

Biological Resources Assessment

Phase II

Elk River Wildlife Trail Improvement Project

Prepared for:

City of Eureka

EXHIBIT NO. 8

APPLICATION NO.

1-11-037 - CITY OF EUREKA

EXCERPTS, PHASE II
BIOLOGICAL CONSTRAINTS
ANALYSIS AND WETLAND
DELINEATION (1 of 73)



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October 2007
006107.100

Reference: 006107.100

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Acronyms and Abbreviations

BIOS	Biogeographical Information and Observation System
BLM	Bureau of Land Management
CDFG	California Department of Fish and Game
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
ERWTIP	Elk River Wildlife Trail Improvement Project
ESHA	Environmentally Sensitive Habitat Areas
FC	Federal Candidate
FE	Federally listed Endangered
FT	Federally listed Threatened
GPS	Global Positions System
MSL	Mean Sea Level
N/A	Not Applicable
NWI	National Wetland Inventory
OHWM	Ordinary High Water Mark
PALCO	Pacific Lumber Company
RCAA	Redwood Community Action Agency
SE	State listed Endangered
SHN	SHN Consulting Engineers & Geologists, Inc.
SONCC	Southern Oregon Northern California Coast
sq. ft.	square foot
SSC	Species of Special Concern
ST	State listed Threatened
TBD	To Be Determined
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WWTP	Wastewater Treatment Plant

1.0 Project Introduction and Location

On April 13, June 19, July 20, August 2, and October 4, 2007, SHN Consulting Engineers & Geologists, Inc. (SHN) conducted fieldwork for Phase II of the Elk River Wildlife Trail Improvement Project (ERWTIP). The project site is located in the west ½ of Section 33, Township 5 North, Range 1 West Humboldt Base Meridian (Figure 1). Fieldwork for Phase I of the ERWTIP was completed in 2006 and is documented in the *Biological Assessment Elk River Wildlife Trail Improvement Project, Eureka, California* (SHN, 2007a) and the *Wetland Delineation for the Proposed Elk River Trail Improvement Project, Eureka, California* (SHN, 2007b). Phase II of the ERWTIP focused on the existing Elk River Wildlife Trail, which is located adjacent to the northern boundary of the Eureka Wastewater Treatment Plant (WWTP) and extends south to the railroad tracks and from the railroad tracks to Herrick Avenue Park and Ride (Figure 1). Phase II includes improvements to the existing Elk River Wildlife Trail (hereafter, trail or ERWT), whereas Phase I consists of expanding the trail north. Due to the similarity in habitat types between the Phase I and Phase II of the project and the extensive assessment and analysis that was performed for Phase I, the results of Phase I work (SHN, 2007a and 2007b) are used as background for this report. Please refer to Appendix A for detailed results of the Phase II wetland delineation.

2.0 Methods

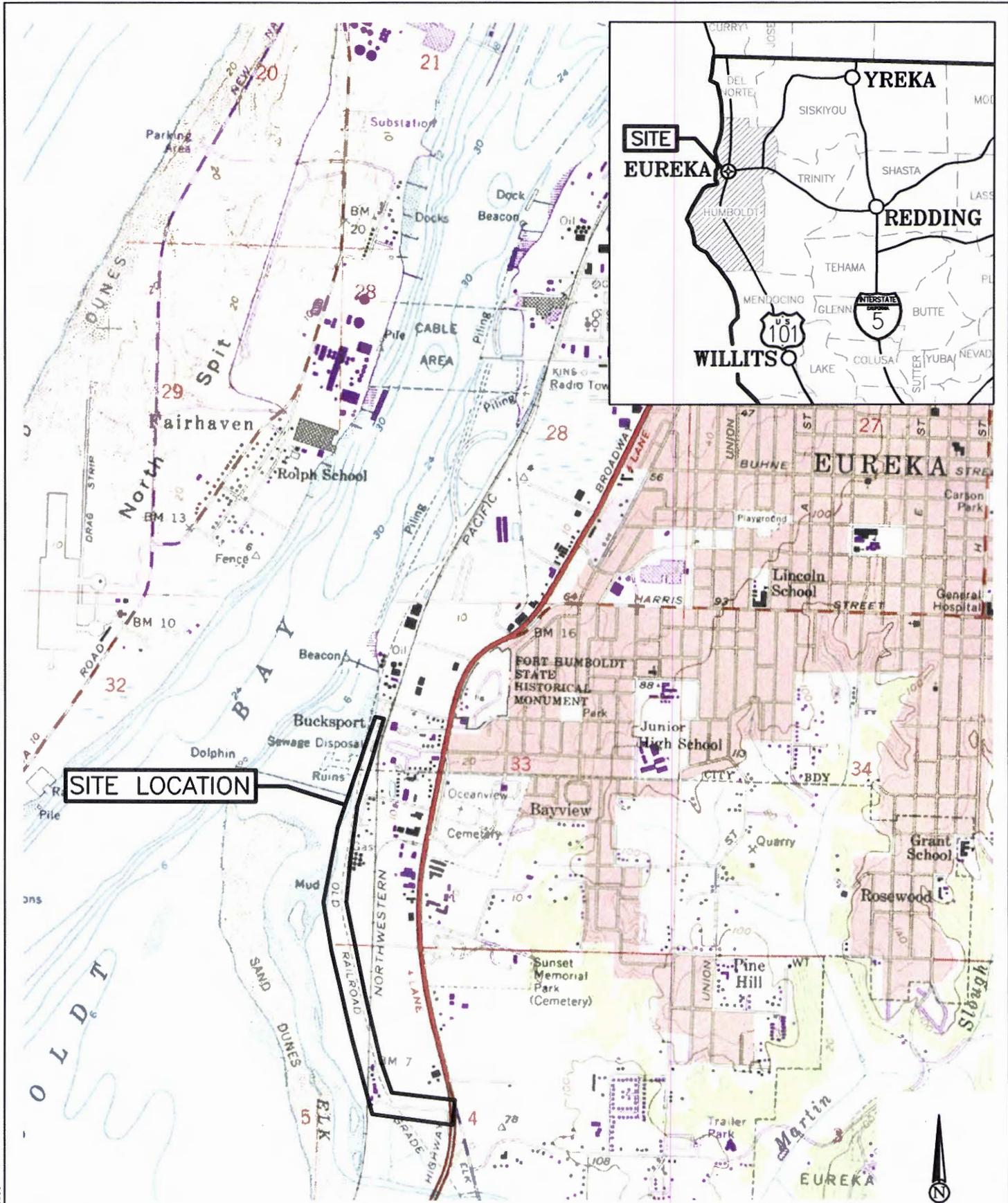
The existing trail was systematically surveyed from the northern parking lot, south to the Herrick Avenue Park and Ride. For organizational purposes, portions of the study area are referenced as the following segments: 1) the main trail, 2) footpath, 3) railroad to Pound Road parking lot, and 4) Pound Road parking lot east and south to the Herrick Avenue Park and Ride (Figure 2).

Each representative section, as identified above, was visually assessed and quantified. Important resource variables included the presence of wetlands, Environmentally Sensitive Habitat Areas (ESHA), special status plant species, important wildlife areas, and/or the degree to which vegetation would be affected to allow for trail improvements, including but not limited to widening. Refer to Appendix A for detailed results of the wetland delineation.

The area of potential effects were assessed along the main trail using a 14-foot PVC pipe (i.e., measuring rod) which represented the desired/hypothetical trail width with an additional six feet added to each end of the measuring rod to represent the actual or potential disturbance area (26-foot total width).

The footpath trail was assessed for a 4-foot trail width, with four feet added at each end of the shortened measuring rod to represent the potential or actual disturbance area (12 feet total width). The study areas were defined based on the recommendations included in the *Elk River Access Project Recommendations* (RCAA, 2002), SHN's knowledge of the trail area, and coordination with the City of Eureka. The measuring rod was not used for the portion of the study area from the Pound Road parking lot to the Herrick Avenue Park and Ride because a study area could not be defined due to existing site constraints, such as fencing; however, sensitive resources were evaluated and mapped in that portion of the project area.

Each trail segment was quantified by walking the representative trail with the measuring rod centered on, and perpendicular to the trail, with the exception of the portion from the Pound Road



SOURCE: EUREKA
USGS 7.5 MINUTE
QUADRANGLE

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1"=2000'±

EA 2006\006107-ELK RIVER\006107.100



Consulting Engineers
& Geologists, Inc.

City of Eureka
Elk River Trail Improvement Project Phase II
Eureka, California

October 2007

Site Location Map
Biological Resources Assessment
SHN 006107.100

006107.100-LOCATION

Figure 1



FOOTPATH

MAIN TRAIL

POUND ROAD TO



SCALE

1" = 250'

parking lot to the Herrick Avenue Park and Ride. Where the measuring rod (or additional 6-foot {main trail} or 4-foot {foot path}) intercepted one of the aforementioned important resource variables, each was noted, mapped, and quantified to the degree possible; for example, some limited trimming to clearing large diameter stems. To the extent possible (i.e., based on canopy closure), a Trimble GeoXT hand-held Global Positions System (GPS) was used to map and quantify the existing trail, the presence of wetlands, and ESHA. Collected GPS data was post processed and differentially corrected for sub-meter accuracy and overlaid on the City's 2002 aerial photograph.

3.0 Environmental Setting

3.1 Climate and Project Location

The environmental setting within the City of Eureka is predominately affected by the mild maritime climate, active tectonic processes that are manifested in the geomorphic landscape, and current and historical development. Influence from these factors is evident in the variety of habitat types found throughout the City, which include freshwater wetlands, salt marshes, deepwater channels, intertidal areas, and North Coast coniferous forest.

3.2 Study Area Habitats

Habitats within the project area consist of uplands and wetlands, with several corresponding vegetation communities in each. Upland communities include disturbed and dunemat. Wetland communities consist of Estuarine intertidal irregularly exposed wetland, Estuarine intertidal regularly exposed, Estuarine subtidal regularly inundated, Palustrine emergent wetland, an Palustrine scrub-shrub, and a combination of Palustrine emergent and scrub-shrub. The wetland community names are consistent with the National Wetland Inventory (NWI) classification system. Additional information regarding wetlands within the study area is provided in the Wetland Delineation (Appendix A). Appendix B presents a list of all plant species encountered at the site. Botanical nomenclature follows the *Jepson Manual Higher Plants of California* (Hickman, 1993). A list of wildlife species observed within and adjacent to the study area is included in Table 2 in Section 5.5.2 of this report.

The three major habitat types located in Phase II study area are Palustrine scrub-shrub, disturbed, dunemat. Salt marsh habitat is extensive along the western boundary of the study area. Refer to Appendix C for representative photos of habitats within and adjacent to the study area.

3.2.1 Upland Habitat

3.2.1.1 Disturbed

Disturbed habitat is scattered throughout the project area, with the majority located in the northern and southern portions of the study area from the railroad to Pound Road, and the Herrick Avenue Park and Ride. Disturbed habitat is not as extensive in Phase II compared to Phase I (SHN, 2007a) due to a lack of former parking areas, existing and former building pads, miscellaneous construction material and debris, and human encampments and associated debris. Soils within the disturbed areas are sandy (either native or imported fill) and have generally been heavily compacted and are mixed with unsorted rocks, rubble, and other debris. Dominant shrubs within

the disturbed areas include coyote bush (*Baccharis pilularis*), Himalayan berry (*Rubus discolor*), pampas grass (*Cortaderia jubata*), fennel (*Foeniculum vulgare*), and Scotch broom (*Cytisus scoparius*) with scattered yellow bush lupine (*Lupinus arboreus*). Although pampas grass and fennel are herbaceous species, they function as dominant shrubs in the disturbed upland habitat because they do not die back and form dense thickets that provide a canopy over the majority of the other herbaceous species. The herbaceous layer is typically dominated by non-native ruderal species that include hairy cat's ear (*Hypochaeris radicata*), English plantain (*Plantago lanceolata*), sweet white clover (*Melilotus alba*), Queen Anne's lace (*Daucus carota*), wild radish (*Raphanus sativus*), sweet vernal grass (*Anthoxanthum odoratum*), common velvet grass (*Holcus lanatus*), rattlesnake grass (*Briza maxima*), Mediterranean barley (*Hordeum marinum*), mustards (*Brassica* spp.), and St. John's wort (*Hypericum perforatum*). Native species, including yarrow (*Achillea millefolium*) and red fescue (*Festuca rubra*), are scattered throughout the disturbed habitat.

3.2.1.2 Dunemat

Vegetation that is characterized as dunemat is located along the upper margins of Humboldt Bay, east of the estuarine habitat, in more uniformly sandy soils that lack significant disturbance found in the disturbed habitat (Figures 3 and 4). The dunemat community described herein is consistent with habitat described as dune community in other references. This community consists of a mix of native and non-native species in the northern 1/4 of the Phase II study area along the main trail, and then transitions to a more intact native species composition from the northern footpath south to the railroad tracks (Figures 3, 4, and 5). The highest quality dunemat vegetation is located along the southern half of the main trail, where the existing trail is widest (Figure 4). Dunemat vegetation in the northern half of the study area is dominated by sandmat (*Cardionema ramosissimum*), European beachgrass (*Ammophila arenaria*), European hairgrass (*Aira caryophyllea*), soft chess (*Bromus hordeaceus*), salt rush (*Juncus leseurii*), yarrow, sweet vernal grass, hairy cat's ear, wild radish, and sheep sorrel (*Rumex acetosella*), with lesser amounts of beach knotweed (*Polygonum paronychia*), beach bursage (*Ambrosia chamissonis*), and beach morning glory (*Calystegia soldanella*). The higher quality dunemat vegetation lacks a significant abundance of European beachgrass, European hairgrass, and sweet vernal grass. Instead, these species are largely replaced with native grasses including red fescue and large-flowered sand-dune bluegrass (*Poa macrantha*). Native dunemat species, including beach primrose (*Camissonia cheiranthifolia*), beach morning glory, yellow sand verbena (*Abronia latifolia*), beach knotweed, beach bursage, dune tansy (*Tanacetum camphoratum*), dune goldenrod (*Solidago spathulata*), and beach buckwheat (*Eriogonum latifolium*) with scattered sea thrift (*Armeria maritima* ssp. *californica*) and beach pea (*Lathyrus littoralis*) are more widespread in the southern section of the dunemat community and along a portion of the footpath.

The sensitive natural community northern foredune grassland (refer to Section 5.4 for additional description) intergrades with the dunemat community in scattered portions of the study area including a section of the footpath and along the southern section of the main trail. This sensitive natural community was dominated by American dunegrass (*Leymus mollis* ssp. *mollis*) prior to the introduction of European beachgrass (*Ammophila arenaria*) to the west coast and associated with native dunemat species. Scattered patches of American dunegrass are located west of the study area, outside the potential trail expansion impact area.





16W

16E

NO IMPACT

17E

18W

18E

19E

19W

NO IMPACT

NO IMPACT

20E

20W

DUNEMAT/COASTAL PRAIRIE HABITAT

DUNEMAT/NORTHERN FORED



RAILROAD TO
ROUND ROAD
PARKING LOT

27 S

27 N

SALT MARSH

SALT MARSH

POUND ROAD
PARKING LOT

TO HERRICK AVENUE PARK & RIDE

LYNOBRYE'S
SEDE

SALT MARSH

WETLAND

CULVERT

SALT MARSH

FLOW

FLOW

LYNOBRYE'S
SEDE

SALT MARSH

WETLAND

SAMPLE POINT 5

FLOW

FLOW

FLOW

HERRICK AVENUE
PARK & RIDE

3.2.2 Wetlands

3.2.2.1 Estuarine Wetland

Estuarine intertidal irregularly exposed wetland habitat occupies a narrow band west of the study area, below and above the Ordinary High Water Mark (OHWM) where there is frequent tidal inundation. This vegetation community is referred to as salt marsh. Estuarine habitat is located west of the study area from the north slough to the south slough and is interspersed along both sides of the study area from the railroad tracks south to the Herrick Avenue Park and Ride (Figures 3, 4, and 5). A significant amount of high quality salt marsh is located well above the OHWM and immediately adjacent to the footpath in the northern portion of the study area.

The estuarine habitat is comprised entirely of herbaceous vegetation that is interspersed with patches of intertidal mudflat scattered with brown and green algae. Pockets of this habitat have a fairly intact native species composition but the majority is dominated by substantial mono-stands of the non-native dense-flowered cordgrass (*Spartina densiflora*). Based on the salinity ranges throughout the intertidal emergent wetland, other dominant species include pickleweed (*Salicornia virginica*), saltgrass (*Distichlis spicata*), sandspurry (*Spergularia macrotheca*), seaside arrow grass (*Triglochin maritima*), dodder (*Cuscuta salina*), spearscale (*Atriplex triangularis*), and spear oracle (*A. patula*) with lesser amounts of salt rush, gumweed (*Grindelia stricta*), sea lavender (*Limonium californica*), fleshy jaumea (*Jaumea carnosa*), and tufted hairgrass. The species composition transitions to a combination of dunemat and salt marsh vegetation, particularly near the footpath (Figure 3). High quality salt marsh habitat is located adjacent to the footpath. Northern coastal salt marshes are a sensitive natural community, which is described in Section 5.4 of this report, and are suitable habitat for a number of special status plant species. Salt marsh habitat is scattered throughout the study area and includes both the north and south sloughs (Figures 3, 4, and 5).

3.2.2.2 Palustrine Emergent Wetland

Palustrine emergent wetland habitat is inundated either seasonally, periodically, semipermanently, or permanently by freshwater and is for the most part dominated with herbaceous hydrophytes. The most significant area of this wetland habitat is located in the northern portion of the study area, adjacent to the WWTP in the open water ponds located just east of the study area (Figure 3). These ponds are permanently inundated and are dominated by hydrophytes including cattail (*Typha latifolia*), American bulrush (*Scirpus americanus*), silverweed (*Potentilla anserina*), nut sedge (*Cyperus eragrostis*), brass buttons (*Cotula coronopifolia*), Chamissonis' hedge-nettle (*Stachys chamissonis*), small fruited bulrush (*Scirpus microcarpus*), Pacific water parsley (*Oenanthe sarmentosa*), and rushes (*Juncus effuses* and *J. balticus*). This permanently inundated wetland habitat is surrounded by Palustrine scrub-shrub.

Emergent wetlands that are seasonally inundated are scattered throughout the trail area, but are generally located beyond the boundaries of the Phase II study area.

3.2.2.3 Palustrine Scrub-Shrub Wetland

Freshwater wetland habitat that has a substantial shrub component is characterized as Palustrine scrub-shrub. This is the most widespread wetland habitat in the Phase II study area. The patchy to moderately closed overstory is dominated by willows (*Salix sitchensis*, *S. lucida*, and *S. lasiolepis*), California wax myrtle (*Myrica californica*), and cascara (*Rhamnus purshiana*), with scattered red alder (*Alnus rubra*). The dense understory consists of both shrub and herbaceous species including willows, Himalayan berry, Pacific bramble (*Rubus ursinus*), slough sedge (*Carex obnupta*), silverweed, common rush, bent-grass (*Agrostis viridus*), and creeping buttercup (*Ranunculus repens*) with lesser amounts of sword fern (*Polystichum munitum*) and lady fern (*Athyrium felix-femina*). Some portions of the scrub-shrub habitat have been impacted by human encampments and associated debris, but not to the extent that was reported in portions of the Phase I study area (SHN, 2007a). Soils in the scrub-shrub habitat exhibited dark chroma and significant redoximorphic features, including concentrations and depletions. Both primary (saturated in the upper 12 inches) and secondary hydrology indicators (oxidized rhizospheres) were observed during the dry season (Appendix A).

4.0 Special Status Species Analysis

Prior to conducting fieldwork, a California Natural Diversity Database (CNDDDB; CDFG, 2007a) Rare Find and Biogeographical Information and Observation System (BIOS; CDFG, 2007b) search was completed for the 7.5-minute U.S. Geological Survey (USGS) Eureka quadrangle and all adjacent quadrangles (Table 1). The databases were queried for historical and existing occurrences of state and federally listed Threatened, Endangered, and Candidate species; species proposed for listing; special status species; and species listed by the California Native Plant Society (CNPS; Online 2007 inventory and Tibor, 2001).

Species Latin Name	Common Name	Listing Status ¹	Preferred Habitat ²	Habitat Present ³
Plant Species				
<i>Abronia umbellata</i> ssp. <i>breviflora</i>	pink sand-verbena	1B	Coastal dunes below 50 feet above Mean Sea Level (MSL); blooms June-October.	Yes
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	1B	Mesic coastal dunes, coastal salt marshes and swamps below 100 feet above MSL; blooms April-October.	Yes
<i>Carex arcta</i>	northern clustered sedge	2	Mesic sites in North Coast coniferous forests, and bogs and fens between approximately 195 and 4,600 feet above MSL; blooms June-August.	No