coastal scrub. Sandy sites. 5-255 m.	Moderate

Table 2-1
Regionally Occurring Special Status Plant Species Scoping List CNDDB, CNPS, IPaC
Arcata South and Surrounding 7.5 min Quadrangles
Little Lake Biological Assessment 03/19/2024

Scientific Name	Common Name	Family	Fed List	State List	G Rank	S Rank	CA Rare Plant Rank	Bloom Period	Habitat	Potential of Occurrence
Chloropyron maritimum ssp. *palustre*	Point Reyes salty bird's-beak	Orobanchaceae	None	None	G4?T2	S2	1B.2	Jun-Oct	Coastal salt marsh. Usually w/ *Salicornia, Distichlis, Jaumea, Spartina,* etc. 0-10 m.	High
Chrysosplenium glechomifolium	Pacific golden saxifrage	Saxifragaceae	None	None	G5?	S3	4.3	Feb-Jun	North Coast coniferous forest, riparian forest, streambanks, sometimes seeps, sometimes roadsides. 10-220 m.	None
Collinsia corymbosa	round-headed collinsia	Plantaginaceae	None	None	G1	S1	1B.2	Apr-Jun	Coastal Dunes Coastal dunes from 10-30 m	Low-One unconfirmed occurrence in Humboldt Co.
Coptis laciniata	Oregon goldthread	Ranunculaceae	None	None	G4?	S3?	4.2	(Feb) Mar-May (Sep-Nov)	Meadows and seeps, North Coast coniferous forest (streambanks) Mesic sites	None
Eleocharis parvula	small spikerush	Cyperaceae	None	None	G5	S3	4.3	(Apr) Jun-Aug (Sep)	Marsh & swamp, salt marsh, wetland In coastal salt marshes. 1-3020 m.	High
Epilobium septentrionale	Humboldt County fuchsia	Onagraceae	None	None	G4	S4	4.3	Jul-Sep	Broadleaf upland forest, North Coast coniferous forest. Rocky (sometimes), Sandy (sometimes)	Low
Erysimum menziesii	Menzies' wallflower	Brassicaceae	FE	CE	G1	S1	1B.1	Mar-Sep	Coastal dunes. Localized on dunes and coastal strand. 0-35 m.	Low
Erythronium oregonum	giant fawn lily	Liliaceae	None	None	G5	S2	2B.2	Mar-Jun (Jul)	Cismontane woodland, Meadows and seeps. Openings, Rocky, Serpentine (sometimes)	None
Erythronium revolutum	coast fawn lily	Liliaceae	None	None	G4G5	S3	2B.2	Mar-Jul (Aug)	Bogs & fens, broadleaf upland forest, north coast conifer forest. Mesic sites; streambanks. 60-1405 m.	None
Fissidens pauperculus	minute pocket moss	Fissidentaceae	None	None	G3?	S2	1B.2		N. coast conifer forest, Redwood. Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 10-1024 m.	None
Fritillaria purdyi	Purdy's fritillary	Liliaceae	None	None	G4	S4	4.3	Mar-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest Serpentine (usually)	None

Table 2-1
Regionally Occurring Special Status Plant Species Scoping List CNDDB, CNPS, IPaC
Arcata South and Surrounding 7.5 min Quadrangles
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Scientific Name	Common Name	Family	Fed List	State List	G Rank	S Rank	CA Rare Plant Rank	Bloom Period	Habitat	Potential of Occurrence
Gilia capitata ssp. *pacifica*	Pacific gilia	Polemoniaceae	None	None	G5T3	S2	1B.2	Apr-Aug	Coastal bluff scrub, chaparral, coastal prairie, valley & foothill grassland. 5-1345 m.	Moderate
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	None	None	G2	S2	1B.2	Apr-Jul	Coastal dunes. 1-60 m.	Low
Glehnia littoralis ssp. *leiocarpa*	American glehnia	Apiaceae	None	None	G5T5	S2S3	4.2	May-Aug	Coastal Dunes 0-20 m.	Low
Hemizonia congesta ssp. *tracyi*	Tracy's tarplant	Asteraceae	None	None	G5T4	S4	4.3	(Mar-Apr) May-Oct	Coastal prairie, Lower montane coniferous forest, North Coast coniferous forest Openings, Serpentine (sometimes)	None
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	Asteraceae	None	None	G4T3	S3	1B.2	Mar-Jun	Coastal bluff scrub, coastal dunes, coastal prairie. Sandy bluffs and flats. 0-215 m.	Moderate
Hosackia gracilis	harlequin lotus	Fabaceae	None	None	G3G4	S3	4.2	Mar-Jul	Broadleaf upland forest, coast bluff scrub, coast prairie, coast scrub, closed-cone conifer forest, meadow, seep, marsh & swamp, N. coast conifer forest, valley & foothill grassland. Wetlands and roadsides. 0-700 m.	Moderate
Iliamna latibracteata	California globe mallow	Malvaceae	None	None	G2G3	S2	1B.2	Jun-Aug	Chaparral (montane), Lower montane coniferous forest, North Coast coniferous forest (mesic), Riparian scrub (streambanks) Burned areas (often)	Low
Lasthenia californica ssp. *macrantha*	perennial goldfields	Asteraceae	None	None	G3T2	S2	1B.2	Jan-Nov	Coastal bluff scrub, coastal dunes, coastal scrub. 5-185 m.	Low
Lathyrus glandulosus	sticky pea	Fabaceae	None	None	G3	S3	4.3	Apr-Jun	Cismontane woodland. In oak woodlands upland from the coast redwood forests & along roadsides. 300-800 m.	None
Lathyrus japonicus	seaside pea	Fabaceae	None	None	G5	S2	2B.1	May-Aug	Coastal dunes. 3-65 m.	Low

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Lathyrus palustris	marsh pea	Fabaceae	None	None	G5	S2	2B.2	Mar-Aug	Bogs & fens, lower montane conifer forest, marsh & swamp, north coast conifer forest, coastal prairie, coastal scrub. Moist coastal areas. 2-140 m.	High
Layia carnosa	beach layia	Asteraceae	FT	CE	G2	S2	1B.1	Mar-Jul	Coastal dunes, coastal scrub. On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 0-30 m.	Low
Lilium kelloggii	Kellogg's lily	Liliaceae	None	None	G3	S3	4.3	(Feb) May-Aug	Lower montane conifer forest, N. coast conifer forest. Gaps and roadsides in conifer forest. 3-1300 m.	None
Lilium occidentale	western lily	Liliaceae	FE	CE	G1G2	S1	1B.1	Jun-Jul	Coastal scrub, freshwater marsh, bogs & fens, coastal bluff scrub, coast prairie, N. coast conifer forest, marshes and swamps. Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce. 3-110 m.	None
Lilium rubescens	redwood lily	Liliaceae	None	None	G3	S3	4.2	(Mar) Apr-Aug (Sep)	Broadleaf upland forest, Chaparral, Lower montane coniferous forest, North Coast coniferous forest, Upper montane coniferous forest Roadsides (sometimes), Serpentine (sometimes)	None
Listera cordata	heart-leaved twayblade	Orchidaceae	None	None	G5	S4	4.2	Feb-Jul	Lower montane conifer forest, north coast conifer forest. Bogs and fens, 5-1370 m.	None
Lycopodium clavatum	running-pine	Lycopodiaceae	None	None	G5	S3	4.1	Jun-Aug (Sep)	Lower montane conifer forest, north coast conifer forest, marsh &swamp. Forest understory, edges, openings, roadsides; mesic sites with partial shade and light. 45-1225 m.	None
Mitellastra caulescens	leafy-stemmed mitrewort	Saxifragaceae	None	None	G5	S4	4.2	(Mar) Apr-Oct	Broadleaf upland forest, lower montane conifer forest, meadow & seep, N. coast conifer forest. Mesic sites. 5-1700 m.	Low
Monotropa uniflora	ghost-pipe	Ericaceae	None	None	G5	S2	2B.2	Jun-Aug (Sep)	Broadleaved upland forest, north coast conifer forest. Often under redwoods or west hemlock. 15-855 m.	None

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Montia howellii	Howell's montia	Montiaceae	None	None	G3G4	S2	2B.2	(Feb) Mar-May	Meadows and seeps, north coast coniferous forest, vernal pools. Vernally wet sites; often on compacted soil. 10-1005 m.	High
Noccaea fendleri ssp. *californica*	Kneeland Prairie pennycress	Brassicaceae	FE	None	G5?T1	S1	1B.1	May-Jun	Coastal prairie (serpentinite)	Low
Oenothera wolfii	Wolf's evening-primrose	Onagraceae	None	None	G2	S1	1B.1	May-Oct	Coastal bluff scrub, coastal dunes, coastal prairie, low montane conifer forest. Sandy substrates; usually mesic sites. 0-125 m.	High
Packera bolanderi var. *bolanderi*	seacoast ragwort	Asteraceae	None	None	G4T4	S2S3	2B.2	(Jan-Apr) May-Jul(Aug)	Coastal scrub, North Coast coniferous forest. Roadsides (sometimes)	Low
Piperia candida	white-flowered rein orchid	Orchidaceae	None	None	G3?	S3	1B.2	(Mar-Apr) May-Sep	Broadleaf upland forest, Lower montane coniferous forest, North Coast coniferous forest. Serpentine (sometimes)	None
Pityopus californicus	California pinefoot	Ericaceae	None	None	G4G5	S4	4.2	(Mar-Apr) May-Aug	Broadleaf upland forest, upper montane and, N. coast conifer forest, low montane conifer forest. Deep shade with few understory species, often under layer of duff, in rocky to clay loam soil. 15-2225 m.	None
Platismatia lacunosa	crinkled rag lichen	Parmeliaceae	None	None	G4	S2?	2B.3	Lichen	North Coast coniferous forest, Riparian woodland	None
Pleuropogon refractus	nodding semaphore grass	Poaceae	None	None	G4	S4	4.2	(Feb-Mar) Apr-Aug	Meadow & seep, low montane conifer forest, N. coast conifer forest, riparian forest. Mesic sites along streams, grassy flats in shaded redwood groves. 0-1600 m.	Low
Puccinellia pumila	dwarf alkali grass	Poaceae	None	None	G4?	SH	2B.2	July	Marshes and swamps. Mineral spring meadows and coastal salt marshes. 1-10 m.	Low
Ribes laxiflorum	trailing black currant	Grossulariaceae	None	None	G5?	S3	4.3	Mar-Jul (Aug)	N. coast conifer forest, Redwood forests. Grows over logs and stumps in moist, wet places. 5-1395 m.	None

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Scientific Name	Common Name	Family	Fed List	State List	G Rank	S Rank	CA Rare Plant Rank	Bloom Period	Habitat	Potential of Occurrence
Sidalcea malachroides	maple-leaved checkerbloom	Malvaceae	None	None	G3	S3	4.2	(Mar) Apr-Aug	Broadleaf upland forest, coast prairie, coast scrub, N. coast conifer forest, riparian. Woodlands and clearings near coast; often in disturbed areas. 0-730 m.	Low
Sidalcea malviflora ssp. *patula*	Siskiyou checkerbloom	Malvaceae	None	None	G4G5T2	S2	1B.2	(Mar-Apr) May-Aug	Coastal bluff scrub, coastal prairie, north coast conifer forest. Open coastal forest; roadcuts. 5-1255 m.	Moderate
Sidalcea oregana ssp. *eximia*	coast checkerbloom	Malvaceae	None	None	G5T1	S1	1B.2	Jun-Aug	Meadow & seep, N. coast & low montane conifer forest. Near meadows, in gravelly soil. 5-1805 m.	None
Silene scouleri ssp. *scouleri*	Scouler's catchfly	Caryophyllaceae	None	None	G5T4T5	S2S3	2B.2	(Mar-May) Jun-Aug (Sep)	Coastal bluff scrub, coastal prairie, valley and foothill grassland. 5-315 m.	None
Spergularia canadensis var. *occidentalis*	western sand-spurrey	Caryophyllaceae	None	None	G5T4	S1	2B.1	Jun-Aug	Marshes and swamps (coastal salt marshes). 0-3 m.	High
Sulcaria spiralifera	twisted horsehair lichen	Parmeliaceae	None	None	G3G4	S2	1B.2	Lichen	Coastal dunes, N. coast conifer forest (immediate coast) Usually on conifers. 0-90 m.	Moderate
Tiarella trifoliata var. *trifoliata*	trifoliate laceflower	Saxifragaceae	None	None	G5T5	S2S3	3.2	(May) Jun-Aug	Lower montane coniferous forest, North Coast coniferous forest edges, streambanks	Low
Trichodon cylindricus	cylindrical trichodon	Ditrichaceae	None	None	G4G5	S2	2B.2	Moss	Broadleaf upland forest, upper montane coniferous forest. In openings on sandy or clay soils on roadsides, stream banks, trails or in fields. 50-1500 m.	None
Usnea longissima	Methuselah's beard lichen	Parmeliaceae	None	None	G4	S4	4.2	Lichen	North coast coniferous forest, broadleaf upland forest. In the "redwood zone" on tree branches of a variety of trees, incl. big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California.	None
Viola palustris	alpine marsh violet	Violaceae	None	None	G5	S1S2	2B.2	Mar-Aug	Coastal scrub, bogs and fens. Swampy, shrubby places in coastal scrub or coastal bogs. 0-150 m.	None

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Scientific Name	Common Name	Family	Fed List	State List	G Rank	S Rank	CA Rare Plant Rank	Bloom Period	Habitat	Potential of Occurrence

1. Species indicator status as assigned by Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), and California Department of Fish and Wildlife (CDFW)

C: candidate
CT: candidate threatened
D: delisted
DPS: distinct population segment
E: endangered
ESU: evolutionarily significant unit
FP: fully protected
PT: proposed threatened
SSC: species of special concern
T: threatened
WL: watch list

2. Species Heritage rank as assigned by California Department of Fish and Wildlife (CDFW)

G1/S1: critically imperiled
G2/S2: imperiled
G3/S3: vulnerable
G4/S4: apparently secure
G5/S5: secure

Table 2-2
Regionally Occurring Special Status Animal Species Scoping List CNDDB, IPaC
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Scientific Name	Common Name	Federal Status	State Status	Other Status	Global Rank	State Rank	Habitat	Micro Habitat	Potential Of Occurrence
AMPHIBIANS									
Ascaphus truei	Pacific tailed frog	None	None	SSC	G4	S3S4	Aquatic. Flowing waters and riparian forest. Occurs in montane hardwood-conifer, redwood, Douglas-fir and ponderosa pine habitats.	Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	None
Plethodon elongatus	Del Norte salamander	None	None	WL	G4	S3	Old-growth associated species with optimum conditions in the mixed conifer/hardwood ancient forest ecosystem.	Cool, moist, stable microclimate, a deep litter layer, closed multi-storied canopy, dominated by large, old trees.	Low
Rana aurora	northern red-legged frog	None	None	SSC, S	G4	S3	Flowing water or ponds. Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover.	Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Moderate
Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	None	None	SSC, S	G3T4	S4	Northern Coast Ranges north of San Francisco Bay Estuary, Klamath Mountains, and Cascade Range. Flowing waters, riparian scrub, riparian woodland.	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 and at least 15 weeks to attain metamorphosis.	Low
Rhyacotriton variegatus	southern torrent salamander	None	None	SSC, S	G3?	S2S3	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.	None

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Scientific Name	Common Name	Federal Status	State Status	Other Status	Global Rank	State Rank	Habitat	Micro Habitat	Potential Of Occurrence
BIRDS									
Accipiter cooperii	Cooper's hawk	None	None	WL	G5	S4	Riparian forest, Woodland, upper montain coniferous forest. chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	High
Accipiter striatus	sharp-shinned hawk	None	None	WL	G5	S4	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas.	North-facing slopes with plucking perches are critical requirements. Nests usually within 275 ft of water.	Low
Aquila chrysaetos	golden eagle	None	None	FP, WL, S	G5	S3	Rolling foothills, mountain areas, Upper and lower montane coniferous forest, Valley & foothill grassland, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Low
Ardea alba	great egret	None	None	S	G5	S4	Estuary, freshwater and brackish marsh, riparian forest, wetlands. Colonial nester in large trees.	Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	High
Ardea herodias	great blue heron	None	None	S	G5	S4	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	High
Asio flammeus	short-eared owl	None	None	SSC	G5	S2	Large, open areas with low vegetation	Prairie, coastal grasslands and meadows for breeding. Wintering grounds similar but may also be in woodlots, dumps, marshes, and gravel pits.	High

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Asio otus	long-eared owl	None	None	SSC	G5	S3?	Occur at elevations ranging from near sea level to above 6,500 feet.	Roost in dense vegetation and forage in open grasslands or shrublands; also open coniferous or deciduous woodlands. Often build their nests in brushy vegetation adjacent to open habitats	Low
Botaurus lentiginosus	American bittern	None	None	None	G5	S3S4	Breed mainly in freshwater marshes with tall vegetation.	In winter they move to areas where water bodies don't freeze, especially near the coast, where they occasionally use brackish marshes.	Moderate
Brachyramphus marmoratus	marbled murrelet	T	E	S	G3	S2	Lower montaine coniferous mature forest. Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz.	Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	None
Chaetura vauxi	Vauxs swift	None	None	SSC	G5	S3	Forests with coastal redwood, grand fir, ponderosa pine, western hemlock, Douglas-fir, and western red cedar	mature and old-growth coniferous and mixed forests for nesting, especially those with plenty of hollow trees. Roost in trees and chimneys in winter and migration.	Present
Charadrius montanus	mountain plover	None	None	SSC, BCC, S	G3	S2	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms.	Short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	Low
Charadrius nivosus nivosus	western snowy plover	T	None	SSC	G3T3	S3	Sandy beaches, salt pond levees, standing waters and wetlands, and shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.	None

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Circus hudsonius	northern harrier	None	None	SSC, BCC	G5	S3	Coastal salt and freshwater marsh. Riparian scrub, valley & foothill grassland. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas.	Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	High
Coccyzus americanus	Western yellow-billed cuckoo	T	E	S	G5T2T3	S1	Wooded habitat with dense cover and water nearby,	Riparian woodlands of willows, cottonwoods and dense stands of mesquite for breeding.	Low
Contopus cooperi	olive-sided flycatcher	None	None	SSC	G4	S4	Nesting habitats are mixed conifer, montane hardwood conifer, Douglas-fir, redwood, red fir & lodgepole pine.	Most numerous in montane conifer forests where tall trees overlook canyons, meadows, lakes or other open terrain.	Low
Coturnicops noveboracensis	yellow rail	None	None	SSC, BCC, S	G4	S2	Freshwater marsh, Meadow & seepSummer resident in eastern Sierra Nevada in Mono County.	Freshwater marshlands.	Low
Egretta thula	snowy egret	None	None	None	G5	S4	Marshes, wetlands, riparian forest. Colonial nester, with nest sites situated in protected beds of dense tules.	Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	High
Elanus leucurus	white-tailed kite	None	None	FP, S	G5	S3S4	Riparian woodland, Valley & foothill grassland, Wetland, Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	High

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Empidonax traillii brewsteri	little willow flycatcher	None	E	None	G5T3T4	S3	Meadow & seep, riparian scrub, riparian woodland, wetland. Inhabits extensive thickets of low, dense willows on edge of wet meadows, ponds, or backwaters; 2000-8000 ft elevation.	Requires dense willow thickets for nesting/roosting. Low, exposed branches are used for singing posts/hunting perches.	Low
Falco columbarius	merlin	None	None	WL	G5	S3S4	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands & deserts, farms & ranches.	Clumps of trees or windbreaks are required for roosting in open country. Use abandoned nests of crows and hawks.	Moderate
Falco peregrinus anatum	American peregrine falcon	D	D	S	G4T4	S3S4	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.	High
Haliaeetus leucocephalus	bald eagle	D	E	FP, S	G5	S3	Lower montane coniferous forest, Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water.	Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	Low
Icteria virens	yellow-breasted chat	None	None	SSC	G5	S4	Frequently found in shrubby habitats along rivers.	Breeds in areas of dense shrubbery, including abandoned farm fields, clearcuts, powerline corridors, fencerows, forest edges and openings, swamps, and edges of streams and ponds.	High
Nannopterum auritum	double-crested cormorant	None	None	WL	G5	S4	Riparian forest and scrub. Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state.	Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	Moderate

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Numenius americanus	long-billed curlew	None	None	WL	G5	S2	Great Basin grassland Meadow & seep. Breeds in upland shortgrass prairies & wet meadows in northeastern California.	Habitats on gravelly soils and gently rolling terrain are favored over others.	Low
Nycticorax nycticorax	black-crowned night heron	None	None	None	G5	S4	Riparian forest and wetland. Colonial nester, usually in trees, occasionally in tule patches.	Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	High
Pandion haliaetus	osprey	None	None	WL, S	G5	S4	Riparian forest. 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
Passerculus sandwichensis alaudinus	Bryants savannah sparrow	None	None	SSC	G5T2T3	S2S3	Agricultural fields, wet meadows, brackish marsh, low growing grasslands, low tidally influenced habitat and adjacent ruderal areas.	Moist grasslands within and just above the fog belt.	High
Pelecanus occidentalis californicus	California brown pelican	D	D	None	G4T3	S3	Estuaries and coastal marine habitat. Colonial nester on coastal islands just outside the surf line.	Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. Roosts communally.	Low
Poecile atricapillus	black-capped chickadee	None	None	WL	G5	S3	Inhabits riparian woodlands in Del Norte and northern Humboldt counties.	Mainly found in deciduous tree-types, especially willows and alders, along large or small watercourses.	Present
Rallus obsoletus obsoletus	California Ridgway's rail	E	E	FP	G3T1	S2	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.	Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	Low

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Scientific Name	Common Name	Federal Status	State Status	Other Status	Global Rank	State Rank	Habitat	Micro Habitat	Potential Of Occurrence
Riparia riparia	bank swallow	None	T	S	G5	S3	Riparian scrub and woodlands. Colonial nester; nests primarily in riparian and other lowland habitats west of the desert.	Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Low
Strix nebulosa	great gray owl	None	E	S	G5	S1	Pine and fir forests adjacent to montane meadows between 2,500 and 7,500 feet	During the winter months, owls often move downslope into oak woodlands and lower elevation mixed deciduous and evergreen forests.	Low
Strix occidentalis caurina	Northern Spotted Owl	T	T	None	G3T3	S2S3	Old-growth forests or mixed stands of old-growth & mature trees. Occasional in younger forests w/ patches of big trees.	None, no suitable habitat on site or adjacent.	Low
FISH									
Acipenser medirostris pop. 1	green sturgeon - southern DPS	T	None	VU	G2T1	S1	Estuary, marine. Spawns in the Sacramento, Feather and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Non-spawning adults occupy marine/estuarine waters. Delta Estuary is important for rearing juveniles.	Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium sized sand, gravel, cobble, or boulder.	None
Acipenser medirostris pop. 2	green sturgeon - northern DPS	None	None	SSC	G2T1	S1	Exhibits spawning site fidelity. Known to spawn in the Klamath, Trinity, Salmon, and Eel Rivers in California; historically known to spawn in the South Fork Trinity River. Non-spawning adults occupy marine and estuarine waters.	Spawning occurs primarily in cool (11-15 C) sections of mainstem rivers in deep pools (8-9 meters) with substrate containing small to medium sized sand, gravel, cobble, or boulder.	Low

Table 2-2
Regionally Occurring Special Status Animal Species Scoping List CNDDB, IPaC
Arcata South and Surrounding 7.5 min Quadrangles
Little Lake Biological Assessment March 2024

Scientific Name	Common Name	Federal Status	State Status	Other Status	Global Rank	State Rank	Habitat	Micro Habitat	Potential Of Occurrence
Acipenser transmontanus	white sturgeon	None	None	SSC	G4	S2	West coast of North America, in coastal waters from Ensenada, Mexico, to Alaska. Occasionally found in the ocean, they primarily reside in large rivers and their associated estuaries.	Spawning habitat is usually in turbulent fast water, but locations can range from shallow murky side channels with pebbly and sandy bottoms to deeper, less murky main channels with larger boulders and cobble.	None
Entosphenus folletti	northern California brook lamprey	None	None	SSC	G1G2	S1S2	Known from only Willow and Boles creeks above Clear Lake Reservoir and from Fall Creek, a tributary to Copco Reservoir.	Known only from a few, small, cool tributary streams that have areas with fine substrates and beds of aquatic plants.	None
Entosphenus tridentatus	Pacific lamprey	None	None	SSC, VU, S	G4	S3	Found in Pacific Coast streams north of San Luis Obispo County, however regular runs in Santa Clara River. Size of runs is declining.	Swift-current gravel-bottomed areas for spawning with water temps between 12-18 C. Ammocoetes need soft sand or mud.	Moderate
Eucyclogobius newberryi	tidewater goby	E	None	None	G3	S3	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Moderate
Lampetra richardsoni	western brook lamprey	None	None	SSC, S	G4G5	S3S4	Endemic to the freshwater coastal waterways of the western US and Canada.	Larvae burrow into soft sediment of slow-moving and relatively small freshwater streams.	None
Oncorhynchus clarkii clarkii	coast cutthroat trout	None	None	SSC, VU, S	G5T4	S3	Small coastal streams from the Eel River to the Oregon border.	Small, low gradient coastal streams and estuaries. Needs shaded streams with water temperatures <18C, and small gravel for spawning.	Low

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Scientific Name	Common Name	Federal Status	State Status	Other Status	Global Rank	State Rank	Habitat	Micro Habitat	Potential Of Occurrence
Oncorhynchus gorbuscha	pink salmon	None	None	None	G5	S1	Pacific and Arctic coastal waters and rivers, from the Sacramento River to the Mackenzie River in Canada.	Spawns in gravel or rivers and tributary streams, generally in tidal portion or lower reaches of natal streams (generally within 5 km from the sea).	Low
Oncorhynchus keta	chum salmon	None	None	None	G5	S1	Throughout the North Pacific Ocean	Growing and feeding in fresh water streams, estuaries, and associated wetlands. Foraging in the ocean before returning to the streams and tributaries where they were born to spawn.	Low
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	T	T	None	G5T2Q	S2	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.	Moderate
Oncorhynchus mykiss irideus pop. 48	steelhead - northern California DPS summer-run	T	E	None	G5T2Q	S2	Naturally spawning population of the stream-maturing summer-run ecotype. From Redwood Creek watershed south to and inclusive of Gualala River watershed. Distribution within range more limited.	Require cool water (<23C); holding habitat to withstand higher temps; lower flows in summer/fall; require loose gravels at pool tails for redd construction. Favor cool, clear, fast-flowing riffles, ample riparian cover, undercut banks and diverse prey.	Low
Oncorhynchus mykiss irideus pop. 49	steelhead - northern California DPS winter-run	T	None	None	G5T3Q	S3	Naturally spawning population of the ocean-maturing winter-run ecotype. From Redwood Creek watershed south to and inclusive of Gualala River watershed. Distribution throughout range.	Adults require high flows of 18-20 cm for passage and loose gravels at pool tails for redd construction. Juveniles favor areas with cool (10-17 C), clear, fast-flowing riffles, ample riparian cover, undercut banks and diverse prey.	Low

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Scientific Name	Common Name	Federal Status	State Status	Other Status	Global Rank	State Rank	Habitat	Micro Habitat	Potential Of Occurrence
Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	T	None	None	G5	S1	Aquatic, Sacramento/San Joaquin flowing waters. Federal listing refers to wild spawned, coastal, spring and fall runs between Redwood Creek and Russian Rivers in No. Calif.	Major limiting factor for juveniles in temperature, which strongly affects growth and survival.	Low
Oncorhynchus tshawytscha pop. 30	chinook salmon - upper Klamath and Trinity Rivers ESU	C	T	SSC	G5T3Q	S2	Aquatic, Sacramento/San Joaquin flowing waters.	Major limiting factor for juveniles in temperature, which strongly affects growth and survival.	Low
Spirinchus thaleichthys	longfin smelt	PE	T	None	G5	S1	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	Low
Thaleichthys pacificus	eulachon	T	None	None	G5	S1	Found in Klamath River, Mad River, Redwood Creek, and in small numbers in Smith River and Humboldt Bay tributaries.	Spawn in lower reaches of coastal rivers with moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	Low
INSECTS									
Bombus caliginosus	obscure bumble bee	None	None	VU	G2G3	S1S2	Coastal areas from Santa Barbara County north to Washington state.	Food plant genera include Baccharis, Cirsium, Lupinus, Lotus, Grindelia and Phacelia.	Moderate
Bombus crotchii	Crotch's bumble bee	None	CE	EN	G2	S2	Coastal California east to the Sierra-Cascade crest and south into Mexico.Current distribution does not include Northern California.	Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	Low

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Bombus occidentalis	western bumble bee	None	CE	VU, S	G3	S1	Once common and widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Nest in cavities or abandoned burrows. Current distribution does not inlcude coastal areas	Low
Cicindela hirticollis gravida	sandy beach tiger beetle	None	None	None	G5T2	S2	Coastal dunes. Inhabits areas adjacent to non-brackish water along the coast of California from San Francisco Bay to northern Mexico.	Clean, dry, light-colored sand in the upper zone. Subterranean larvae prefer moist sand not affected by wave action.	None
Danaus plexippus	monarch butterfly	C	None	S	G4T1T2Q	S2	Canada to Mexico. Fields, roadside areas, open areas, wet areas or urban garden.	Milkweed and other flowering plants. They only lay eggs on milkweed.	None
Scaphinotus behrensi	Behrens' snail-eating beetle	None	None	None	G2G4	S2S4	North coast coniferous forest.	Found in extreme NW CA along the coast.	None
MAMMALS									
Aplodontia rufa humboldtiana	Humboldt mountain beaver	None	None	None	G5TNR	SNR	Coastal scrub, riparian forest. Coast Range in southwestern Del Norte County and northwestern Humboldt County.	Variety of coastal habitats, including coastal scrub, riparian forests, typically with open canopy and thickly vegetated understory.	Low
Arborimus albipes	white-footed vole	None	None	SSC	G3G4	S2	Mature coastal forests in Humboldt and Del Norte counties. Prefers areas near small, clear streams with dense alder and shrubs.	Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock.	None
Arborimus pomo	Sonoma tree vole	None	None	SSC	G3	S3	North coast fog belt from Oregon border to Somona County. In Douglas-fir, redwood and montane hardwood-conifer forests. Old-growth.	Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles of grand fir, hemlock or spruce.	None

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Bassariscus astutus raptor	northern California ringtail	None	None	FP	G5TNR	SNR	Various riparian habitats, and in brush stands of most forest and shrub habitats, at low to middle elevations.	Nests in rock recesses, hollow trees, logs, snags, abandoned burrows, or woodrat nests.	Low
Corynorhinus townsendii	Townsend's big-eared bat	None	None	SSC, S	G4	S2	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	None
Enhydra lutris nereis	southern sea otter	T	None	SSC, FP	G4T2	S3	Central California coast from San Mateo County to Santa Barbara County. Historically, the range extended from Punta Abra Ojos, Baja California north to Prince William Sound Alaska.	Found in marine habitats with rocky or muddy sea bottoms and is frequently associated with kelp forests. Rarely ventures onto land.	None
Erethizon dorsatum	North American porcupine	None	None	None	G5	S3	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.	None
Lasionycteris noctivagans	silver-haired bat	None	None	None	G3G4	S3S4	Coniferous and riparian forest. Primarily a coastal and montane forest dweller, feeding over streams, ponds and open brushy areas.	Roosts in hollow trees, beneath exfoliating bark, abandoned woodpecker holes, and rarely under rocks. Needs drinking water.	Moderate

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Lasiurus cinereus	hoary bat	None	None	None	G5	S4	Broadleaved upland forest, cismontane woodland, lower montane and North coast conifer forests. Upland Prefers open habitats or habitat mosaics, access to trees for cover and open areas or habitat edges for feeding.	Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Moderate
Martes caurina humboldtensis	Humboldt marten	T	E	SSC, S	G4G5T1	S1	Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County.	Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	None
Myotis evotis	long-eared myotis	None	None	S	G5	S3	Found in all brush, woodland & forest habitats from sea level to about 9000 ft. prefers coniferous woodlands & forests.	Nursery colonies in buildings, crevices, spaces under bark, & snags. Caves used primarily as night roosts.	Low
Myotis yumanensis	Yuma myotis	None	None	S	G5	S4	Coniferous and riparian forests. 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
Pekania pennanti	Fisher	None	None	SSC, S	G5	S2S3	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.
Taxidea taxus	American badger	None	None	SSC	G5	S3	Desert and Xeric Shrublands, Montane grasslands and shrublands, Temperate broadleaf and mixed forest, Temperate grasslands, Tundra	Offen associated with grasslands and desert scrublands with friable soil for burrowing. Each badger can have several burrows.	Low.

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MOLLUSKS									
Anodonta californiensis	California floater	None	None	S	G3	S2?	Freshwater lakes and slow-moving streams and rivers. Taxonomy under review by specialists.	Generally in shallow water.	None
Littorina subrotundata	Newcombs littorine snail	None	None	None	G5	S1S2	Humboldt Bay, California north to the Gulf of Alaska and westward throughout the Aleutian Island chain.	Tidelands and tidal wetlands	Moderate
Margaritifera falcata	western pearlshell	None	None	NT	G5	S1S2	Aquatic.	Prefers lower velocity waters. Requires a salmonid host.	Low
REPTILES									
Emys marmorata	western pond turtle	PT	None	SSC, VU, S	G3G4	S3	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

1. Species indicator status as assigned by Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), California Department of Fish and Wildlife (CDFW), USDA Forest Service (USFS), International Union for Conservation of Nature (IUCN), and American Fisheries Society (AFS).

C: candidate
CT: candidate threatened
D: delisted
DPS: distinct population segment
E: endangered
ESU: evolutionary significant unit
FP: fully protected
PE: proposed endangered
PT: proposed threatened
SSC: species of special concern
T: threatened
VU: vulnerable
WL: watch list

2. Species Heritage rank as assigned by California Department of Fish and Wildlife (CDFW)

G1/S1: critically imperiled
G2/S2: imperiled
G3/S3: vulnerable
G4/S4: apparently secure
G5/S5: secure

IPaC Species List

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

Humboldt County, California

Local office

Arcata Fish And Wildlife Office

(707) 822-7201
(707) 822-8411

1655 Heindon Road
Arcata, CA 95521-4573

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.

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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. IPaC only shows species that are regulated by USFWS (see FAQ).

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:

Mammals

NAME	STATUS
Pacific Marten, Coastal Distinct Population Segment Martes caurina Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9081	Threatened

Birds

NAME	STATUS
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS

Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

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.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

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

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

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

NAME	BREEDING SEASON
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 Sep 30
Golden Eagle *Aquila chrysaetos* 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/1680	Breeds Jan 1 to Aug 31

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 "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "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.

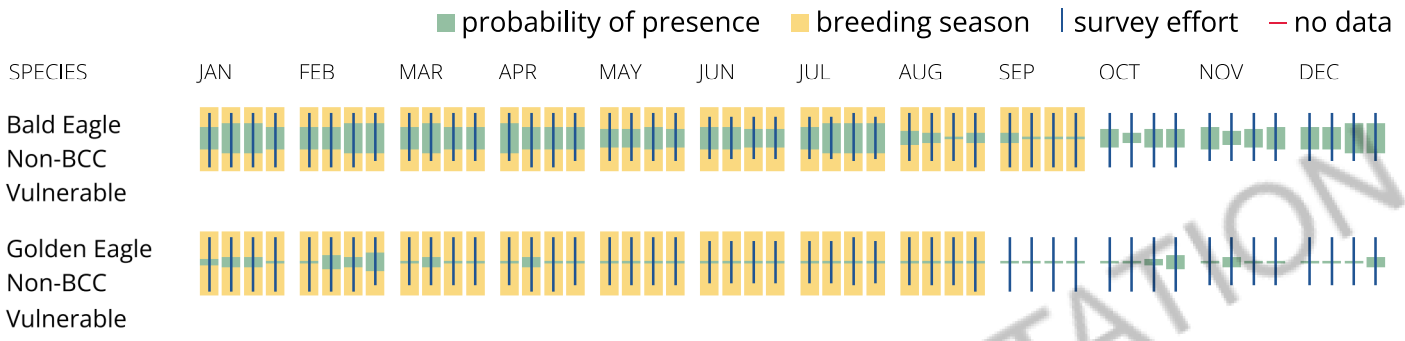
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence 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). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles 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 Rapid Avian Information Locator (RAIL) Tool.

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. Please contact your local Fish and Wildlife Service Field Office if you have questions.

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[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

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:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

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, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Allen's Hummingbird *Selasphorus sasin* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
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 Sep 30
Black Oystercatcher *Haematopus bachmani* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591	Breeds Apr 15 to Oct 31
Black Swift *Cypseloides niger* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Black Turnstone *Arenaria melanocephala* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
California Gull *Larus californicus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 1 to Jul 31
Clark's Grebe *Aechmophorus clarkii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Evening Grosbeak *Coccothraustes vespertinus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

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/1680

Lesser Yellowlegs Tringa flavipes — 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/9679

Marbled Godwit Limosa fedoa — 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/9481

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 Apr 15 to Jul 15

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

Short-billed Dowitcher Limnodromus griseus — Breeds Jun 1 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Tufted Puffin Fratercula cirrhata — Breeds May 5 to Oct 5

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/430

Western Grebe aechmophorus occidentalis — Breeds Jun 1 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/6743

Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

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 "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "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 (■)

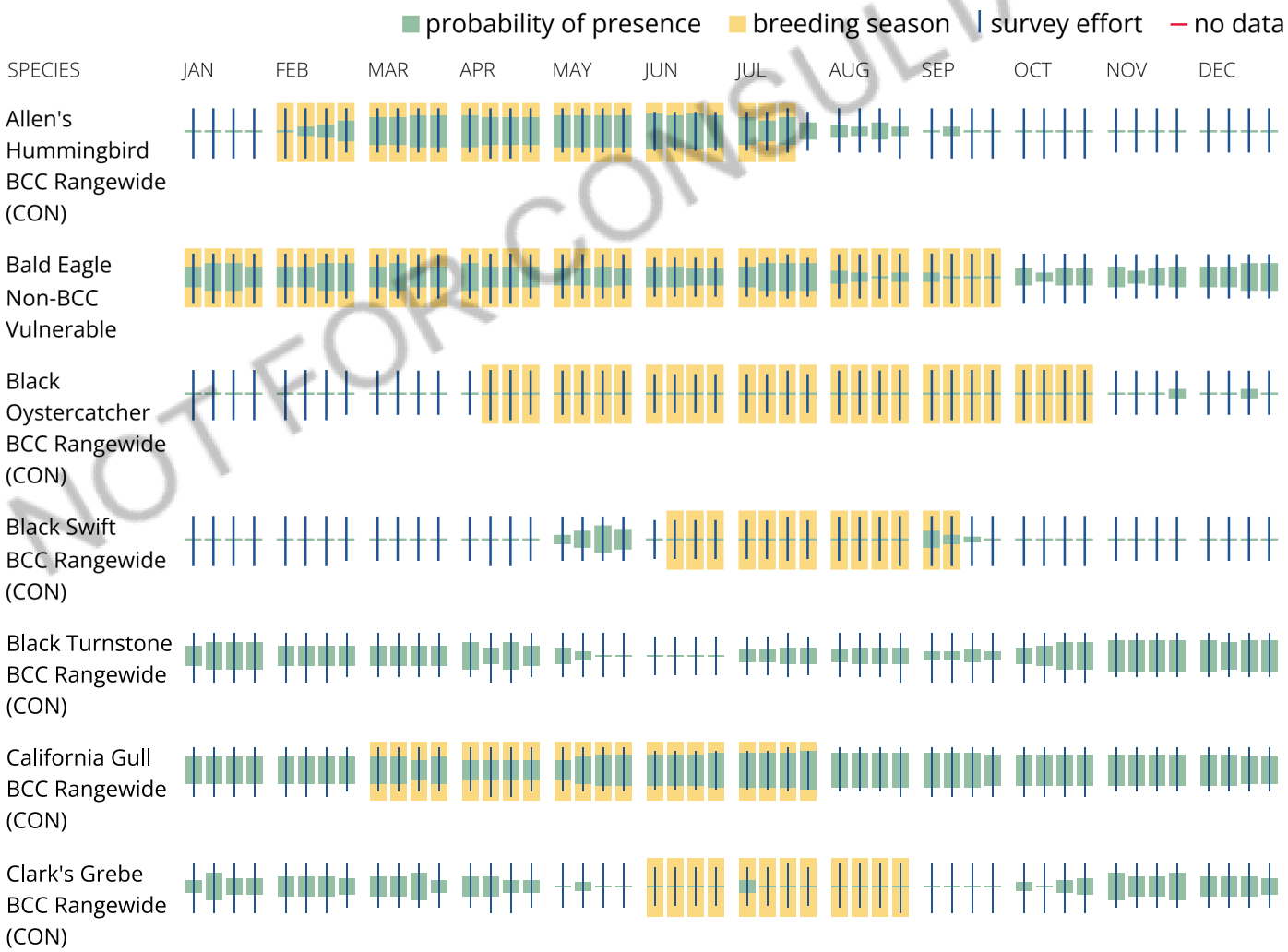
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

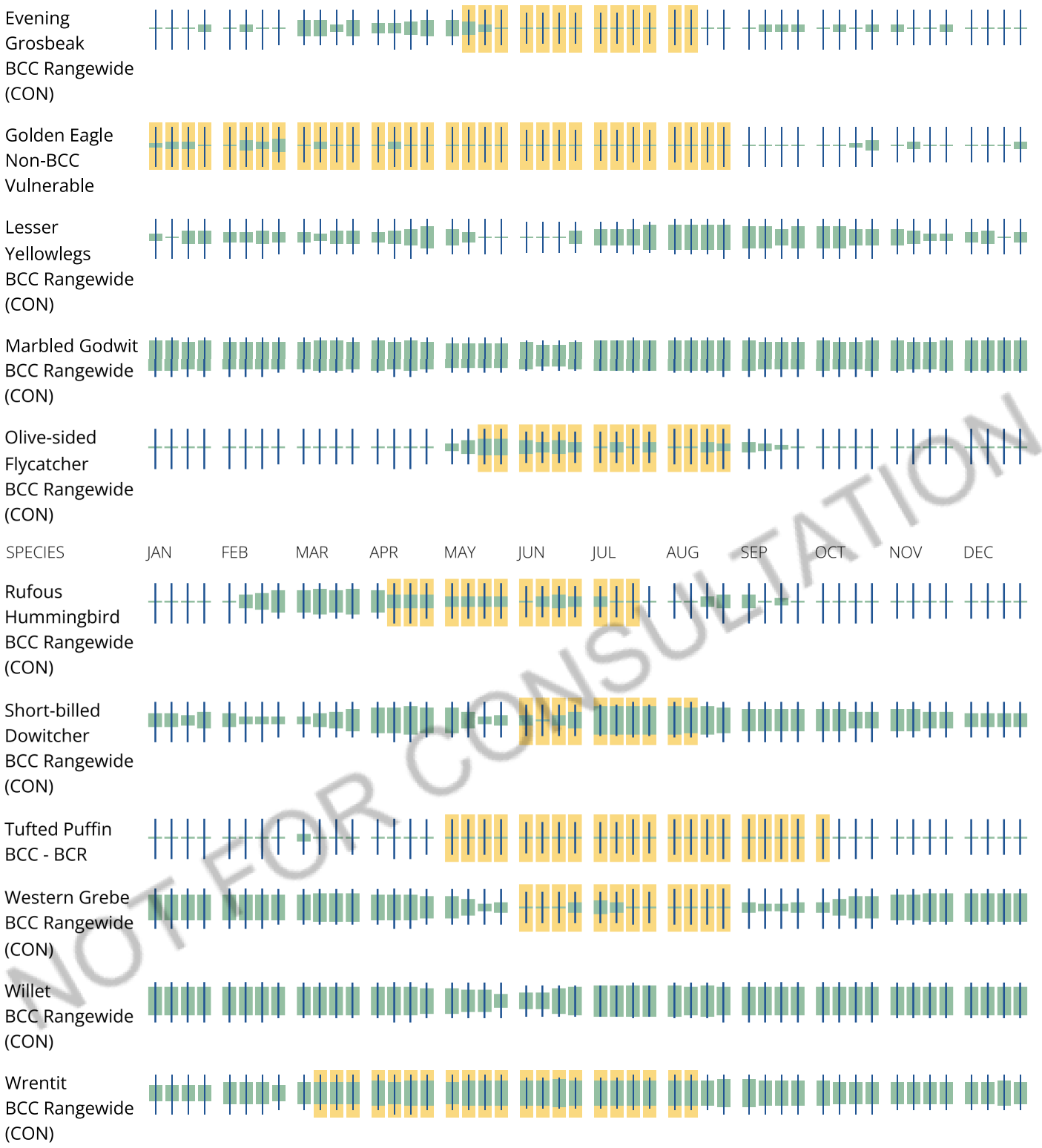
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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.





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 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 list of migratory birds that potentially occur 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 Rapid Avian Information Locator (RAIL) 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 or migrating in my 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 query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. 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 (NWI)

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:

ESTUARINE AND MARINE WETLAND

- E2US2N
- E2EM1N

FRESHWATER EMERGENT WETLAND

- PEM1C

RIVERINE

- R3UBF

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

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

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.

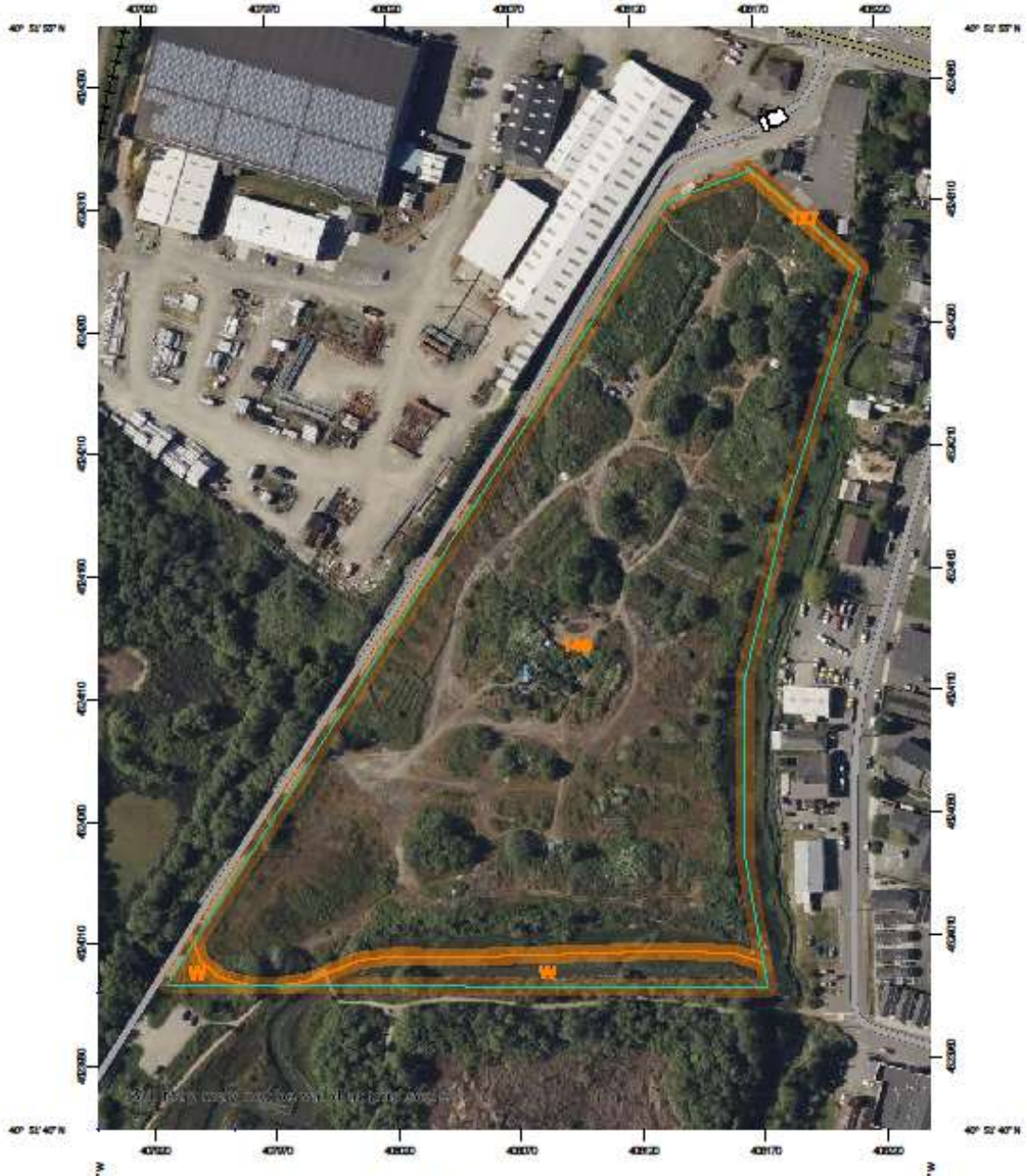
Data precautions

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.

NRCS Soil Map

4

Soil Map—Humboldt County, Central Part, California
(COA-Little Lakes Property)



Map Scale: 1:2,190 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

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

Observed Species Lists

5

Table 5-1 Botanical Species Observed 5/08/2024, 5/21/2024, 7/15/2024, and 7/16/2204 Little Lakes, Arcata, Ca			
Scientific Name	**Common Name**	**Family**	**Native?**
Trees			
Alnus rubra	red alder	Betulaceae	Y[a]
Cordyline australis	cabbage tree	Laxmanniaceae	N[b]
Ilex aquifolium	holly	Aquifoliaceae	I[c]
Malus pumila	cultivated apple	Rosaceae	N
Morella californica	California wax myrtle	Myricaceae	Y
Picea sitchensis	Sitka spruce	Pinaceae	Y
Pinus contorta var. *contorta*	beach pine	Pinaceae	Y
Pittosporum tenuifolium	short leaf box	Pittosporaceae	N
Prunus cerasifera	cherry plum	Rosaceae	I
Pseudotsuga menziesii var. *menziesii*	Douglas fir	Pinaceae	Y
Pyrus communis	flowering pear	Rosaceae	N
Salix hookeriana	coast willow	Salicaceae	Y
Salix lasiandra var. *lasiandra*	pacific willow	Salicaceae	Y
Salix scouleriana	Scouler's willow	Salicaceae	Y
Salix sitchensis	Sitka willow	Salicaceae	Y
Shrubs			
Baccharis pilularis ssp. *consanguinea*	coyote brush	Asteraceae	Y
Carmellia sasanqua	sasanqua carmellia	Theaceae	N
Cotoneaster franchetii	Franchett's cotoneaster	Rosaceae	I
Cotoneaster lacteus	milkflower cotoneaster	Rosaceae	I
Crataegus monogyna	English hawthorn	Rosaceae	I
Gaultheria shallon	salal	Ericaceae	Y
Genista monspessulana	French broom	Fabaceae	I
Grindelia stricta var. *stricta*	coastal gumweed	Asteraceae	Y
Lonicera involucrata var. *ledebourii*	coast twinberry	Caprifoliaceae	Y
Oemleria cerasiformis	Oso berry	Rosaceae	Y
Ribes sanguineum var. *glutinosum*	flowering current	Grossulariaceae	Y
Rosa lucieae	memorial rose	Rosaceae	N
Rosa rubiginosa	sweet briar	Rosaceae	N
Rubus armeniacus	Himalayan blackberry	Rosaceae	I
Rubus parviflorus	thimbleberry	Rosaceae	Y
Spiraea douglasii	Douglas spiraea	Rosaceae	Y
Sedges and Rushes			
Bolboschoenus maritimus ssp. *paludosus*	saltmarsh bulrush	Juncaceae	Y
Carex harfordii	Harford sedge	Cyperaceae	Y

Table 5-1 Botanical Species Observed 5/08/2024, 5/21/2024, 7/15/2024, and 7/16/2204 Little Lakes, Arcata, Ca			
Scientific Name	**Common Name**	**Family**	**Native?**
Carex hendersonii	Henderson's sedge	Cyperaceae	Y
Carex lyngbyei	**Lyngbye's sedge**	**Cyperaceae**	**Y (2B.2)**
Cyperus eragrostis	tall cyperus	Cyperaceae	Y
Eleocharis macrostachya	spike rush	Cyperaceae	Y
Isolepis cernua	low bulrush	Cyperaceae	Y
Juncus bolanderi	Bolander's rush	Juncaceae	Y
Juncus bufonius var. *occidentalis*	round fruit toad rush	Juncaceae	Y
Juncus capitatus	leafy bracted dwarf rush	Juncaceae	N
Juncus effusus ssp. *pacificus*	Pacific rush	Juncaceae	Y
Juncus hesperius	coast rush	Juncaceae	Y
Juncus lescurii	dune rush	Juncaceae	Y
Juncus patens	spreading rush	Juncaceae	Y
Juncus bufonius var. *bufonius*	toad rush	Juncaceae	Y
Schoenoplectus acutus var. *occidentalis*	tule	Cyperaceae	Y
Scirpus microcarpus	small fruited bulrush	Cyperaceae	Y
Ferns and Allies			
Athyrium filix-femina var. *cyclosorum*	western lady fern	Athyriaceae	Y
Equisetum arvense	common horsetail	Equisetaceae	Y
Polystichum munitum	sword fern	Dryopteridaceae	Y
Grasses			
Agrostis gigantea	giant creeping bentgrass	Poaceae	I
Agrostis stolonifera	creeping bentgrass	Poaceae	I
Aira caryophyllea	silver hairgrass	Poaceae	N
Anthoxanthum odoratum	sweet vernal grass	Poaceae	I
Arrhenatherum elatius	tall oatgrass	Poaceae	N
Avena barbata	wild oats	Poaceae	I
Briza maxima	large quaking grass	Poaceae	I
Briza minor	small quaking grass	Poaceae	N
Bromus diandrus	ripgut brome	Poaceae	I
Bromus hordeaceus	soft chest brome	Poaceae	I
Bromus racemosus	smooth brome	Poaceae	N
Cortaderia jubata	jubata grass	Poaceae	I
Cynosurus echinatus	dogtail grass	Poaceae	I
Dactylis glomerata	orchard grass	Poaceae	I
Deschampsia caespitosa ssp. *holciformis*	coastal tufted hairgrass	Poaceae	Y
Distichlis spicata	saltgrass	Poaceae	Y
Elymus triticoides	beardless wildrye	Poaceae	Y
Festuca arundinacea	tall fescue	Poaceae	I

Table 5-1 Botanical Species Observed 5/08/2024, 5/21/2024, 7/15/2024, and 7/16/2204 Little Lakes, Arcata, Ca			
Scientific Name	**Common Name**	**Family**	**Native?**
Festuca myuros	six-weeks grass	Poaceae	I
Festuca perennis	Italian ryegrass	Poaceae	I
Festuca rubra ssp. *pruinosa*	salt marsh red fescue	Poaceae	Y
Glyceria declinata	waxy mannagrass	Poaceae	I
Holcus lanatus	velvet grass	Poaceae	I
Hordeum brachyantherum ssp. *brachyantherum*	meadow barley	Poaceae	Y
Hordeum marinum ssp. *gussoneanum*	barley	Poaceae	N
Hordeum vulgare	common barley	Poaceae	I
Phalaris arundinacea	canary reed grass	Poaceae	I
Poa annua	annual blue grass	Poaceae	N
Poa trivialis	rough bluegrass	Poaceae	N
Polypogon monspeliensis	rabbit's foot grass	Poaceae	I
Spartina densiflora	Dense-flowered cordgrass	Poaceae	Y
Herbs			
Allium triquetrum	white flowered onion	Alliaceae	N
Atriplex prostrata	fat-hen	Chenopodiaceae	N
Bellardia viscosa	yellow gland weed	Orobanchaceae	I
Bellis perennis	English lawn daisy	Asteraceae	N
Brassica nigra	black mustard	Brassicaceae	I
Callitriche heterophylla	water starwort	Plantaginaceae	Y
Carduus pycnocephalus	Italian thistle	Asteraceae	I
Castilleja ambigua* ssp. *humboldtiensis	**Humboldt bay owl's clover**	**Orobanchaceae**	**Y (1B.2)**
Centaurium erythraea	European centaury	Gentianaceae	N
Cerastium fontanum ssp. *vulgare*	common chickweed	Caryophyllaceae	N
Cirsium vulgare	bull thistle	Asteraceae	I
Conium maculatum	poison hemlock	Apiaceae	I
Cotula coronopifolia	brass buttons	Asteraceae	I
Crocosmia x *crocosmiiflora*	montbretia	Iridaceae	I
Cuscuta pacifica var. *pacifica*	dodder	Convolvulaceae	Y
Daucus carota	Queen Anne's lace	Apiaceae	N
Dipsacus fullonum	wild teasel	Dipsacaceae	I
Epilobium ciliatum ssp. *ciliatum*	willowherb	Onagraceae	Y
Foeniculum vulgare	fennel	Apiaceae	I
Galium aparine	cleaver plant	Rubiaceae	Y
Geranium dissectum	cutleaf geranium	Geraniaceae	I
Geranium robertianum	herb Robert	Geraniaceae	N
Helminthotheca echioides	bristly ox-tongue	Asteraceae	I
Hirschfeldia incana	mustard	Brassicaceae	I

Table 5-1 Botanical Species Observed 5/08/2024, 5/21/2024, 7/15/2024, and 7/16/2204 Little Lakes, Arcata, Ca			
Scientific Name	**Common Name**	**Family**	**Native?**
Hypericum perforatum ssp. *perforatum*	Klamath weed	Asteraceae	I
Hypochaeris radicata	hairy cat's ear	Asteraceae	I
Jaumea carnosa	marsh Jaumea	Asteraceae	Y
Lamium purpureum	purple dead nettle	Lamiaceae	N
Lapsana communis	common nipplewort	Asteraceae	N
Lathyrus latifolius	sweet pea	Fabaceae	N
Leontodon saxatilis ssp. *saxatilis*	hawkbit	Asteraceae	N
Leucanthemum vulgare	ox eye daisy	Asteraceae	I
Limonium californicum	marsh rosemary	Plumbaginaceae	Y
Linum bienne	flax	Linaceae	N
Lotus corniculatus	bird's foot trefoil	Fabaceae	N
Lupinus bicolor	annual lupine	Fabaceae	Y
Lupinus rivularis	riverbank lupine	Fabaceae	Y
Lysimachia arvensis	scarlet pimpernel	Myrsinaceae	N
Lythrum hyssopifolia	hyssop loosestrife	Lythraceae	I
Madia gracilis	gumweed	Asteraceae	Y
Malva neglecta	dwarf mallow	Malvaceae	N
Matricaria discoidea	pineapple weed	Asteraceae	Y
Medicago arabica	spotted burclover	Fabaceae	N
Medicago polymorpha	bur clover	Fabaceae	I
Melilotus albus	white sweetclover	Fabaceae	N
Melilotus indicus	annual yellow sweet clover	Fabaceae	N
Mentha pulegium	pennyroyal	Lamiaceae	I
Mentha spicata	cultivated mint	Lamiaceae	N
Myosotis discolor	yellow and blue forget-me-not	Boraginaceae	N
Myosotis latifolia	forget-me-not	Boraginaceae	I
Oenanthe sarmentosa	water parsley	Apiaceae	Y
Oxalis pes-caprae	Bermuda buttercup	Oxalidaceae	I
Plantago coronopus	cut leaf plantain	Plantaginaceae	N
Plantago lanceolata	English plantain	Plantaginaceae	I
Plantago major	common plantain	Plantaginaceae	N
Polycarpon tetraphyllum ssp. *tetraphyllum*	allseed	Caryophyllaceae	N
Potentilla anserina ssp. *pacifica*	Pacific silverweed	Rosaceae	Y
Pseudognaphalium luteoalbum	jersey cudweed	Asteraceae	N
Ranunculus repens	creeping buttercup	Ranunculaceae	I
Raphanus sativus	wild radish	Brassicaceae	I
Rumex acetosella	sheep sorrel	Polygonaceae	I
Rumex crispus	curly dock	Polygonaceae	I
Rumex salicifolius	willow leaved dock	Polygonaceae	Y
Salicornia pacifica	perennial pickleweed	Chenopodiaceae	Y

Table 5-1 Botanical Species Observed 5/08/2024, 5/21/2024, 7/15/2024, and 7/16/2204 Little Lakes, Arcata, Ca			
Scientific Name	**Common Name**	**Family**	**Native?**
Sedum album	white stonecrop	Crassulaceae	N
Silene gallica	common catchfly	Caryophyllaceae	N
Soliva sessilis	south American Soliva	Asteraceae	N
Sonchus oleraceus	sow thistle	Asteraceae	N
Spergularia marina	salt sand spurry	Caryophyllaceae	Y
Spiranthes romanzoffiana	ladies' tresses	Orchidaceae	Y
Symphyotrichum chilense	Pacific aster	Asteraceae	Y
Taraxacum officinale ssp. *officinale*	dandelion	Asteraceae	N
Torilis arvensis	field hedge parsley	Apiaceae	I
Tragopogon porrifolius	purple salsify	Asteraceae	N
Trifolium dubium	shamrock clover	Fabaceae	N
Trifolium fragiferum	strawberry clover	Fabaceae	N
Trifolium repens	white clover	Fabaceae	N
Triglochin maritima	seaside arrowgrass	Juncaginaceae	Y
Trifolium subterraneum	subterranean clover	Fabaceae	N
Triphysaria versicolor ssp. *versicolor*	owl's clover	Orobanchaceae	Y
Typha latifolia	broadleaf cattail	Typhaceae	Y
Vicia hirsuta	hairy vetch	Fabaceae	N
Vicia sativa ssp. *sativa*	spring vetch	Fabaceae	N
Vicia tetrasperma	four seeded vetch	Fabaceae	N
Vicia villosa ssp. *villosa*	hairy vetch	Fabaceae	N
Zantedeschia aethiopica	calla lily	Araceae	I
Allium triquetrum	white flowered onion	Alliaceae	N
Vines			
Convolvulus arvensis	field bindweed	Convolvulaceae	N
Hedera helix	English ivy	Araliaceae	I
Lonicera hispidula	pink honeysuckle	Caprifoliaceae	Y
Rubus ursinus	California blackberry	Rosaceae	Y
173 Species			**38% Native**

[a] Y: Native species

[b] N: Non-Native species

[c] I: Invasive species

Table 5-2 Animal Species Observed May 21, 2024 City of Arcata Little Lakes Property, Arcata, CA		
Scientific Name	**Common Name**	**Listing Status**
Birds		
Agelaius phoeniceus	Red-winged blackbird	None
Anas platyrhynchos	Mallard	None
Bombycilla cedrorum	Cedar waxwing	None
Calypte anna	Anna's hummingbird	None
Cathartes aura	Turkey vulture	None
Chaetura vauxi	**Vaux's swift**	**SSC (CDFW), BCC (USFWS)**
Corvus brachyrhynchos	American crow	None
Cyanocitta stelleri	Steller's Jay	None
Dryobates pubescens	Downy woodpecker	None
Empidonax difficilis	Western flycatcher	None
Haemorhous mexicanus	House finch	None
Hirundo rustica	Barn swallow	None
Icterus bullockii	Bullock's oriole	None
Leiothlypis celata	Orange-crowned warbler	None
Melospiza melodia	Song sparrow	None
Molothrus ater	Brown-headed cowbird	None
Passer domesticus	House sparrow	None
Pheucticus melanocephalus	Black-headed grosbeak	None
Poecile atricapillus	**Black-capped chickadee**	**WL (CDFW)**
Sayornis nigricans	Black phoebe	None
Selasphorus sasin	Allen's hummingbird	None
Setophaga petechia	**Yellow warbler**	**SSC (CDFW), BCC (USFWS)**
Spinus tristis	American goldfinch	None
Stelgidopteryx serripennis	Northern rough-winged swallow	None
Streptopelia decaocto	Eurasian collared-dove	None
Sturnus vulgaris	European starling	None
Tachycineta bicolor	Tree swallow	None
Tachycineta thalassina	Violet-green swallow	None
Zonotrichia leucophrys	White-crowned sparrow	None
Insects		
Bombus vosnesenskii	Yellow-faced bumble bee	None
Coccinella septempunctata	Seven-spotted lady beetle	None
Malacosoma californicum	Western tent caterpillar	None
Mammals		
Unknown Family *Mustelidae*	American mink or long-tailed weasel (scat)	None

Status Codes:
BCC – Bird of Conservation Concern
SSC – Species of Special Concern
WL – Watch List

Combined Vegetation Field Forms

6

Combined Vegetation Rapid Assessment and Relevé Field Form

R1

(Revised January 10, 2024)

For Office Use:	Final database #:	Final vegetation type:	Alliance: Coastal Dune Willow Thicket Association: Salix hookeriana

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION — circle Relevé or (RA)

Database #:	Date: July 16, 2024	Name of recorder: Paul Stiles
		Other surveyors: Jessica Day
	UID:	Location Name: Little Lakes, Arcata, CA

GPS name: Trimble — For Relevé only: Bearing°, left axis at ID point____ of Long / Short side

UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ft./ m./ PDOP 0.35m

Decimal degrees: LAT 40.862352 LONG -124.091125

GPS within stand? (Yes) / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____

and record: Base point ID _____ Projected UTMs: UTME _____ UTMN _____

Camera Name: Galaxy Tablet Cardinal photos at ID point: Yes

Other photos: Active 3

Stand Size (acres): (<1) 1-5, >5 | Plot Area (m²): 100 / _____ | Plot Dimensions ____ x ____ m | RA Radius 10 m

Exposure, Actual °: N/A NE NW SE SW (Flat) Variable | Steepness, Actual °: N/A (0°) 1-5° >5-25° >25

Topography: Macro: top upper mid (lower) (bottom) | Micro: convex (flat) concave undulating

Geology code: MIAL Soil Texture code: Oi | Upland or (Wetland/Riparian) (circle one) | Landform: Swale industrial fill

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H_20: Ø BA Stems: 3 Litter: 35 Bedrock: Ø Boulder: Ø Stone: 1 Cobble: Ø Gravel: 1 Fines: 60 =100%

% Current year bioturbation 0% Past bioturbation present? Yes / (No) | % Hoof punch 0%

Fire evidence: Yes / (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

Stand age not greater than 10 yrs old. Primarily dominated by 3 meter high Salix hookeriana, but with minimal dead limbs 2-3Y.. Whole area historically was developed for industry and commercial buisiness. The location has buried concrete slabs, concrete chunks, and an old drainage ditch with wetland conditions. Approximatly 15% of area is 3-parameter wetland. Location has been impacted by homeless encampments, leading to frequent disturbance. Point taken off center within stand. Salix present are not restricted to wetland.

Disturbance code / Intensity (L,M,H): 01 / H 05 / H 19 / M 20 / L ___ / ___ "Other" _____ / ___

II. HABITAT DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), (T3 (6-11" dbh)), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), (S3 mature (1-25% dead)), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), (H2 (>12" ht.))

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)

III. INTERPRETATION OF STAND

Field-assessed vegetation Alliance name: Coastal Dune Willow Thicket

Field-assessed Association name (optional): _____

Adjacent Alliances/direction: _____ / _____, _____ / _____

Confidence in Alliance identification: L M (H) Explain: plant abundant and diagnostically clear

Phenology (E,P,L): Herb L Shrub P Tree P Other identification or mapping information:

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised January 10, 2024)

Database #: _____ SPECIES SHEET **Recorder & Date:** Paul Stiles 7/16/24

IV. VEGETATION DESCRIPTION

% NonVasc cover: 0% **Total % Vasc Veg cover** 66%

% Cover - **Conifer tree / Hardwood tree:** /2 **Regenerating Tree:** / **Shrub:** 70 **Herbaceous:** 23

Height Class - Conifer tree / Hardwood tree /4 **Regenerating Tree:** / **Shrub:** 3 **Herbaceous:** 2

Height classes: 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

Stratum categories: T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular

% Cover Intervals for reference: r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

Stratum	Species	% cover	C	Final species determination
S	Salix hookeriana	60		Salix hookeriana
T	Salix lasiandra	2		Salix lasiandra var. lasiandra
S	Salix scouleriana	4		Salix scouleriana
S	Rubus armeniacus	10		Rubus armeniacus
H	Anthoxanthum odoratum	20		Anthoxanthum odoratum
H	Daucus carota	r		Daucus carota
H	Briza maxima	1		Briza maxima
S	Crataegus monogyna	r		Crataegus monogyna
S	Baccharis pilularis ssp. pilularis	3		Baccharis pilularis ssp. consanguinea
H	Holcus lanatus	3		Holcus lanatus
H	Hordeum marinum	1		Hordeum marinum ssp. gussoneanum
H	Vicia villosa	2		Vicia villosa ssp. villosa
H	Festuca perennis	2		Festuca perennis
H	Agrostis stolonifera	10		Agrostis stolonifera
H	Hedera helix	r		Hedera helix
H	Juncus effusus	1		Juncus effusus ssp. pacificus
H	Symphyotrichum chilense	r		Symphyotrichum chilense
H	Plantago lanceolata	r		Plantago lanceolata
H	Lonicera hispidula	r		Lonicera hispidula
H	Torilis arvensis	r		
S	Cotoneaster lacteus	1		Cotoneaster lacteus
H	Geranium dissectum	r		Geranium dissectum
H	Avena barbata	r		Avena barbata
H	Rumex crispus	r		Rumex crispus
H	Mentha pulegium	r		Mentha pulegium
H	Epilobium ciliatum ssp. ciliatum	r		Epilobium ciliatum ssp. ciliatum

Unusual species: _____

Combined Vegetation Rapid Assessment and Relevé Field Form R2

(Revised January 10, 2024)

For Office Use:	Final database #:	Final vegetation type:	Alliance:
			Association:

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION — circle: Relevé or (RA)

Database #:	Date: 7/18/24	Name of recorder: Jessica Day
		Other surveyors: Paul Stiles
	UID:	Location Name: Little Lakes, Arcata, CA

GPS name: Trimble — For Relevé only: Bearing°, left axis at ID point____ of Long / Short side

UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ft./(m.) PDOP .35m

Decimal degrees: LAT 40.863336 LONG -124.090425

GPS within stand? (Yes) / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____

and record: Base point ID _____ Projected UTMs: UTME _____ UTMN _____

Camera Name: Galaxy Tablet Cardinal photos at ID point: Yes

Other photos:

Stand Size (acres): (<1) 1-5, >5 | Plot Area (m²): 100 / _____ | Plot Dimensions ____ x ____ m | RA Radius 10 m

Exposure, Actual °: N/A NE NW SE SW (Flat) Variable | Steepness, Actual °: N/A (0°) 1-5° > 5-25° > 25

Topography: Macro: top upper mid (lower) bottom | Micro: convex (flat) concave undulating

Geology code: M1AL Soil Texture code: SL | Upland or Wetland/Riparian (circle one) | Landform Industrial Fill

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H_2O: BA Stems: 3 Litter: 93 Bedrock: Boulder: 1 Stone: 1 Cobble: Gravel: 1 Fines: 1 =100%

% Current year bioturbation 0 Past bioturbation present? Yes (No) | % Hoof punch 0

Fire evidence: Yes (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

3P Wetland dominated site with hydrophytic vegetation visible in understory. Previously developed site with clear depression, concrete boulders, stones & cobbles clearly visible on surface. There is moderate salix recruitment in understory with developing shrubby understory. Signs of heavy human disturbance with signs of a houseless encampment, leading to understory degredation. Encroaching blackberry surrounding mature willow stand. Estimated stand dates back 20odd years to demolitions of old mill buildings in the early 2000's, between 2001 & 2009.

Disturbance code / Intensity (L,M,H): 01/H 05/M 20/H ___/___ ___/___ "Other" _____/___

II. HABITAT DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), (T3 (6-11" dbh)), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), (S3 mature (1-25% dead)), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), (H2 (>12" ht.))

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)

III. INTERPRETATION OF STAND

Field-assessed vegetation Alliance name: Coastal Dune Willow Thicket

Field-assessed Association name (optional): _____

Adjacent Alliances/direction: _____/_____, _____/_____

Confidence in Alliance identification: L M (H) Explain: _____

Phenology (E,P,L): Herb L Shrub P Tree P Other identification or mapping information: _____

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised January 10, 2024)

Database #: _____ SPECIES SHEET **Recorder & Date:** Jessica Day / 7/18/24

IV. VEGETATION DESCRIPTION

% NonVasc cover: ___ **Total % Vasc Veg cover:** 80%

% Cover - **Conifer tree / Hardwood tree:** N/A / 10 **Regenerating Tree:** 5 **Shrub:** 60 **Herbaceous:** 15

Height Class - **Conifer tree / Hardwood tree:** N/A / 4 **Regenerating Tree:** 2 **Shrub:** 4 **Herbaceous:** 2

Height classes: 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

Stratum categories: T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular

% Cover Intervals for reference: r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

Stratum	Species	% cover	C	Final species determination
S	Salix hookeriana	60		
T	~~Salix lasiandra~~	35		Salix scouleriana
S	Rubus armeniacus	20		
H	Epilobium ciliatum ssp. ciliatum	5		
~~H~~	~~Elymus sp.~~			
H	Anthoxanthum odoratum	15		
H	Agrostis stolonifera	15		
H	Brixa maxima	3		
H	Dipsacus fullonum	r		
H	Hedera helix	1		
H	Festuca perennis	1		
H	Juncus effusus ssp. pacificus	r		
SA	Ilex aquifolium	1		
H	Rumex crispus	r		
S	Cotoneaster franchetii	r		
H	Equisetum arvense	.25		
H	Galium aparine	r		
H	Holcus lanatus	5		
H	Polystichum munitum	1		
SA	Crataegus monogyna	1		
H	Vicia sativa	5		
S	Juglans regia	1		
H	Bromus diandrus	1		
H	Lotus corniculatus	r		
H	Avena barbata	r		
H	Bromus hordeaceus	r		
~~SA~~	~~Salix hookeriana~~	~~r~~		
H	Cynosurus echinatus	r		
H	Daucus carota	r		

Unusual species: _____

Combined Vegetation Rapid Assessment and Relevé Field Form

R3

(Revised January 10, 2024)

For Office Use:	Final database #:	Final vegetation type:	Alliance: _____ Association:

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION — circle: Relevé or (RA)

Database #:

Date: 7/18/24

Name of recorder: Jessica Day

Other surveyors: Paul Stiles

UID:

Location Name: Little Lakes, Arcata, CA (NE site)

GPS name: Trimble

For Relevé only: Bearing°, left axis at ID point____ of Long / Short side

UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ft / (m) PDOP .49m

Decimal degrees: LAT 40.864254 LONG -124.089430

GPS within stand? (Yes) / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____

and record: Base point ID _____ Projected UTMs: UTME _____ UTMN _____

Camera Name: Galaxy Tablet Cardinal photos at ID point: yes

Other photos:

Stand Size (acres): (<1), 1-5, >5 | Plot Area (m²): 100 / 1450m² | Plot Dimensions ___ x ___ m | RA Radius ___ m

Exposure, Actual °: _____ NE NW SE SW (Flat) Variable | Steepness, Actual °: N/A (0°) 1-5° >5-25° >25

Topography: Macro: top upper mid (lower) bottom | Micro: convex flat concave (undulating)

Geology code: MIAL Soil Texture code: SCL | Upland or (Wetland/Riparian) (circle one) | Landform Industrial Fill

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H_2O: BA Stems: 2 Litter: 97 Bedrock: Ø Boulder: Ø Stone: Ø Cobble: Ø Gravel: Ø Fines: 1 =100%

% Current year bioturbation N/A Past bioturbation present? Yes (No) % Hoof punch N/A

Fire evidence: Yes (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

Site on previously developed area, adjacent to the Jolly Giant Creek. Primarily a stand of mature willow shrubs with two wetlands residing inside. Some human activity has degraded understory, with large patches of bare earth present. A small channel connects the northern most wetland to the freshwater portion of Jolly Giant creek, increasing species richness in this area.

Disturbance code / Intensity (L,M,H): 01 / H 05 / H 10 / L 20 / M ___/___ "Other" _____/___

II. HABITAT DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), H2 (>12" ht.)

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)

III. INTERPRETATION OF STAND

Field-assessed vegetation Alliance name: Coastal Dune Willow Thicket

Field-assessed Association name (optional): _____

Adjacent Alliances/direction: _____ / _____, _____ / _____

Confidence in Alliance identification: L M (H) Explain: _____

Phenology (E,P,L): Herb P Shrub P Tree P Other identification or mapping information:

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised January 10, 2024)

Database #: _____ SPECIES SHEET Recorder & Date: Jessica Day, 7/18/24

IV. VEGETATION DESCRIPTION

% NonVasc cover: ____ Total % Vasc Veg cover: 85%

% Cover - Conifer tree / Hardwood tree: 1 / 2 Regenerating Tree: 0 Shrub: 70 Herbaceous: 27

Height Class - Conifer tree / Hardwood tree: 5 / 5 Regenerating Tree: 0 Shrub: 4 Herbaceous: 3

Height classes: 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

Stratum categories: T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular

% Cover Intervals for reference: r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

Stratum	Species	% cover	C	Final species determination
~~—~~	~~Salix lasiandra~~			
S	Salix hookeriana	75		
S	Salix sitchensis	6		
T	Salix scouleriana	3		
H	Polystichum munitum	2		
H	Potentilla anserinapacifica	2		Potentilla anserina ssp. pacifica
H	Agrostis stolonifera	3		
H	Raphanus sativa	2		
H	Daucus carota	2		
T	Picea sitchensis	1		
S	Baccharis pilularis ssp pilularis	3		Baccharis pilularis ssp. consanguinea
S	Rubus armeniacus	25		
H	Holcus lanatus	8		
H	Dipsacus fullonum	r		
H	Galium aparine	1		
H	Anthoxanthum odoratum	3		
H	Crocosmia x crocosmiiflora	r		
S	Cotoneaster	3		
S	~~S~~ Crataegus monogyna	1		
H	Juncus effusus	4		
T	Ilex aquifolium	2		
T	Rubus ceragifera plum	2		Rubus cerasifera
H	Rumex	r		
H	~~Solidago~~	r		
H	Typha latifolia	3		
H	Hedera helix	1		
H	Lotus corniculatus	5		
H	Foeniculum vulgare	1		
~~—~~	~~Di~~			
H	Lonicera involucrata	1		Lonicera involucrata var. ledebourii
T	Alnus rubra	3		
H	Scirpus microcarpus	1		

Unusual species: _____

Combined Vegetation Rapid Assessment and Relevé Field Form

R4

(Revised January 10, 2024)

For Office Use:	Final database #:	Final vegetation type:	Alliance: Association:

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION circle: (Relevé) or RA

Database #:

Date: 4/5/24

UID:

Name of recorder: Joseph Sailer

Other surveyors:

Location Name: Little Lake former Industrial site

GPS name: Trimble DA2 For Relevé only: Bearing°, left axis at ID point____ of Long / Short side

UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ft./(m.) PDOP 1

Decimal degrees: LAT 40.864137° LONG -124.089337

GPS within stand? (Yes) / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____

and record: Base point ID _____ Projected UTMs: UTME _____ UTMN _____

Camera Name: Samsung Cardinal photos at ID point: Yes

Other photos:

Stand Size (acres): (<1,) 1-5, >5 | Plot Area (m^2): 100 / _____ | Plot Dimensions 5 x 10 m | RA Radius____ m

Exposure, Actual °: _____ NE NW SE SW (Flat) Variable | Steepness, Actual °: _____ (0°) 1-5° >5-25° >25

Topography: Macro: top upper mid lower (bottom) | Micro: convex flat concave (undulating)

Geology code: MIAL Soil Texture code: SCL | Upland or (Wetland/Riparian) (circle one) | Landform Alluvial

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H_20: 3 BA Stems: 3 Litter: 91 Bedrock: 0 Boulder: 0 Stone: 0 Cobble: 0 Gravel: 0 Fines: 3 =100%

% Current year bioturbation <1 Past bioturbation present? (Yes) / No | % Hoof punch 0

Fire evidence: Yes / (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

Freshwater marsh along Jolly Giant Creek just up from Brackish marsh. May see tidal influence only during the highest king tides. This location was restored from ~20-30 years ago with the removal of fill allowing freshwater marsh conditions to return. Jolly Giant Creek is incised as it passes through the marsh with summer water level ~ 20 inches below marsh ground surface.

Little ongoing disturbance other than occasional human incursion. Residential development immediately east of Jolly Giant Creek.

Disturbance code / Intensity (L,M,H): 01 / L 05 / H 08 / L 20 / L 33 / M "Other" _____ / ___

II. HABITAT DESCRIPTION

Tree DBH : T1 (<1" dbh), (T2 (1-6" dbh)), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), (S3 mature (1-25% dead)), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.) (H2 (>12" ht.))

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)

III. INTERPRETATION OF STAND

Field-assessed vegetation Alliance name: Freshwater Marsh

Field-assessed Association name (optional): _____

Adjacent Alliances/direction: Brackish Marsh / S, Coast willow thicket / W

Confidence in Alliance identification: L (M) H Explain: Not a described vegetation community.

Phenology (E(P)L): Herb L Shrub P Tree P Other identification or mapping information:

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised January 10, 2024)

Database #: _____ SPECIES SHEET Recorder & Date: Joseph Sabo 4/5/24

IV. VEGETATION DESCRIPTION

% NonVasc cover: <1% Total % Vasc Veg cover: 100%

% Cover - Conifer tree / Hardwood tree: N/A / 5 Regenerating Tree: Ø Shrub: 10 Herbaceous: 100

Height Class - Conifer tree / Hardwood tree: N/A / 4 Regenerating Tree: Ø Shrub: 3+4 Herbaceous: 1+2

Height classes: 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

Stratum categories: T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular

% Cover Intervals for reference: r – trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

Stratum	Species	% cover	C	Final species determination
T	Salix hookeriana	4		
S	Morella californica	4		
S	Baccharis pilularis ssp. consanguinea	5		
T	Alnus rubra	1		
S	Rubus armeniacus	1		
H	Agrostis stolonifera	72		
H	Carex lyngbyei	9		
H	Triglochin maritima	1		
H	Potentilla anserina ssp. pacifica	16		
H	Rubus crispus	4		
H	Phalaris arundinacea	3		
H	Deschampsia caespitosa ssp. holciformis	1		
H	Symphyotrichum chilense	2		
H	Atriplex prostrata	1		
H	Typha latifolia	r		
H	Raphanus sativa	1		
H	Spartina densiflora	1		
H	Festuca arundinacea	1		
H	Hordeum brachyantherum	r		ssp. brachyantherum
H	Festuca perennis	8		
H	Scirpus microcarpus	1		

Unusual species: _____

Combined Vegetation Rapid Assessment and Relevé Field Form R5

(Revised January 10, 2024)

For Office Use:	Final database #:	Final vegetation type:	Alliance: _____ Association: _____

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION — circle: (Relevé) or RA

Database #:

Date: 07/18/24

UID:

Name of recorder: Paul Stiles

Other surveyors: Jessica Day

Location Name: Little Lake, Arcata, CA

GPS name: Trimble

For Relevé only: Bearing°, left axis at ID point____ of Long / Short side

UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ft./ m./ PDOP 0.3m

Decimal degrees: LAT 40.863189 LONG -124.089574

GPS within stand? (Yes) / No If No, cite from GPS to stand: distance (m)____ bearing °____ inclination °____

and record: Base point ID _____ Projected UTMs: UTME _____ UTMN _____

Camera Name: Galaxy Tablet Cardinal photos at ID point: Yes

Other photos:

Stand Size (acres): (<1) 1-5, >5 | Plot Area (m²): 100 / 3300 | Plot Dimensions ___ x ___ m | RA Radius ___ m

Exposure, Actual °: N/A NE NW SE SW (Flat) Variable | Steepness, Actual °: N/A 0° (1-5°) >5-25° >25

Topography: Macro: top upper mid lower (bottom) | Micro: convex flat (concave) undulating

Geology code: MIAL Soil Texture code: SCL | Upland or (Wetland/Riparian) (circle one) | Landform Slough/Alluvial

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud) 24

H2O: 1 BA Stems: 3 Litter 91 Bedrock: Ø Boulder: Ø Stone: Ø Cobble: Ø Gravel: Ø Fines: 5 =100%

% Current year bioturbation 0% Past bioturbation present? Yes / (No) | % Hoof punch (Ø) %

Fire evidence: Yes / (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

Historically a drainage waterway for developed areas, the slough was widened when the freshwater marsh was restored, as well as graded to create wetland conditions. Plants here are primarily nonnative, and intergrades into native species with proximity to the saltwater marsh. During rain events the marsh often has water movement across alluvial bank vegetation when Jolly Giant Creek overtops its banks; This is the primary source of freshwater for the marsh.

Disturbance code / Intensity (L,M,H): 05 / H ___/___ ___/___ ___/___ ___/___ "Other" _____/___

II. HABITAT DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), (S2) young (<1% dead), S3 mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.) (H2) (>12" ht.)

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)

III. INTERPRETATION OF STAND

Field-assessed vegetation Alliance name: Upper Brackish Marsh

Field-assessed Association name (optional): _____

Adjacent Alliances/direction: mid-high saltmarsh / 50m, 180° / _____

Confidence in Alliance identification: L M (H) Explain: _____

Phenology (E,P,L): Herb L Shrub P Tree ___ Other identification or mapping information:

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised January 10, 2024)

Database #: _____ SPECIES SHEET **Recorder & Date:** Paul Stiles 7/18/24

IV. VEGETATION DESCRIPTION

% NonVasc cover: 0 **Total % Vasc Veg cover:** 90

% Cover - **Conifer tree / Hardwood tree:** / / **Regenerating Tree:** / **Shrub:** 1 **Herbaceous:** 99

Height Class - Conifer tree / Hardwood tree: / / **Regenerating Tree:** / **Shrub:** 3 **Herbaceous:** 2

Height classes: 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

Stratum categories: T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular

% Cover Intervals for reference: r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

Stratum	Species	% cover	C	Final species determination
H	Carex lyngbyei	20		Carex lyngbyei
H	Agrostis stolonifera	60		Agrostis stolonifera
H	Spartina densiflora	10		Spartina densiflora
H	Triglochin maritima	10		Triglochin maritima
H	Deschampsia cacspitosa ssp holciformis	3		Deschampsia cespitosa ssp. holciformis
H	Festuca perennis	1		Festuca perennis
H	Castilleja ambigua ssp. humboldtiensis	r		Castilleja ambigua ssp. humboldtiensis
H	Rumex crispus	1		Rumex crispus
H	Jaumea carnosa	r		Jaumea carnosa
H	Atriplex prostrata	r		Atriplex prostrata
H	Bolboschoenus maritimus	r		Bolboschoenus maritimus ssp. paludosus
H	Typha latifolia	r		Typha latifolia
H	Lotus corniculatus	r		Lotus corniculatus
H	Daucus carota	r		Daucus carota
H	Cotula coronopifolia	r		Cotula coronopifolia
H	Potentilla anserina ssp pacifica	3		Potentilla anserina ssp. pacifica
H	Rumex salicifolius	r		Rumex salicifolius
H	Oenanthe sarmentosa	r		Oenanthe sarmentosa
H	Vicca . sativa	r		Vicca sativa ssp. sativa
H	Symphyotrichum chilense	r		Symphyotrichum chilense
S	Rubus armeniacus	r		Rubus armeniacus
H	Phalaris arundinacea	r		Phalaris arundinacea
S	Salix sitchensis	r		Salix sitchensis
S	Lonicera involucrata var. ledebourii	r		Lonicera involucrata var. ledebourii
H	Holcus lanatus	r		Holcus lanatus
H	Hordeum marinum	r		Hordeum marinum ssp. gussoneanum

Unusual species: Castilleja ambigua ssp. humboldtiensis

Combined Vegetation Rapid Assessment and Relevé Field Form

R6

(Revised January 10, 2024)

For Office Use:	Final database #:	Final vegetation type:	Alliance: _____ Association: _____

I. LOCATIONAL/ENVIRONMENTAL DESCRIPTION — circle: (Relevé) or RA

Database #:	Date: 07/18/24	Name of recorder: Paul Stiles
		Other surveyors: Jessica day
	UID:	Location Name: Little Lakes, Arcata, CA

GPS name: Trimble — For Relevé only: Bearing°, left axis at ID point____ of Long / Short side

UTME _____ UTMN _____ Zone: 11 NAD83 GPS error: ft./ m./ PDOP 0.3m

Decimal degrees: LAT 40.861961 LONG -124.089579

GPS within stand? (Yes) / No If No, cite from GPS to stand: distance (m) ____ bearing ° ____ inclination ° ____

and record: Base point ID _____ Projected UTMs: UTME _____ UTMN _____

Camera Name: Galaxy Tablet Cardinal photos at ID point: Yes

Other photos:

Stand Size (acres): (<1,) 1-5, >5 | Plot Area (m²): 100 / 1700 | Plot Dimensions ___ x ___ m | RA Radius ___ m

Exposure, Actual °: N/A NE NW SE SW Flat ~~Variable~~ | Steepness, Actual °: N/A 0° (1-5°) > 5-25° > 25

Topography: Macro: top upper mid lower (bottom) | Micro: convex flat concave undulating

Geology code: MIAL Soil Texture code: Peat | Upland or Wetland/Riparian (circle one) | Landform Alluvial plain / Salt marsh

% Surface cover: (Incl. outcrops) (>60cm diam) (25-60cm) (7.5-25cm) (2mm-7.5cm) (Incl sand, mud)

H_2O: 1 BA Stems 10 Litter: 83 Bedrock: Ø Boulder: Ø Stone: Ø Cobble: Ø Gravel 1 Fines: 5 =100%

% Current year bioturbation 0% Past bioturbation present? Yes / (No) | % Hoof punch 0%

Fire evidence: Yes / (No) (circle one) If yes, describe in Site history section, including date of fire, if known.

Site history, stand age, comments:

Previously an artificial drainage way in between the bay and Jolly Giant Creek, this wetland was botanically and hydrologically restored. A channel provides connectivity between the creek and the ocean, whereas different vegetation has developed in response to elevation gradients within the marsh. The saltmarsh ends where it intergrades into a freshwater marsh at its northern extent. Varying levels of salt intrusion have helped select for a larger richness and biomass of native species, though Spartina densiflora codominates large portions of the marsh. Species compositions transitions from salt marsh species to upland species with elevation change on the banks of the slough. The slough was restored between 1995-2005.

Disturbance code / Intensity (L,M,H): 05/M ___/___ ___/___ ___/___ ___/___ "Other" _____/___

II. HABITAT DESCRIPTION

Tree DBH : T1 (<1" dbh), T2 (1-6" dbh), T3 (6-11" dbh), T4 (11-24" dbh), T5 (>24" dbh), T6 multi-layered (T3 or T4 layer under T5, >60% cover)

Shrub: S1 seedling (<3 yr. old), S2 young (<1% dead), (S3) mature (1-25% dead), S4 decadent (>25% dead)

Herbaceous: H1 (<12" plant ht.), (H2) (>12" ht.)

Desert Riparian Tree/Shrub: 1 (<2ft. stem ht.), 2 (2-10ft. ht.), 3 (10-20ft. ht.), 4 (>20ft. ht.)

Desert Palm/Joshua Tree: 1 (<1.5" base diameter), 2 (1.5-6" diam.), 3 (>6" diam.)

III. INTERPRETATION OF STAND

Field-assessed vegetation Alliance name: Mid - high salt marsh

Field-assessed Association name (optional): _____

Adjacent Alliances/direction: Freshwater Marsh 150m, 5°, _____/_____

Confidence in Alliance identification: L M (H) Explain: _____

Phenology (E,P,L): Herb L Shrub P Tree / Other identification or mapping information: early season survey Confirmed most species

Combined Vegetation Rapid Assessment and Relevé Field Form

(Revised January 10, 2024)

Database #: _____ SPECIES SHEET Recorder & Date: Paul Stiles 7/12/24

IV. VEGETATION DESCRIPTION

% NonVasc cover: 0 Total % Vasc Veg cover: 90

% Cover - Conifer tree / Hardwood tree: / Regenerating Tree: / Shrub: 1 Herbaceous: 99

Height Class - Conifer tree / Hardwood tree: / Regenerating Tree: / Shrub: 2 Herbaceous: 2

Height classes: 1=<1/2m, 2=1/2-1m, 3=1-2m, 4=2-5m, 5=5-10m, 6=10-15m, 7=15-20m, 8=20-35m, 9=35-50m, 10=>50m

Stratum categories: T=Tree, A = SApling, E = SEedling, S = Shrub, H= Herb, N= Non-vascular

% Cover Intervals for reference: r = trace, + = <1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%

Stratum	Species	% cover	C	Final species determination
	Bolboschoenus maritimus ssp paludo	10		Bolboschoenus maritimus ssp. paludosus
	Carex lyngbyei	30		Carex lyngbyei
	Grindelia stricta var. stricta	3		Grindelia stricta var. stricta
	Deschampsia caespitosa ssp. holciformis	5		Deschampsia caespitosa ssp. holciformis
	Spartina densiflora	20		Spartina densiflora
	Distichlis spicata	5		Distichlis spicata
	Castilleja ambigua ssp. humboldtiensis	1		Castilleja ambigua ssp humboldtiensis
	Triglochin maritima	15		Triglochin maritima
	Jaumea carnosa	3		Jaumea carnosa
	Cuscuta	r		Cuscuta pacifica var. pacifica
	Limonium californica	r		Limonium californicum
	Spergularia marina	r		Spergularia marina
	Salicornia pacifica	1		Salicornia pacifica
	Atriplex prostrata	r		Atriplex prostrata
	Rumex crispus	r		Rumex crispus
	Agrostis stolonifera	r		Agrostis stolonifera
	~~Cotula coronopifolia~~			
	~~Typha~~			
	~~Lotus~~			
	Hordeum marinum	r		Hordeum marinum ssp. gussoneanum

Unusual species: Castilleja ambigua ssp humboldtiensis

Eureka, CA | Redding, CA | Willits, CA | Fort Bragg, CA | Coos Bay, OR | Klamath Falls, OR