Biological Assessment

Elk River Wildlife Trail Improvement Project

Prepared for:

City of Eureka

SHN Consulting Engineers & Geologists, Inc.
812 W. Wabash
Eureka, CA 95501-2138
707/441-8855

January 2007
006107

CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash • Eureka, CA 95501-2138 • 707/441-8855 • FAX: 707/441-8877 •shninfo@shn-engr.com

Reference: 006107

January 30, 2007

Mr. Gary Bird
City of Eureka
531 K Street
Eureka, CA 95501-1146

Subject: Biological Resources Assessment and Wetland Delineation for the Elk River Wildlife Trail Improvement Project

Dear Mr. Bird:

Enclosed is the SHN Consulting Engineers & Geologists, Inc. (SHN) biological assessment for the Elk River Wildlife Trail Improvement Project; SHN's wetland delineation report is included as Attachment 1. During 2006, I conducted focused botanical surveys and SHN's wildlife biologist Michael van Hattem conducted wildlife surveys within the Elk River Wildlife Trail Improvement Project study area. The study area extends from approximately the Truesdale Vista Point south to the existing Elk River Wildlife Trail located at the northern boundary of the Eureka wastewater treatment plant.

In summary, one special status plant species, Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) was detected within the study area. Four occurrences of Point Reyes bird's-beak were found in salt marsh habitat in the western portion of the study area. Three special status wildlife species were observed in the study area: Osprey, Brown Pelican, and Double- crested Cormorant. The proposed project is not expected to result in any impacts to these three species or any other special status wildlife species that have suitable habitat in the project area including the Western Snowy Plover. Of the approximately 29-acre study area, approximately 8.12 acres were delineated as wetlands and approximately 0.35 acre of the study area was identified as environmentally sensitive habitat areas. Please see the enclosed report for recommendations to avoid impacts to environmentally sensitive resources, potential trail routes that optimize the viewing of natural resources, and areas where restoration would enhance the natural resources with the trail improvement project.

It has been a pleasure to work with you and the City of Eureka on this project. We look forward to the next phases of the project with the hope that SHN can provide additional biological and ecological coordination on the project.

Sincerely,

SHN Consulting Engineers & Geologists, Inc.

Aimee C. Weber

Aimee C. Weber, CAE
Project Botanist and Project Manager

ACW:lms
Attachment: Biological Resources Assessment and Wetland Delineation

G:\2006\006107 Elk River Wildlife Trail\ltr\bio assessment-cover ltr.doc

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QA/QC:FLC___

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Acronyms and Abbreviations

BIOS	Biogeographical Information and Observation System
BLM	Bureau of Land Management
DFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CSU	California State University
ERWT	Elk River Wildlife Trail
ERWTIP	Elk River Wildlife Trail Improvement Project
ESHA	Environmentally Sensitive Habitat Areas
EWWTP	Eureka Wastewater Treatment Plant
FC	Federal Candidate.
FE	Federally listed Endangered
FT	Federally listed Threatened
HSU	Humboldt State University
MHWM	Mean High Water Mark
MSL	Mean Sea Level
N/A	Not Applicable
NCP	North Crowley Property located immediately north of Hilfiker Road
NR	No Reference
NWI	National Wetland Inventory
SCP	South Crowley Property located immediately south and east of Hilfiker Road.
SE	State listed Endangered
SHN	SHN Consulting Engineers & Geologists, Inc.
SONCC	Southern Oregon Northern California Coast
SSC	Species of Special Concern a
ST	State listed Threatened
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 Introduction

On July 7, 10, 31, August 1, 2, November 29 and 30, and December 19, 2006, SHN Consulting Engineers & Geologists, Inc. (SHN) conducted fieldwork at the proposed Elk River Wildlife Trail Improvement Project (ERWTIP) located in the west ½ of Section 33, Township 5 North, Range 1 West Humboldt Base Meridian (Figure 1). The fieldwork consisted of botanical and wildlife assessments, focused surveys for special status species[1], and a wetland delineation.

2.0 Environmental Setting

2.1 Climate and Project Location

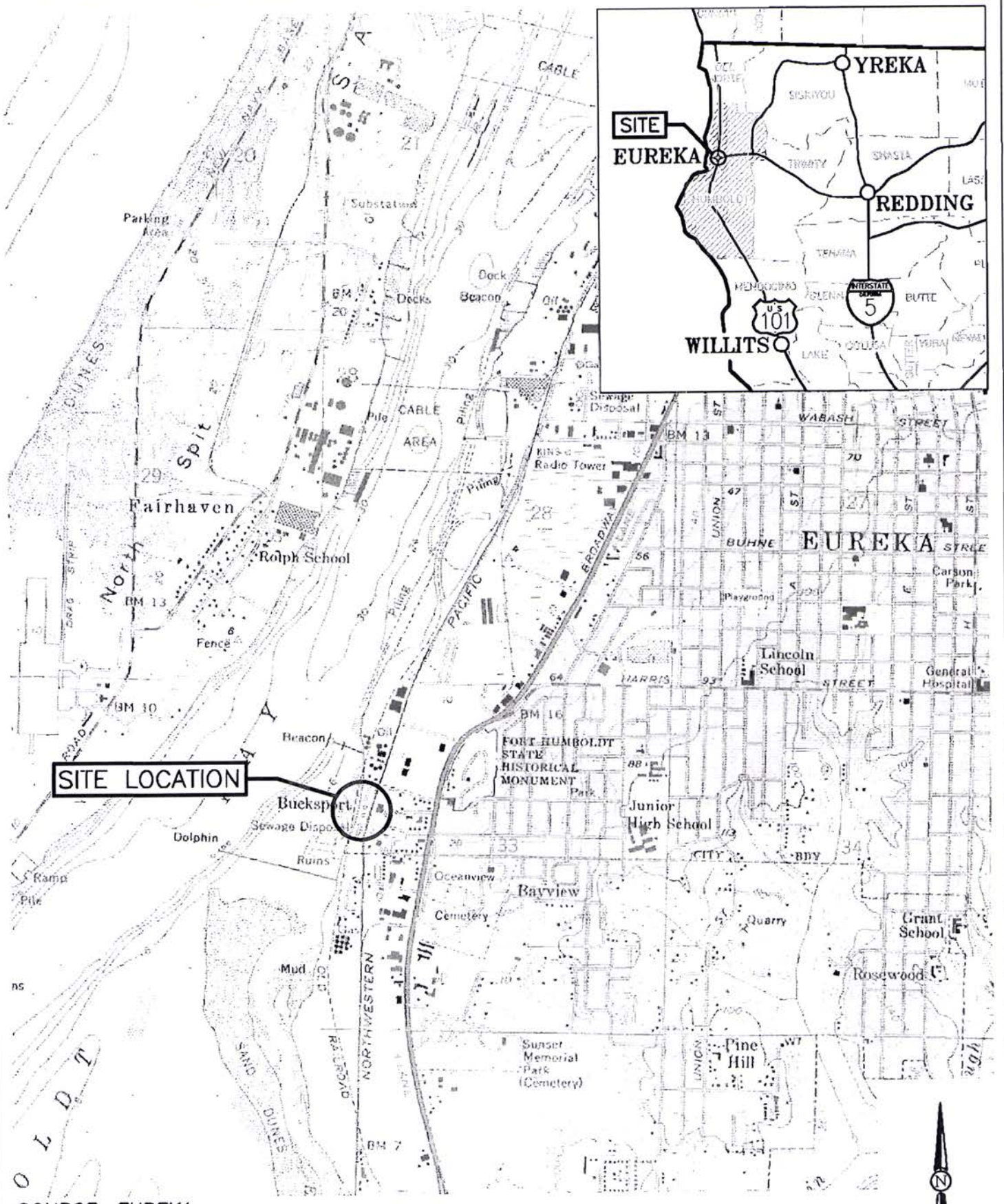
The environmental setting within the City of Eureka is predominately affected by the mild maritime climate, active tectonic processes that are manifested in the geomorphic landscape, and current and historical development. Influence from these factors is evident in the variety of habitat types found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

The study area is located on undeveloped land in the southwest portion of Eureka. The study area extends from approximately the Truesdale Vista Point to the existing Elk River Wildlife Trail (ERWT; Figure 2) located at the northern boundary of the Eureka Wastewater Treatment Plant (EWWTP). The study area is bordered to the north by industrial and residential property, railroad tracks and industrial/retail businesses to the east, the EWWTP to the south, and the Elk River Estuary to the west. For organizational purposes, portions of the study area will be referred to as: 1) the northern industrial yard, 2) the northern Crowley property, 3) the southern Crowley property, 4) the parking and landscaping area, and 5) estuarine habitat (Figure 2).

2.2 Study Area Habitats

Habitats within the project area consist of uplands and wetlands, with several corresponding vegetation communities in each. Upland communities include disturbed, upland forest, and foredune/dunemat. Wetland communities consist of Estuarine intertidal irregularly exposed wetland (salt marsh), Estuarine intertidal regularly exposed, Palustrine forested wetland, Palustrine emergent wetland, and Palustrine scrub-shrub. The wetland community names are consistent with National Wetland Inventory (NWI) classification system. Additional information regarding wetlands within the study area is provided in SHN's Wetland Delineation in (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 3 in section 5.2 of this report.

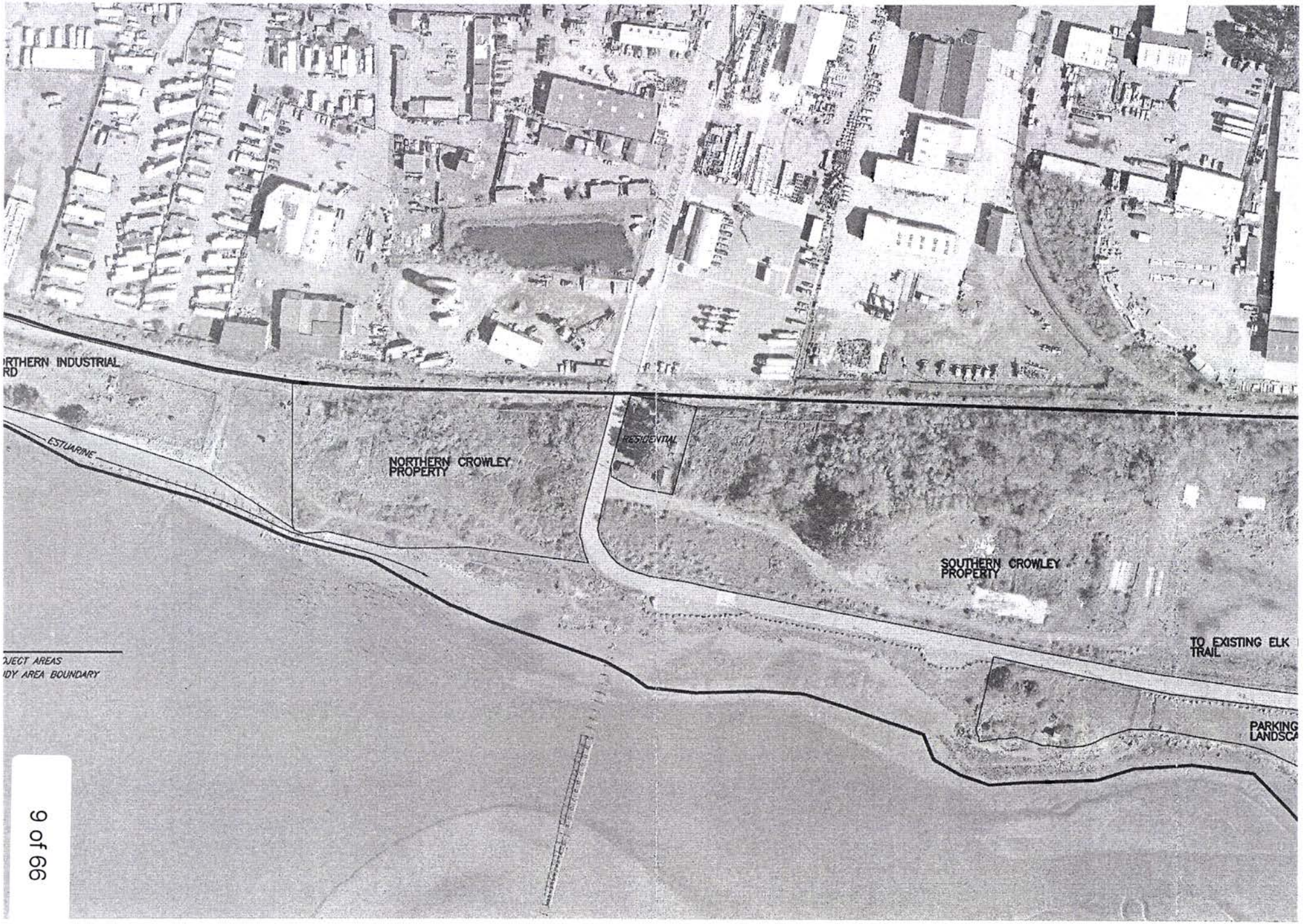
[1] **Special Status Species.** This term is used collectively to refer to species that are state or federally listed, federal species of concern, species that are state candidates for listing, and all species listed by the California Natural Diversity Database. This term is consistent with the biological resources that are assessed pursuant to the California Environmental Quality Act (CEQA).



SOURCE: EUREKA USGS 7.5 MINUTE QUADRANGLE

1"=2000'±

Consulting Engineers & Geologists, Inc.	City of Eureka Elk River Trail Improvement Project Eureka, California	Site Location Map Biological Resources Assessment SHN 006107
	January 2007	006107-LOCATION	Figure 1


RTHERN INDUSTRIAL
RD
ESTUARINE
NORTHERN CROWLEY
PROPERTY
RESIDENTIAL
SOUTHERN CROWLEY
PROPERTY
TO EXISTING ELK
TRAIL
PARKING
LANDSCA
JECT AREAS
DY AREA BOUNDARY

SCALE
1"=100'

2.2.1 Upland Habitat

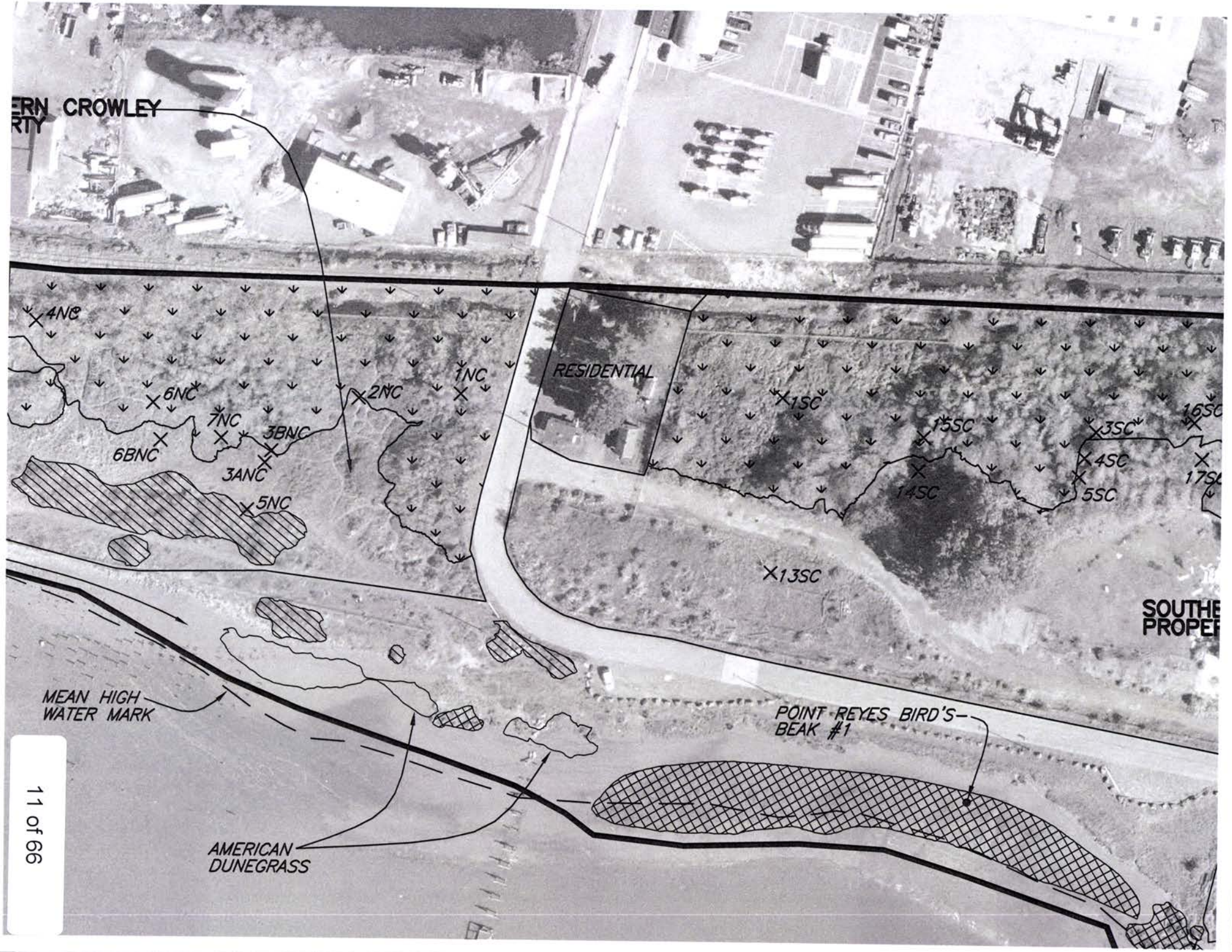
2.2.1.1 Disturbed

Disturbed habitat is scattered throughout the project area, with most of the contiguous portions located several feet above the Mean High Water Mark (MHWM) from the northern industrial yard to the western portion of the southern Crowley property (Figure 3). Some portions of the disturbed upland habitat include former parking areas, building pads, miscellaneous construction material and debris, dilapidated fencing, human encampments and associated debris, driveways and other areas on which gravel fill was placed in the past. Soils within other disturbed areas are sandy (either native or imported fill) and have generally been heavily compacted and are mixed with unsorted rocks, rubble, and other construction debris. Dominant shrubs within the disturbed habitat consist of coyote bush (*Baccharis pilularis*), Himalaya berry (*Rubus discolor*), and Scotch broom (*Cytisus scoparius*) with scattered yellow bush lupine (*Lupinus arboreus*). Although pampas grass (*Cortaderia jubata*) and fennel (*Foeniculum vulgare*) are herbaceous species, they function as the dominant shrubs in the disturbed upland habitat because they do not die back, instead forming dense thickets that provide a canopy over the majority of the herbaceous species. The herbaceous layer is 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*), periwinkle (*Vinca major*), wild radish (*Raphanus sativus*), sweet vernal grass (*Anthoxanthum odoratum*), rattlesnake grass (*Briza maxima*), mustards (*Brassica* spp.), and St. John's wort (*Hypericum perforatum*). Areas with un-compacted sandy soils are dominated with European beachgrass (*Ammophila arenaria*). Isolated patches of willows (*Salix* spp.) are scattered throughout the disturbed habitat, likely where there is concentrated surface drainage in exposed sandy soils. These willow thickets were not delineated as jurisdictional wetlands due to a lack of hydric soil and hydrology indicators. Appendix A presents a more thorough discussion of the willow thickets that were delineated as Environmentally Sensitive Habitat Areas (ESHAs).

A small section of the habitat located in the parking and landscaping area is a mix of disturbed habitat and coastal prairie vegetation. This area is considered degraded coastal prairie habitat and is dominated by bent grass (*Agrostis* sp.), yarrow, common velvet grass, sweet vernal grass (*Holcus lanatus*), California aster (*Aster chilensis*), strawberry (*Fragaria vesca*), and scattered tufted hair-grass (*Deschampsia cespitosa*).

2.2.1.2 Foredune/Dunemat

Vegetation that is characterized as foredune/dunemat is located along the upper margins of Humboldt Bay, east of the estuarine habitat, in more uniformly sandy soils that lack the significant fill materials found in the disturbed habitat. This herbaceous vegetation community is a disturbed form of the sensitive Northern Foredune Grassland community. Dominant species include sandmat (*Cardionema ramosissimum*), European beachgrass, salt rush (*Juncus leseurii*), sweet vernal grass, and sheep sorrel (*Rumex acetosella*), with lesser amounts of beach knotweed (*Polygonum paronychia*), gumweed (*Grindelia stricta*), beach morning glory (*Calystegia soldanella*), hairy cat's ear, and wild radish. Clusters of fennel and pampas grass are scattered throughout the foredune/dunemat habitat.


ERN CROWLEY
RTY
4NC
6NC
7NC
3BNC
6BNC
3ANC
5NC
2NC
1NC
RESIDENTIAL
1SC
15SC
14SC
3SC
4SC
5SC
16SC
17SC
13SC
SOUTHE
PROPER
MEAN HIGH
WATER MARK
POINT REYES BIRD'S-
BEAK #1
AMERICAN
DUNEGRASS

Some portions of the study area that are characterized as foredune/dunemat have a slightly different species composition. Dominant species in those areas, which tend to be located closer to the margin of Humboldt Bay and in the southern portion of the study area, include sea rocket (*Cakile maritima*), dune tansy (*Tanacetum camphoratum*), silver burweed (*Ambrosia chamissonis*), beach morning-glory (*Calystegia soldanella*), dune goldenrod (*Solidago spathulata*), beach buckwheat (*Eriogonum latifolium*), European beachgrass, and scattered American dunegrass (*Leymus mollis*). Habitat along the western boundary of the foredune/dunemat habitat is typically Estuarine intertidal emergent wetland. Two substantial clusters of native American dunegrass are located west of Hilfiker Lane. These stands are of particular note due to the nearly intact native species composition.

2.2.1.3 Upland Forest

The upland forest habitat is associated with a stand of blue gum Eucalyptus trees (*Eucalyptus globulus*) located on the southern Crowley Property, just east of the fire fighting training facility. A small component of upland forest that is dominated by knobcone pine (*Pinus attenuata*) that was planted some time ago is located in the northern industrial yard. The understory vegetation in the upland forest is transitional between upland and wetland, and includes both upland and wetland species such as Pacific bramble (*Rubus ursinus*), Himalaya berry, sweet vernal grass, common velvet grass, Eucalyptus seedlings, holly (*Ilex aquifolium*), and English ivy (*Hedera helix*). Due to the mixed nature of the vegetation, and absence of hydric soil features and wetland hydrology, this habitat was classified as upland (Figure 3). Vegetation transitions to Palustrine shrub-scrub east of the upland forest on the southern Crowley property.

2.2.2 Wetlands

2.2.2.1 Estuarine Wetland

Estuarine intertidal irregularly exposed wetland habitat occupies a narrow band along the waterfront boundary of the study area, below and above the MHWM where there is frequent tidal inundation. The estuarine habitat extends the entire length of the study area from the parking lot at Truesdale Avenue to the existing Elk River Wildlife Trail and contains mostly intact mud flat and salt marsh habitat. Evidence of relict industry includes the former fuel line trestle and other miscellaneous pilings within the estuarine portion of the study area. Appendix A presents a more detailed discussion of the estuarine wetlands and the NWI classifications.

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*), dodder (*Cuscuta salina*), spearscale (*Atriplex triangularis*), and spear oracle (A. *patula*) with lesser amounts of salt rush, gumweed, fleshy jaumea (*Jaumea carnosa*), and tufted hairgrass. The species composition transitions to a combination of the foredune/dunemat vegetation and Estuarine intertidal irregularly exposed wetland vegetation several feet above the MHWM. This wetland habitat is suitable habitat for a number of special status plant species, which is discussed in section 4.1 of this report.

2.2.2.2 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. This habitat type is generally located within the eastern portion of the study area on the northern and southern Crowley properties. This densely vegetated habitat type is dominated by northern willow herb (*Epilobium ciliatum*), silverweed (*Potentilla anserina*), Pacific bramble, creeping buttercup (*Ranunculus repens*), slough sedge (*Carex obnupta*), small fruited bulrush (*Scirpus microcarpus*), lady fern (*Athyrium filix-femina*), nut sedge (*Cyperus eragrostis*), creeping bent-grass (*Agrostis stolonifera*), velvet grass, and rushes (*Juncus effuses* and *J. balticus*). Portions of the Palustrine emergent wetland habitat that have not been significantly disturbed from past land use activities, human encampments, or have had an adequate amount of time to recover from previous disturbances, exhibit a 1-2 inch organic layer on top of gleyed or low chroma soil. If mottles are present, they are abundant and prominent. Both primary and secondary hydrology indicators were found throughout this wetland habitat (Appendix A).

A tidally influenced drainage ditch is located along the eastern boundary of the northern and southern Crowley properties. The ditch originates at the Elk River Estuary, passes under Hilfiker Lane, borders the eastern edge of the southern Crowley property, and extends north along the railroad tracks before passing under Hilfiker Lane again. The ditch daylights at the southeast side of the northern Crowley property and terminates near the northern end of that property. Vegetation within and along the ditch includes a mix of freshwater and brackish tolerant hydrophytes. Dominant species include silverweed, spearscale, common rush, pickleweed, brass-buttons (*Cotula coronopifolia*), and dense-flowered cordgrass, with scattered seaside arrow grass (*Trigolchin maritima*).

2.2.2.3 Palustrine Scrub-Shrub Wetland

Freshwater wetland habitat that has a substantial shrub component is characterized as Palustrine scrub-shrub. 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, Himalaya berry, Pacific bramble, slough sedge, silverweed, creeping bent-grass, common rush, and creeping buttercup with lesser amounts of sword fern (*Polystichum munitum*), lady fern, and northern willow herb. Palustrine scrub-shrub vegetation is scattered throughout the study area with the largest areas occurring in the eastern portion of the northern and southern Crowley properties. The scrub-shrub habitat in the northern Crowley property has been significantly impacted by human encampments and associated debris.

2.2.2.4 Palustrine Forested Wetland

A small stand of Palustrine forested wetland is located on the southern Crowley property between upland habitat and the drainage ditch located along the eastern boundary. The Palustrine forested wetland tends to range one to three feet higher than the ditch and appears to flood in the winter. This habitat is characterized by a pure stand of tall red alder, and an open park-like understory dominated by slough sedge, Pacific bramble, creeping buttercup, common horsetail, and native and non-native grass species. The Palustrine forested wetland transitions with scrub-shrub habitat at the northern and southern extents of it.

3.0 Special Status Species Analysis

Prior to conducting fieldwork, a California Natural Diversity Database (CNDDB, 2006) Rare Find and Biogeographical Information and Observation System (BIOS, 2006) 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; Tibor, 2001).

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Plant Species				
Abronia umbellata ssp. *breviflora*	pink sand-verbena	1B	Coastal dunes below 50 feet above Mean Sea Level (MSL); blooms June-October.	Yes
Astragalus pycnostachyus var. *pycnostachyus*	coastal marsh milk-vetch	1B	Mesic coastal dunes, coastal salt marshes and swamps below 100 feet above MSL; blooms April-October.	Yes
Carex arcta	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
Carex leptalea	flaccid sedge	2	Bogs and fens, meadows and seeps, marshes and swamps from sea level to 2,300 feet above MSL; blooms May-August.	Yes
Carex lyngbyei	Lyngbye's sedge	2	Brackish or freshwater marshes and swamps below 35 feet above MSL; blooms May-August.	Yes

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Carex praticola	meadow sedge	2	Mesic meadows and seeps in North Coast coniferous forests from sea level to 10,500 feet above MSL; blooms May-July.	Yes
Castilleja affinis ssp. *litoralis*	Oregon coast Indian paintbrush	2	Coastal bluff scrub, sandy coastal scrub, and dunes from 50-330 feet above MSL; blooms in June.	Yes
Castilleja ambigua ssp. *humboltiensis*	Humboldt Bay owl's clover	1B	Coastal salt marsh and swamps up to 10 feet above MSL; blooms April-August.	Yes
Cordylanthus maritimus ssp. *palustris*	Point Reyes bird's-beak	1B	Coastal salt marsh and swamps up to 30 feet above MSL; blooms June-October.	Yes
Erysimum menziesii ssp. *eurekense*	Humboldt Bay wallflower	1B/FE/SE	Coastal dunes up to 30 feet above MSL; blooms March-April.	Yes
Erythronium revolutum	coast fawn lily	2	Bogs and fens, mesic areas in broadleaved forests and North Coast coniferous forest, and streambanks up to 3,500 feet above MSL; blooms March-June	No
Fissidens pauperculus	minute pocket-moss	1B	Grows on damp soil along the coast in North Coast coniferous forest from 30-330 feet above MSL.	No
Gilia capitata ssp. *pacifica*	Pacific gilia	1B	Various including coastal bluff scrub and coastal prairie generally below 1,000 feet above MSL; blooms May-August.	Yes
Gilia millefoliata	dark-eyed gilia	1B	Coastal dunes up to 65 feet above MSL; blooms April-July.	Yes

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Hesperevax sparsiflora var. *brevifolia*	short-leaved evax	2	Coastal bluff scrub and coastal dunes up to 700 feet above MSL; blooms March-June.	Yes
Lathyrus japonicus	sand pea	2	Coastal dunes up to 100 feet above MSL; flowers May-August.	Yes
Lathyrus palustris	marsh pea	2	Bogs and fens, coastal prairie, coastal scrub, lower montane coniferous forest, marshes and swamps, North Coast coniferous forest/mesic up to 330 feet above MSL; blooms March-August.	Yes
Layia carnosa	beach layia	1B/FE/SE	Coastal dunes and coastal scrub up to 200 feet above MSL; blooms March-July.	Yes
Lilium occidentale	western lily	1B/FE/SE	Coastal bluff scrub, coastal prairies, openings in North Coast coniferous forests including edges of freshwater marshes and swamps up to 600 feet above MSL; blooms June-July.	Yes
Lycopodium clavatum	running pine	2	Typically on mesic substrate in redwood and mixed conifer forest including woody debris, old roads, and marshes and swamps from 200-2,600 feet above MSL. Identifiable year round; fertile July-August.	Yes

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Mitella caulescens	leafy-stemmed mitrewort	2	Mesic sites in broadleaved upland forest, lower montane coniferous forest, North Coast coniferous forest, and meadows and seeps from 2,000-5,600 feet, above MSL; blooms May-July.	No
Monotropa uniflora	Indian pipe	2	North Coast coniferous forest and broadleaved upland forest from 30-650 feet above MSL; blooms June-July.	No
Montia howellii	Howell's montia	2	Vernally wet, open sites in North Coast coniferous forests including meadows and seeps/often in disturbed areas (e.g. roadsides); blooms in March-May.	No
Puccinellia pumila	dwarf alkali grass	2	Coastal salt marshes and swamps up to 30 feet above MSL; blooms in July.	Yes
Sidalcea malachroides	maple-leaved checkerbloom	1B	Broadleaved upland forest, coastal prairie, coastal scrub, North Coast coniferous forest/ often in disturbed areas (e.g., roadsides) up to 2,300 feet above MSL; blooms April-August.	No
Sidalcea malviflora ssp. *patula*	Siskiyou checkerbloom	1B	Openings in North Coast coniferous forest and coastal prairie from 50-2,300 feet above MSL; blooms May-June.	Yes

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Sidalcea oregana ssp. *eximia*	coast checkerbloom	1B	Openings in lower montane and North Coast coniferous forests, meadows and seeps, and coastal prairie from 15-4,400 feet above MSL; blooms June-August.	Yes
Spergularia canadensis var. *occidentalis*	western sand spurrey	2	Coastal salt marshes and swamps up to 10 feet above MSL; blooms June-August.	Yes
Usnea longissima	long-beard lichen/ Methuselah's beard	N/A	North Coast coniferous forests. Host trees include Douglas fir, redwood, big-leaf maple, oak, and California bay trees. Identifiable year round.	No
Viola palustris	marsh violet	2	Mesic coastal scrub and coastal bogs and fens up to 500 feet above MSL; blooms March-August.	Yes
Wildlife Species				
Accipiter cooperii	Cooper's Hawk	SSC	Non-breeding habitat preference highly variable from closed forests to urban interface. Nesting locations tend to be dense mixed-forests but can also be urban.	Yes
Accipiter striatus	Sharp-Shinned Hawk	SSC	Non-breeding habitat preference highly variable from closed forests to urban interface. Nesting locations tend to be dense mixed-forests but can also be urban.	Yes

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Arborimus albipes	white-footed vole	SSC	Mature coastal forests with dense alder and shrubs, from the Mad River in Humboldt County north.	No
Arborimus pomo	red tree vole	SSC	Mature and immature North Coast coniferous forest; build nests within the living portion of the canopy.	No
Ardea alba	Great Egret	N/A	Colonial nesting species; nests in trees near tideflats, marshes, irrigated pastures, and margins of lakes and rivers.	Yes
Ardea herodias	Great Blue Heron	N/A	Colonial nesting species; nests in trees near tideflats, marshes, irrigated pastures, and margins of lakes and rivers.	Yes
Ascaphus truei	western tailed frog	SSC	Sea level to near timberline in cold fast flowing perennial streams in forested areas.	No
Charadrius alexandrinus nivosus	Western Snowy Plover	FT	Sparsely vegetated beaches, along coastal strip, also inland; ground nester and gregarious in non-breeding season.	Yes
Egretta thula	Snowy Egret	N/A	Colonial nesting species; nests in trees near tideflats, marshes, irrigated pastures, and margins of lakes and rivers.	Yes

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Emys marmorata marmorata	northwestern pond turtle	SSC	Aquatic habitat with some slow water component, basking sites are important, with suitable upland nesting sites within a few hundred meters of aquatic habitat.	Yes
Eucyclogobius newberryi	tidewater goby	FE/SSC	Brackish water habitats along the California coast from San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, where water is fairly still but not stagnant water with high oxygen levels.	Yes
Haliaeetus leucocephalus	Bald Eagle	FT/SE	This species is generally found along ocean shores, lake margins, and rivers. Nests in large, old growth, or live trees with open branches, especially ponderosa pine, within 1 mile of water source. Species roosts communally in winter.	Yes
Martes americana humboldtensis	Humboldt marten	SSC	Mature North Coast coniferous forests.	No
Martes pennanti pacifica	Pacific fisher	FC/SSC	Coniferous forests with old-growth forest components.	No
Myotis evotis	long-eared myotis	N/A	All brushy, woodland, and forest habitats from sea level to approximately 9,000 feet.	No

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Nycticorax nycticorax	Black-crowned Night Heron	N/A	Colonial nesting species; nests in trees near tideflats, marshes, irrigated pastures, and margins of lakes and rivers.	Yes
Oncorhynchus clarii clarki	coast cutthroat trout	SSC	Spawns in small coastal tributary streams, and utilizes slow flowing backwater areas, low velocity pools, and side channels for rearing of young. Prefers good forest canopy cover, in-stream woody debris, from the Eel River north to the Oregon border.	Yes
Oncorhynchus kisutch	southern Oregon Northern California coast (SONCC) Coho salmon	FT/ST	Freshwater, nearshore and offshore environments throughout their lifecycles. Coho prefer low stream velocity, shallow water, and small gravel. Spawning and rearing habitat mainly in low gradient tributaries and side channels of river systems. Require beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water, and sufficient dissolved oxygen.	Yes

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Oncorhynchus mykiss irideus	northern California steelhead	FT/SE	Coastal basins from Redwood Creek south to the Gualala River. Spawning and rearing habitat mainly in low-medium gradient tributaries, side channels, and mainstem of river systems.	Yes
Pandion haliaetus	Osprey	N/A	Primarily along rivers, lakes, bay, and seacoasts. Nests in dead snags, living trees, utility poles, etc. usually near or above water.	Yes
Pelecanus occidentalis	Brown Pelican	FE	Near-shore waters along coast; nests on islands in central and south America.	Yes
Phalacrocorax auritus	Double-crested Cormorant	SSC	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.	Yes
Plethodon elongates	Del Norte salamander	SSC	Rock talus in coniferous forest and under woody debris from sea level to 4,000 feet.	No
Rallus longirostris obsoletus	California Clapper Rail	FE/SE	Exclusively found in tidal salt marshes; thought to be extirpated from Humboldt County.	Yes
Rana aurora aurora	northern red-legged frog	SSC	North Coast coniferous forest; breeds in ponds and slow moving backwater in creeks.	Yes

Table 1
Sensitive Botanical and Wildlife Species Reported from the Eureka Area
Elk River Wildlife Trail Improvement Project, Humboldt County, California

Species Latin Name	Common Name	Listing Status[1]	Preferred Habitat[2]	Habitat Present
Rana boylii	foothills yellow-legged frog	SSC	Shallow, shaded perennial streams with some open canopy; breeds in stream margins.	No
Rhyacotriton variegatus	southern torrent salamander	SSC	North Coast coniferous forest at edges of turbulent, shaded, clear streams.	No
Natural Communities				
Coastal terrace prairie				
Northern coastal salt marsh				
Northern foredune grassland				
Sitka spruce forest				

1. CNPS list 1B includes plants that are rare, threatened, or endangered in California and elsewhere. CNPS List 2 includes plants that are rare, threatened, or endangered in California but more common elsewhere.
   FE: Federally listed Endangered, pursuant to the Endangered Species Act of 1973, as amended. This designation includes taxa that are in danger of extinction throughout all or a significant portion of their range.
   FT: Federally listed Threatened, pursuant to the Endangered Species Act of 1973, as amended. This designation refers to species that are not presently threatened with extinction but are likely to become endangered throughout all or a significant portion of their range in the foreseeable future if special protection and management efforts are not undertaken.
   FC: Federal Candidate. This designation includes taxa that require additional information to propose for listing pursuant to the Endangered Species Act of 1973, as amended.
   SE: State listed Endangered, pursuant to California Endangered Species Act (CESA). SE designation includes taxa that are in danger of extinction throughout all or a significant portion of their range
   ST: State listed Threatened, pursuant to California Endangered Species Act (CESA). ST designation includes taxa that are likely to become endangered throughout a significant portion of their range.
   DFG: California Department of Fish and Game
   SSC: Species of Special Concern are species that the DFG consider of conservation concern. These species must be considered pursuant to CEQA.
   N/A: Not Applicable; species is considered to be sensitive for other reasons such as colonial nesting or that the species is rare or uncommon. While no formal conservation status is afforded, the CNDDB still tracks the presence of these species and they must be considered.
2. Plant habitat descriptions are from CNDDB (August 2006), Tibor (2001), and Hickman (1993)

4.0 Species Descriptions and Habitat Suitability

4.1 Special Status Plant Species

Based on the 30 species reported by the CNDDB, the range of habitats present at the project site, and the geographical range of the various special status species, a list of species that are considered potentially likely to occur in the study area was developed, as described below. Refer to section 5.1 for the results of the focused botanical survey and a list of special status species that were detected in the study area. Focused botanical surveys were conducted on July 7, 10, and 31 and August 1 and 2, 2006.

4.2 Plant Species Descriptions

Pink sand verbena (*Abronia umbellata* ssp. *breviflora*) is an annual herb in the Nyctanginaceae Family that may live up to two years (BLM, March 2005). Pink sand verbena occurs in coastal beach and dune habitat, from sea level to approximately 30 feet above Mean Sea Level (MSL) (Tibor, 2001). This species occurs in foredunes and interdunes with minimal vegetation cover; it is often the closest plant species to the water (CNDDB, 2006). This species blooms June through October (Tibor, 2001). Associated species include sea rocket, burweed, European beachgrass, beach silvertop, and yellow sand verbena ((*Abronia latifolia*). Habitat within the project area for pink sand verbena includes the foredune/dunemat association and scattered patches within the disturbed habitat that intergrades with foredune/dunemat.

Coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *pycnostachyus*) is a perennial herb in the Fabaceae Family that blooms April through October. According to the CNDDB, this species has been extirpated from Humboldt County (CNDDB, 2006). Coastal marsh milk-vetch occurs in mesic dunes and along streams or coastal salt marshes below 100 feet in elevation (Tibor, 2001). Suitable habitat within the project area for this special status species is scattered throughout the Estuarine intertidal wetlands and along the margins of the drainage ditch within the eastern portion of the study area. Due to the lack of a of higher elevation salt marsh with a diverse species assemblage, habitat within the project area is only considered moderately suitable for coastal marsh milk-vetch.

Flaccid sedge (*Carex leptalea)* and **meadow sedge** (*Carex praticola)* are perennials in the Cyperaceae Family. Flaccid sedge blooms May through August; meadow sedge blooms May through July. Suitable habitat for flaccid sedge and meadow sedge includes bogs and fens, mesic meadows, and marshes and swamps typically within North Coast coniferous forest that are variable in elevation (Tibor, 2001). Suitable habitat within the project area includes the Palustrine emergent wetland, specifically in the southern end of the south Crowley property where there is an abundance of herbaceous vegetation. Although these species can occur at or near sea level, habitat within the project area is only considered marginally suitable due to the vicinity of Humboldt Bay and the lack of known occurrences immediately surrounding the Bay.

Lyngbye's sedge (*Carex lyngbyei*) is a perennial in the Cyperaceae Family that blooms May through August (Tibor, 2001). This species occurs in brackish freshwater marshes or swamps (CNDDB, 2006). Suitable habitat for Lyngbye's sedge is scattered throughout the project area and includes

the Palustrine emergent wetland habitat and along the margins of the drainage ditch located in the eastern portion of the study area. Habitat along the brackish drainage ditch is considered highly suitable for this species.

Oregon coast Indian paintbrush (*Castilleja affinis* ssp. *litoralis*) is a perennial in the Scrophulariaceae Family. This species occurs in coastal bluff scrub, coastal dunes, and sandy substrate in coastal scrub that ranges from 50 to 330 feet above MSL (CNDDB, 2006). This special status species blooms in June (Tibor, 2001). Suitable habitat for Oregon coast Indian paintbrush does not occur within the project area but moderately suitable habitat is located south of the project area in the dunes along the Elk River Spit.

Humboldt Bay owl's clover (*Castilleja ambigua* ssp. *humboltiensis*) is a hemiparasitic annual herb in the Scrophulariaceae Family. This species occurs in salt marshes that range from sea level to approximately 10 feet above MSL around Humboldt Bay and Point Reyes in Marin County (Tibor, 2001). Humboldt Bay owl's clover blooms April through August (Tibor, 2001). Suitable moderate to high quality habitat for this special status species is scattered throughout the salt marsh habitat. Portions of the salt marsh habitat that have an intact native species composition and lack or have minor components of dense-flowered cordgrass are most suitable for Humboldt Bay owl's clover.

Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*) is an annual facultative hemiparasitic herb (Eicher, 1987) in the Scrophulariaceae Family. This species occurs in salt marsh habitat that ranges from sea level to 33 feet in elevation; this species blooms June through August (Tibor, 2001). Point Reyes bird's-beak was once rather common in suitable salt marsh habitat but the numbers of occurrences have been greatly reduced by development. Other threats include foot traffic, non-native plants, hydrological alterations, cattle grazing, and trampling (Tibor, 2001). Suitable moderate to high quality habitat for Point Reyes bird's-beak is scattered throughout the salt marsh habitat in the project area, which is identical to suitable habitat for Humboldt Bay owl's clover.

Humboldt Bay wallflower (*Erysimum menziesii* ssp. *eurekense*) is a perennial herb in the Brassicaceae Family. This species is endemic to Humboldt Bay and is known from only six occurrences around the Bay (CNDDB, 2006). Humboldt Bay wallflower blooms March through April (Tibor, 2001). Suitable habitat for this state and federally listed species includes coastal dunes up to approximately 30 feet above MSL that are dominated by northern foredune vegetation (CNDDB, 2006). Suitable habitat for this species is restricted to the foredune/dunemat vegetation located south of the study area that has a fairly intact native species composition and lacks significant cover of European beachgrass.

Pacific gilia (*Gilia capitata* ssp. *pacifica*) is an annual herb in the Polemoniaceae Family. Suitable habitat for this special status species is various and includes coastal bluff scrub and coastal prairie (Tibor, 2001). Occurrences of this species have been reported on Pacific Lumber Company (PALCO) property within meadows and roadsides in Douglas fir dominated areas at elevations that range from 1,000 to 2,950 feet above MSL (CNDDB, 2006). Pacific gilia blooms May through August (Tibor, 2001). Suitable habitat within the project area is limited to the degraded coastal prairie habitat located within the parking and landscape area. This habitat is only considered marginally suitable for supporting occurrences of Pacific gilia.

Dark-eyed gilia (*Gilia millefoliata*) is an annual herb in the Polemoniaceae Family that blooms April through July (Tibor, 2001). This species occurs in coastal dunes up to approximately 65 feet above MSL. Suitable habitat within the project area includes the foredune/dunemat association. Habitat is only considered marginally suitable in the northern portion of the study area where there is greater distribution of non-native species; habitat south of the study area, adjacent to the existing EWWTP, is considered higher quality for a potential occurrence of dark-eyed gilia.

Short-leaved evax (*Hesperevax sparsiflora* var. *brevifolia*) is an annual herb in the Asteraceae Family. Suitable habitat for this species includes sandy substrate on coastal bluff scrub and coastal dunes from sea level to approximately 700 feet above MSL (CNDDB, 2006). This annual herb blooms March through June (Tibor, 2001). Suitable habitat within the project area includes the foredune/dunemat association. Habitat is only considered marginally suitable in the northern portion of the study area where there is greater distribution of non-native species; habitat south of the study area, adjacent to the existing EWWTP, is considered higher quality for a potential occurrence of short-leaved evax.

Sand pea (*Lathyrus japonicus*) is a rhizomatous herb in the Fabaceae Family that blooms May through August (Tibor, 2001). This species occurs in coastal dune habitat, from sea level to approximately 100 feet above MSL (CNDDB, 2006). Based on known occurrences in the Crescent City area of California, sand pea is relatively tolerant of disturbance and competition from non-native species. The foredune/dunemat association throughout the study area is considered moderate to high quality habitat for sand pea.

Marsh pea (*Lathyrus palustris*) is a perennial herb in the Fabaceae Family that blooms March through August (Tibor, 2001). This species occurs in a variety of habitats that include bogs and fens, coastal prairie, coastal scrub, lower montane coniferous forest, marshes and swamps, and mesic locations in North Coast coniferous forest up to 330 feet above MSL (CNDDB, 2006). Suitable habitat within the project area includes the Palustrine emergent wetland and Palustrine scrub shrub. Portions of the study area that are considered most suitable for supporting an occurrence of marsh pea is the Palustrine emergent wetland on the southern Crowley property that has a predominance of native herbaceous vegetation.

Beach layia (*Layia carnosa*) is an annual herb in the Asteraceae that blooms March through July (Tibor, 2001). Suitable habitat for this state and federally listed species includes coastal dunes and coastal scrub up to 200 feet above MSL (CNDDB, 2006). Suitable habitat within the project area includes the foredune/dunemat association. Habitat is only considered marginally suitable in the northern portion of the study area where there is greater distribution of non-native species; habitat south of the study area, adjacent to the existing EWWTP, is considered higher quality for a potential occurrence of beach layia.

Western lily (*Lilium occidentale*) is an herbaceous perennial in the Liliaceae that grows from a deep, rhizatomous bulb. This state and federally listed species occurs within 4 miles of the coast, generally on marine terraces below 300 feet above MSL (CNDDB, 2006). Western lily is known to occur from early successional fens and coastal scrub habitat in northwestern California to southwest Oregon (Kalt, 2006). Habitats with which this species is associated include coastal bluff scrub, coastal prairie, and openings in coastal coniferous forest (Sitka spruce dominated) including freshwater marshes and swamps (CNDDB, 2006). This species emerges in late March or early April and flowers in late June or July (Imper and Sawyer, 1992). The species grows in soils that are

described as well drained or poorly drained, and have a significant layer of organic topsoil (Imper and Sawyer, 1992). The soil profile also includes an iron or clay confining layer, which serves to perch moisture late in the growing season (Imper, 2003). Suitable habitat within the project area for western lily is limited to the Palustrine emergent wetland and the perimeter of the Palustrine scrub shrub that borders the emergent wetland. This habitat is considered marginal to moderately suitable for supporting an occurrence of western lily.

Running pine (*Lycopodium clavatum*) is a trailing rhizomatous herb in the Lycopodiaceae Family. This spore bearing plant is fertile July through August but is identifiable year round (Tibor, 2001). Running pine occurs in a variety of habitats. Suitable habitat ranges from moist areas in redwood or mixed evergreen forests under moderately open to semi-closed canopy (generally on northern aspects or ridge tops), to drier, more exposed areas at the edge of (or within) old skid and haul roads (SHN, 2001). Suitable habitat also includes marshes and swamps from 200-2,600 feet above MSL (Tibor, 2001). Suitable habitat within the project area is limited to the Palustrine emergent wetland. This habitat is only considered marginally suitable because most running pine occurrences are located at higher elevations and further inland from the coast.

Dwarf alkali grass (*Puccinellia pumila*) is a perennial herb in the Poaceae Family that blooms in July (Tibor, 2001). This species occurs in coastal salt marshes and swamps up to 30 feet above MSL (Tibor, 2001). This species is known from only two occurrences in California with only one historical occurrence reported from the Humboldt Bay area (CNDDB, 2006). Suitable moderate to high quality habitat for this is scattered throughout the salt marsh habitat.

Siskiyou checkerbloom (*Sidalcea malviflora* ssp. *patula*) is a perennial in the Malvaceae Family that blooms May to June (Tibor, 2001). This species occurs in openings in North Coast coniferous forest and broadleaved upland forest such as roadsides, grasslands, and meadows and in coastal prairie habitat up to 2,300 feet above MSL (CNDDB, 2006). Suitable habitat within the project area is limited to the degraded coastal prairie habitat located within the parking and landscape area. This habitat is only considered marginally suitable for supporting an occurrence of Siskiyou checkerbloom because of its degraded nature.

Coast checkerbloom (*Sidalcea oregana* ssp. *eximia*) is a perennial in the Malvaceae Family that blooms June to August (Tibor, 2001). This species occurs in openings in lower montane and North Coast coniferous forests and meadows and seeps up to 4,400 feet above MSL (CNDDB, 2006); this species is reported to occur in gravelly soils or native soils that are largely intact (CNDDB, 2006). Both coast checkerbloom and Siskiyou checkerbloom closely resemble each other and their habitats and ranges overlap, which although not specified in the CNDDB or by Tibor (2001), suitable habitat for coast checkerbloom is considered to include coastal bluff and coastal prairie habitats. Suitable habitat within the project area for coast checkerbloom is limited to the degraded coastal prairie habitat located within the parking and landscape area.

Western sand spurrey (*Spergularia canadensis* var. *occidentalis*) is a delicate annual in the Caryophyllaceae Family that blooms June through August (Tibor, 2001). This species is known in California only from Humboldt Bay salt marshes up to 10 feet above MSL (CNDDB, 2006); western sand spurrey is more widespread in Oregon, Washington, and British Columbia (Tibor, 2001). Suitable moderate to high quality habitat is scattered throughout the salt marsh in the project area.

Marsh violet (*Viola palustris)* is perennial (rhizomatous) herb in the Violaceae Family that blooms March through August (Tibor, 2001). This species occurs in mesic coastal scrub and coastal bogs and fens up to 500 feet above MSL; marsh violet is known from only five occurrences in California (CNDDB, 2006). Suitable moderate to high quality habitat for this species includes the Palustrine emergent wetland and Palustrine scrub shrub throughout the project area. A potential occurrence of marsh violet is considered most likely in the Palustrine emergent wetland in the southeast portion of the southern Crowley property where there is a predominance of native herbaceous species.

4.4 Special Status Wildlife Species

Based on the 27 species reported by the CNDDB and BIOS, the range of habitats present at the project site, and the geographical range of the various special status species, a list of species considered potentially likely to occur in the study area was developed, as described below. Refer to section 5.2 of this report for the results of wildlife species detected in the study area.

Cooper's Hawk (*Accipiter cooperii*) and **Sharp-shinned Hawks** (*A. striatus*) are in the Family Accipitridae and are primarily associated with dense forests but can be found in several habitat types including ecotones and urban environments. Passerines (songbirds) are the primary prey of Accipiters and are abundant throughout the project site. Nesting habitat is limited to willow thickets on the northern Crowley property. Other potential nest sites include the knobcone pine trees in the northern industrial yard, and eucalyptus and alder stands on the southern Crowley property. However, these stands lack the structure typical of accipiter nest sites. Human encampments during the breeding season decrease the probability of nesting use by either the Cooper's Hawk or Sharp-shinned Hawk on the northern Crowley property.

Wading birds, including **Great Egrets** (*Ardea alba)*, Cattle Egret *(Bubulcus ibis)*, **Great Blue Herons** *(A. herodias)*, **Snowy Egrets** (*Egretta thula)*, **Black-crowned Night Herons** (*Nycticorax nycticorax)* are in the Family Ardeidae. Herons and egrets are primarily associated with shallow wetland and estuarine habitats where they prey upon fish and amphibians. Other important foraging habitat for herons and egrets includes fields and pastures, where they prey upon abundant small mammals. Wading birds congregate in large breeding colonies during the breeding season making them susceptible to failure if disturbed. While no nesting colonies currently exist within the study area, herons and egrets are common along the estuarine habitat of the Elk River Estuary.

Brown Pelican (*Pelecanus occidentalis*) are in the Family Pelecanidae. The Brown Pelican has a large range extending from North America to South America. Brown Pelican diet consists mostly of fish, especially menhaden, mullet, sardines, pinfish and anchovies in U.S. waters (USFWS, 2005b). Brown Pelicans nest on small islands and are colonial; clutch size is typically 3. Stick nests are built on either low vegetation or the ground. Habitat for the Brown Pelican is mostly along the coast and pelicans are rarely seen inland or far out at sea. Brown Pelicans winter along the west coast of the United States including Humboldt Bay and nest in Central and South America. The northern end of the Elk River Spit is an important loafing and preening area and pelicans were commonly observed during field visits. The Elk River Estuary and Humboldt Bay are important feeding areas for the brown pelican. The current project as proposed will not affect the Brown Pelican.

Western Snowy Plover (*Charadrius alexandrinus nivosus*) are in the Family Charadriidae. The Western Snowy Plover is a small shorebird that typically forages on invertebrates above and below the mean high-water line of coastal beaches. The breeding range of the coastal population of the Western Snowy Plover is between southern Washington and Magdalena Bay, Baja Sur Mexico, and is associated with beach habitats, lagoons, salt evaporation ponds (USFWS, 2005), and in Humboldt County, along gravel bars on the lower Eel River (Colwell et al., 2005). Western Snowy Plovers are facultatively polyandrous and polygynous, and produce 1-3 broods per season. Young are precocial and leave the nest 1-3 hours after hatching to independently forage. Western Snowy Plovers are gregarious and form roosting flocks in the winter.

The U.S. Fish and Wildlife Service (USFWS) listed the coastal population of the Western Snowy Plover as a threatened population segment in 1993 under the federal Endangered Species Act (USFWS, 1993; 58 FR 12864-12874). In 1999, the USFWS designated critical habitat; however, the designation was rescinded due to inadequacies in the economic evaluation component of the designation. Final designation of critical habitat for the Western Snowy Plover occurred in 2005 and included several beaches in Humboldt County and gravel bars on the lower Eel River near Fortuna. The Elk River Wildlife Trail Improvement project area was not included in the final 2005 critical habitat designation for the Western Snowy Plover (USFWS, 2005a).

Since the Western Snowy Plover population segment was listed as Threatened, there has been a concerted effort in Humboldt County by biologists, resource agencies, and university counterparts to survey for plovers primarily during the spring/summer breeding season as well as the late summer and fall non-breeding season. Surveys have primarily focused on Recovery Unit 2, which includes Del Norte, Humboldt, and Mendocino Counties. Based on the preponderance of surveys, the majority of Western Snowy Plovers occur in Humboldt County (USFWS, 2001; Colwell et al., 2005); and primary survey areas within Humboldt County include Little River State Beach and Clam Beach, the South Spit of Humboldt Bay and Eel River Wildlife Areas, and the Eel River gravel bars. Coupled with surveys, numerous recovery actions have occurred within Recovery Unit 2 designed to improve plover nesting success and post-fledging survival in order to recover populations to sustainable levels.

In addition to the aforementioned primary survey locations, "fringe" areas have been surveyed where historical observations exist and suitable habitat remains. This serves to either confirm the presence or absence of plovers, or to detect occupancy as populations shift or habitat changes or more importantly, as populations recover.

The following information represents a summary of surveys completed by a consortium of local biologists (provided by R. LeValley, Mad River Biologists, 2006); as well as historical occurrences contained within the CNDDB. According to the CNDDB, one museum egg set was collected in 1920 from the Elk River Spit, and one pair of plovers was observed in May 1977 (Page and Stenzel, 1981), as well as a single bird three days later. Furthermore, a single plover was observed in October 1979. Three surveys were completed in 1993 and no plovers were observed; a single survey was conducted in 1999 and 2000 and no plovers were observed. From 2001 to present, surveys have been completed that have included multiple visits per year, especially in 2002 when surveys were completed twice a month from January through September (excluding February), resulting in five individual Western Snowy Plover detections. In summary, three surveys were completed in the 1970s, none in the 1980s, four in the 1990s, and 47 surveys since 2000,

culminating in nine Western Snowy Plover detections on the Elk River Spit. Despite survey efforts, nesting on the Elk River Spit by Western Snowy Plovers has not been documented since the 1920 museum egg collection.

On the pacific coast, western snowy plovers are associated with flat, open areas with sandy or saline substrates; the exception would be Eel River gravel bars (USFWS, 2001). In winter, western snowy plovers are found on many of the beaches used for nesting and some of the beaches where they do not nest including estuarine sand and mud flats (USFWS, 2001).

The east side of the Elk River Estuary closest to the project area contains extremely limited foraging habitat and no nesting habitat for the Western Snowy Plover. The most substantial portion of beach habitat is located at the northern extreme of the project area near the proposed Truesdale beach and Park section of the project area. Beach habitat is roughly 20 feet wide, tidally influenced, and abuts disturbed upland habitat and a series of planted knobcone pine trees. The remainder of waterfront habitat adjacent to the project area is Estuarine intertidal emergent wetland habitat located at or near MHWM. Vegetation within this Estuarine intertidal habitat is comprised entirely of herbaceous species with scattered patches of bare ground and brown and green algae (mudflats).

On the west side of the Elk River Estuary, open sand habitat most suitable for Western Snowy Plover use starts around the former fuel line trestle and proceeds to the northern extent of the Elk River Spit. Although beach habitat in this portion of the spit can be fairly wide and seemingly suitable for foraging, nesting is unlikely simply because this is a substantial loafing area (resting and preening) for other shorebird species, waterfowl, gulls, pelicans, wading birds (egrets and herons), and cormorants. Several hundred to a few thousands birds routinely use the northern extent of the spit.

The outer portion of the Elk River Spit from Stinky Beach north contains the most suitable Western Snowy Plover habitat within the vicinity of the project area. As described above, the preponderance of plover detections have occurred on the outer Elk River Spit beach; however, nesting remains to be detected.

The Elk River Estuary and Spit is an important resource for resident and migratory avian species. While surveys have yet to demonstrate Western Snowy Plover nesting activities, plover presence has been detected nine times since 2000. The Humboldt Bay side of the Elk River Spit remains the most suitable Western Snowy Plover habitat in proximity to the project area. It is unlikely that the project as proposed will have any impact on Western Snowy Plover presence, use, or nesting potential on the Elk River Spit.

Northern red-legged frogs (*Rana aurora aurora*) are in the Family Ranidae and are associated with lentic (standing to low flow) conditions for breeding sites. Adults and other age classes are know to disperse great distances (more than 300 meters) and are associated with mesic forests and riparian areas (Pearl, 2005). Due to the mobility of northern red-legged frog, and greater thermal tolerances, northern red-legged frogs are relatively common within the coastal fog belt of Humboldt County. Two ponds located on the south Crowley property have suitable breeding habitat for the northern red-legged frog assuming that salinity is not limiting. Northern red-legged frog were not observed during any of the site visits, however, Pacific tree frogs (*Hyla regilla*) are present, and are often found in similar breeding and non-breeding habitat. Northern red-legged frogs typically breed earliest along the coast compared to inland; however, no egg masses were observed in the northern

pond on December 19, 2006, during a focused survey. Additional surveys in January, February, and March would be necessary to determine if northern red-legged frogs are breeding in the south Crowley ponds.

Northwestern Pond Turtle (*Emys marmorata marmorata*) are in the Family Emydidae and use similar habitat types to the northern red-legged frog. Western pond turtles are also commonly found in lotic (flowing) habitats. Western pond turtles were not observed in the southern Crowley property and their presence is unlikely. However, any conservation measures adopted to benefit the northern red-legged frog will likely benefit the western pond turtle as well.

Tidewater Goby (*Eucyclogobius newberryi*) are in the Family Gobiidae and are endemic to brackish lagoons and estuaries of coastal California from the Smith River in Del Norte County to Agua Hediona Lagoon in San Diego County (Swift et al., 1989). A recent survey by Chamberlain (2006) investigated the environmental variables important to tidewater goby in California lagoons and estuaries in historical locations, as well as documented the current distribution of the species. Surveys were conducted in Humboldt Bay; however, none were conducted in the Elk River Estuary, suggesting that tidewater goby may not be present within the Elk River Estuary or in adjacent wetland habitat. The project as proposed will not affect the Elk River Estuary or wetlands with tidal influence; therefore, no impacts to the tidewater goby are anticipated with implementation of the proposed project.

Coastal cutthroat trout (*Oncorhynchus clarii clarki*) are in the Family Salmonidae and are found in coastal streams from the Eel River to Seward in southeastern Alaska. Populations in the lower Eel River drainage (including tributaries) represent the southern extent of the species range. The project as proposed will not affect the Elk River Estuary; therefore, no impacts to coastal cutthroat trout are anticipated.

Southern Oregon Northern California Coast (SONCC) Coho Salmon (*Oncorhynchus kisutch*) **and northern California steelhead** (*Oncorhynchus mykiss irideus*) are in the Family Salmonidae. The Elk River is an important watershed for both species. However, the project as proposed will not affect the Elk River Estuary; therefore, no impacts to the Coho salmon or steelhead are anticipated.

Ospreys (*Pandion haliaetus*) are in the Family Accipitridae. Ospreys are commonly observed hunting for fish over Humboldt Bay and along the Humboldt County coastline. The Elk River watershed is an important nesting area (Hunter et al., 2005) as prominent snags suitable for nesting are abundant and river corridors appear to be a preferred landscape attribute for Osprey occupancy. The project as proposed will have no impact on Osprey.

Double-crested Cormorants (*Phalacrocorax auritus*) are in the Family Phalacrocoracidae. Double-crested cormorants are piscivorous and common along rocky coasts, beaches, and inland lakes and rivers. Double-crested cormorants were commonly observed sunning and preening on the northern extent of the Elk River Spit. The project as proposed will not affect the Double-crested Cormorant.

The **California Clapper Rail** (*Rallus longirostris obsoletus*)is in the family Rallidae and was once present in Humboldt County; however, habitat loss and alteration from both human activities and invasion by non-native plant species has largely contributed to the extirpation of this species in Humboldt County (Hunter et al., 2005). One specimen was collected in 1917, and the last

unverified reports of California Clapper Rails in Humboldt Bay occurred in the 1930s (Hunter et al., 2005). The California Clapper Rail is almost entirely associated with the remaining salt marsh habitat of the San Francisco Bay. The project as proposed will not affect the California Clapper Rail.

The Bald Eagle (*Haliaeetus leucocephalus*) is a member of the Family Accipitridae. Bald Eagles are found throughout North America. Bald Eagles are opportunistic foragers with variable diets based of prey availability. Bald Eagles build large stick nests that are often reused from year to year by the same pair. Breeding habitat is associated with aquatic habitats (coastal areas, rivers, lakes, and reservoirs) with forested shorelines or cliffs in North America (USFWS, 2005c). Bald Eagles will not be affected by the project as proposed.

4.5 CNDDB Natural Communities

Natural communities are habitats that are generally defined by vegetation type and geographical location and are increasingly restricted in abundance and distribution. CNDDB natural communities are habitat for numerous special status plant and animal species. The natural communities that are included in the CNDDB are based on the state and global ranking status, which provides an estimate of the number of acres that remains of a particular community and threat level designation. Recognition of natural communities is an ecosystem-based approach to maintaining biodiversity in California.

Coastal Terrace Prairie. Coastal terrace prairie is a native grassland community found on sandy, marine terraces within the zone of fog intrusion. This habitat is dominated by fairly tall (greater than 3 feet) sod and tussock-forming perennial grasses. Herbaceous annual species are typically scattered amongst the grasses. Much of California's coastal prairie habitat has been destroyed by agricultural conversion and development. The remaining areas are also threatened by the invasion of non-native species such as annual fescues (*Vulpia* sp.), nonnative bromes (*Bromus* sp.), and oats (*Avena* sp.). The state rarity status for coastal terrace prairie is very threatened (S2.1) with 2,000-10,000 acres remaining in the state. A disturbed form of coastal prairie that intergrades with disturbed upland habitat is located within the parking and landscaping portion of the study area.

Northern Coastal Salt Marshes. Northern coastal salt marshes develop along the intertidal shores of bays, lagoons, and estuaries. The historic distribution of northern coastal salt marsh in Humboldt County and throughout California has been greatly reduced by agricultural conversion, diking, and coastal development. Native species commonly associated with northern coastal salt marsh include spearscale, tufted hairgrass, saltgrass, gumweed, salt rush, pickleweed, and silverweed. A number of sensitive plant species are found within this habitat type (refer to Table 1). The state rarity status for northern coastal salt marsh is very threatened (state rank S2) with 2,000 to 10,000 acres remaining in the state. This natural community is located throughout the western portion of the study area.

Northern Foredune Grassland. Northern foredune grassland habitat is located in active coastal dune areas where plants are subject to desiccating, salt-bearing winds. Perennial grasses that are up to 2.5 feet tall dominate this habitat. Coverage varies from dense to scattered. Dominant grass species in North Coast foredune habitat are almost always European dunegrass and American dunegrass. Succulent, perennial herbs and stunted shrubs approximately 10 inches tall are often interspersed amongst the grasses. Associates typically include yellow sand verbena, silver beachweed, and sea rocket in areas most exposed to the wind and beach morning glory, and beach