

**Elk River Trail Wildlife Improvement Project  
Phase I and II Biological Assessments**

# Biological Assessment

## Elk River Wildlife Trail Improvement Project

Prepared for:

**City of Eureka**



**Consulting Engineers & Geologists, Inc.**

812 W. Wabash  
Eureka, CA 95501-2138  
707/441-8855

January 2007  
006107



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, CAE  
Project Botanist and Project Manager

ACW:lms

Attachment: Biological Resources Assessment and Wetland Delineation

Reference: 006107

# Biological Assessment

## Elk River Wildlife Trail Improvement Project

Prepared for:

**City of Eureka**

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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
EWWTIP	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<sup>1</sup>, 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.

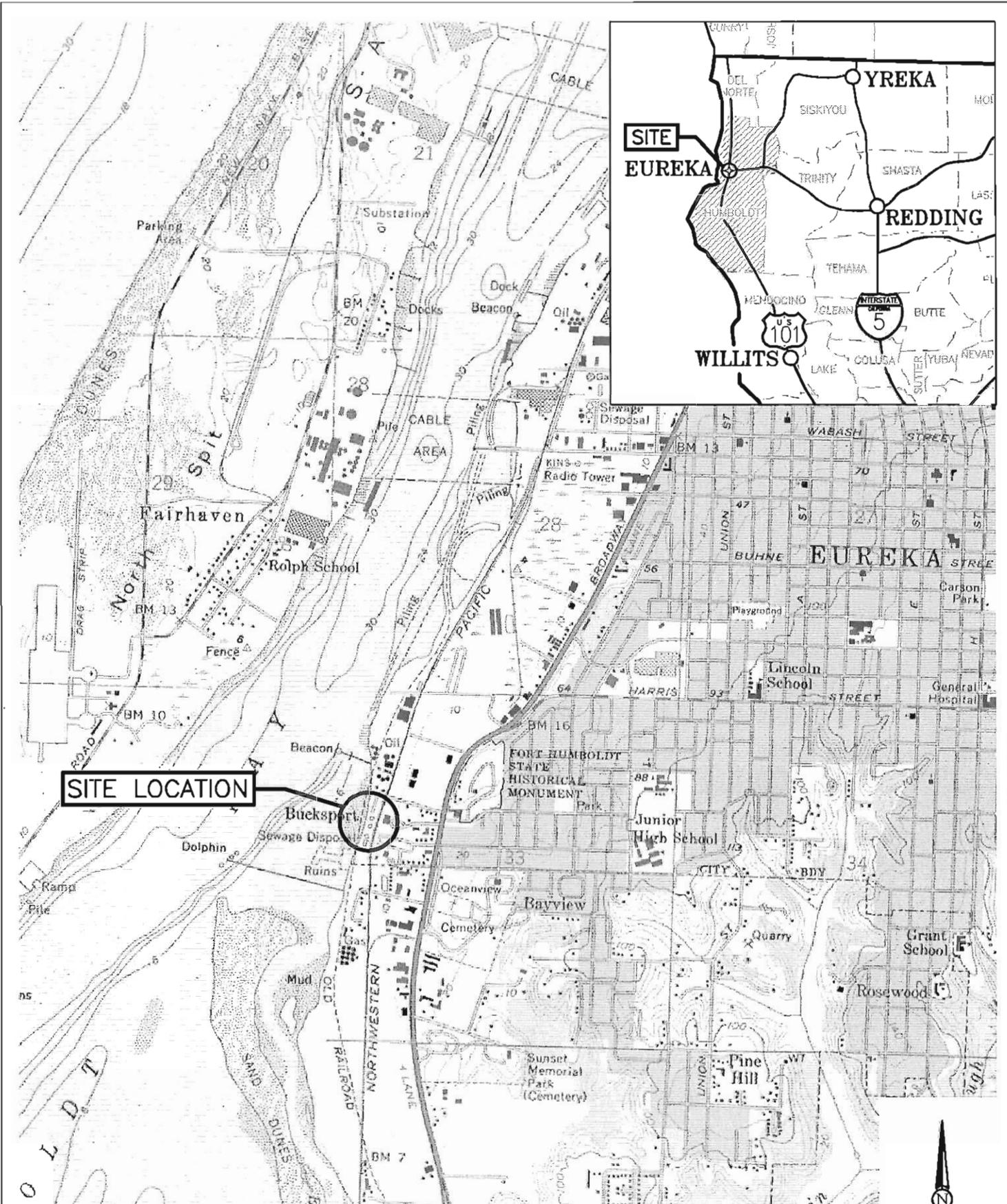
The study area is located on undeveloped land in the southwest portion of Eureka. The study area extends from approximately the Truesdale Vista Point to the existing Elk River Wildlife Trail (ERWT; Figure 2) located at the northern boundary of the Eureka Wastewater Treatment Plant (EWWTP). The study 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.

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<sup>1</sup> **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



	<p>City of Eureka Elk River Trail Improvement Project Eureka, California</p>	<p>Site Location Map Biological Resources Assessment SHN 006107</p>	<p>January 2007</p>
<p>006107-LOCATION</p>		<p>Figure 1</p>	

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**EXPLANATION**

— PROJECT AREAS

— STUDY AREA BOUNDARY

SCALE  
1"=100'

VERIFY SCALES  
BASED ON ONE INCH ON ORIGINAL DRAWING  
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

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DSGN	DR	CHK	APVD

CITY OF EUREKA  
ELK RIVER WILDLIFE TRAIL IMPROVEMENT PROJECT  
EUREKA, CALIFORNIA

**BIOLOGICAL RESOURCES  
ASSESSMENT STUDY AREA**

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## 2.2.1 Upland Habitat

### 2.2.1.1 Disturbed

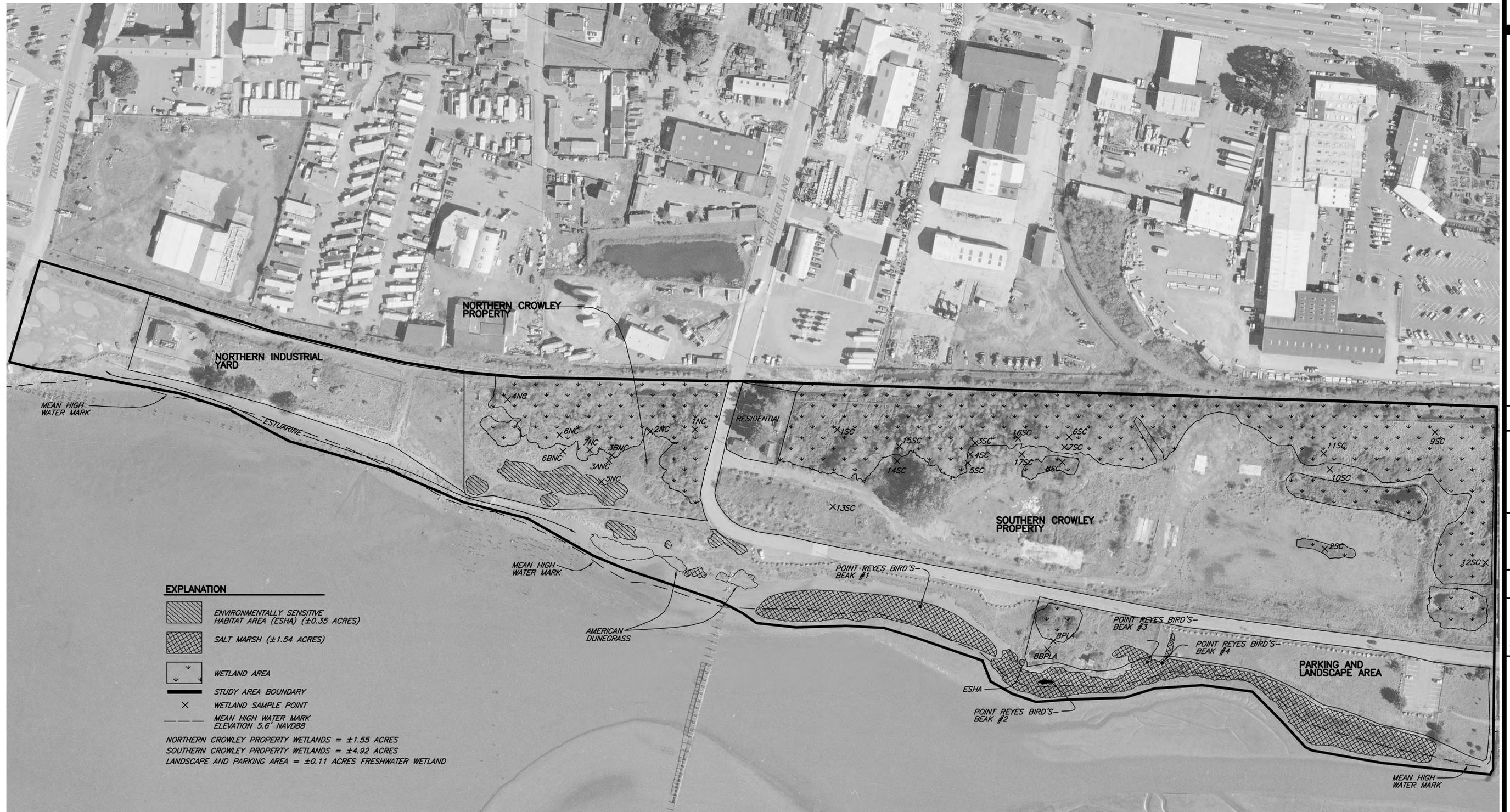
Disturbed habitat is scattered throughout the project area, with most of the contiguous portions located several feet above the Mean High Water Mark (MHW) from the northern industrial yard to the western portion of the southern Crowley property (Figure 3). Some portions of the disturbed upland habitat 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.

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**EXPLANATION**

-  ENVIRONMENTALLY SENSITIVE HABITAT AREA (ESHA) (±0.35 ACRES)
  -  SALT MARSH (±1.54 ACRES)
  -  WETLAND AREA
  -  STUDY AREA BOUNDARY
  -  WETLAND SAMPLE POINT
  -  MEAN HIGH WATER MARK ELEVATION 5.6' NAVD88
- NORTHERN CROWLEY PROPERTY WETLANDS = ±1.55 ACRES  
 SOUTHERN CROWLEY PROPERTY WETLANDS = ±4.92 ACRES  
 LANDSCAPE AND PARKING AREA = ±0.11 ACRES FRESHWATER WETLAND

**SCALE**  
1" = 100'

VERIFY SCALES  
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DSGN DR CN/CMR  
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 CITY OF EUREKA  
 ELK RIVER WILDLIFE TRAIL IMPROVEMENT PROJECT  
 EUREKA, CALIFORNIA  
**BIOLOGICAL RESOURCES ASSESSMENT**

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 DATE 1/2007  
 PROJ. NO. 006107

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 caniphoratum*), 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 MHWL 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 MHWL. 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 (*Triglochin 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 (CNDDDB, 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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<b>Plant Species</b>				
<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
<i>Carex leptalea</i>	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
<i>Carex lyngbyei</i>	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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<i>Carex praticola</i>	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
<i>Castilleja affinis</i> ssp. <i>litoralis</i>	Oregon coast Indian paintbrush	2	Coastal bluff scrub, sandy coastal scrub, and dunes from 50-330 feet above MSL; blooms in June.	Yes
<i>Castilleja ambigua</i> ssp. <i>humboltiensis</i>	Humboldt Bay owl's clover	1B	Coastal salt marsh and swamps up to 10 feet above MSL; blooms April-August.	Yes
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	Point Reyes bird's-beak	1B	Coastal salt marsh and swamps up to 30 feet above MSL; blooms June-October.	Yes
<i>Erysimum menziesii</i> ssp. <i>eurekaense</i>	Humboldt Bay wallflower	1B/FE/SE	Coastal dunes up to 30 feet above MSL; blooms March-April.	Yes
<i>Erythronium revolutum</i>	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
<i>Fissidens pauperculus</i>	minute pocket-moss	1B	Grows on damp soil along the coast in North Coast coniferous forest from 30-330 feet above MSL.	No
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	1B	Various including coastal bluff scrub and coastal prairie generally below 1,000 feet above MSL; blooms May-August.	Yes
<i>Gilia millefoliata</i>	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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<i>Hesperovax sparsiflora</i> var. <i>brevifolia</i>	short-leaved evax	2	Coastal bluff scrub and coastal dunes up to 700 feet above MSL; blooms March-June.	Yes
<i>Lathyrus japonicus</i>	sand pea	2	Coastal dunes up to 100 feet above MSL; flowers May-August.	Yes
<i>Lathyrus palustris</i>	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
<i>Layia carnosa</i>	beach layia	1B/FE/SE	Coastal dunes and coastal scrub up to 200 feet above MSL; blooms March-July.	Yes
<i>Lilium occidentale</i>	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
<i>Lycopodium clavatum</i>	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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<i>Mitella caulescens</i>	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
<i>Monotropa uniflora</i>	Indian pipe	2	North Coast coniferous forest and broadleaved upland forest from 30-650 feet above MSL; blooms June-July.	No
<i>Montia howellii</i>	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
<i>Puccinellia pumila</i>	dwarf alkali grass	2	Coastal salt marshes and swamps up to 30 feet above MSL; blooms in July.	Yes
<i>Sidalcea malachroides</i>	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
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<i>Sidalcea oregana</i> ssp. <i>eximia</i>	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
<i>Spergularia canadensis</i> var. <i>occidentalis</i>	western sand spurrey	2	Coastal salt marshes and swamps up to 10 feet above MSL; blooms June-August.	Yes
<i>Usnea longissima</i>	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
<i>Viola palustris</i>	marsh violet	2	Mesic coastal scrub and coastal bogs and fens up to 500 feet above MSL; blooms March-August.	Yes
<b>Wildlife Species</b>				
<i>Accipiter cooperii</i>	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
<i>Accipiter striatus</i>	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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<i>Arborimus albipes</i>	white-footed vole	SSC	Mature coastal forests with dense alder and shrubs, from the Mad River in Humboldt County north.	No
<i>Arborimus pomo</i>	red tree vole	SSC	Mature and immature North Coast coniferous forest; build nests within the living portion of the canopy.	No
<i>Ardea alba</i>	Great Egret	N/A	Colonial nesting species; nests in trees near tideflats, marshes, irrigated pastures, and margins of lakes and rivers.	Yes
<i>Ardea herodias</i>	Great Blue Heron	N/A	Colonial nesting species; nests in trees near tideflats, marshes, irrigated pastures, and margins of lakes and rivers.	Yes
<i>Ascaphus truei</i>	western tailed frog	SSC	Sea level to near timberline in cold fast flowing perennial streams in forested areas.	No
<i>Charadrius alexandrinus nivosus</i>	Western Snowy Plover	FT	Sparsely vegetated beaches, along coastal strip, also inland; ground nester and gregarious in non-breeding season.	Yes
<i>Egretta thula</i>	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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<i>Emys marmorata marmorata</i>	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
<i>Eucyclogobius newberryi</i>	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
<i>Haliaeetus leucocephalus</i>	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
<i>Martes americana humboldtensis</i>	Humboldt marten	SSC	Mature North Coast coniferous forests.	No
<i>Martes pennanti pacifica</i>	Pacific fisher	FC/SSC	Coniferous forests with old-growth forest components.	No
<i>Myotis evotis</i>	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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	N/A	Colonial nesting species; nests in trees near tideflats, marshes, irrigated pastures, and margins of lakes and rivers.	Yes
<i>Oncorhynchus clarii clarki</i>	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
<i>Oncorhynchus kisutch</i>	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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<i>Oncorhynchus mykiss irideus</i>	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
<i>Pandion haliaetus</i>	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
<i>Pelecanus occidentalis</i>	Brown Pelican	FE	Near-shore waters along coast; nests on islands in central and south America.	Yes
<i>Phalacrocorax auritus</i>	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
<i>Plethodon elongates</i>	Del Norte salamander	SSC	Rock talus in coniferous forest and under woody debris from sea level to 4,000 feet.	No
<i>Rallus longirostris obsoletus</i>	California Clapper Rail	FE/SE	Exclusively found in tidal salt marshes; thought to be extirpated from Humboldt County.	Yes
<i>Rana aurora aurora</i>	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 <sup>1</sup>	Preferred Habitat <sup>2</sup>	Habitat Present
<i>Rana boylei</i>	foothills yellow-legged frog	SSC	Shallow, shaded perennial streams with some open canopy; breeds in stream margins.	No
<i>Rhyacotriton variegatus</i>	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

- 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 CNDDDB still tracks the presence of these species and they must be considered.
- Plant habitat descriptions are from CNDDDB (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 CNDDDB, 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 Nyctaginaceae 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 (CNDDDB, 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 CNDDDB, this species has been extirpated from Humboldt County (CNDDDB, 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 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.

**Lynngbye's sedge** (*Carex lynngbyei*) is a perennial in the Cyperaceae Family that blooms May through August (Tibor, 2001). This species occurs in brackish freshwater marshes or swamps (CNDDDB, 2006). Suitable habitat for Lynngbye'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 (CNDDDB, 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. *eurekaense*) 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 (CNDDDB, 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 (CNDDDB, 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 (CNDDDB, 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** (*Hesperis matronalis* 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 (CNDDDB, 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 (CNDDDB, 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 (CNDDDB, 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 (CNDDDB, 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, rhizomatous bulb. This state and federally listed species occurs within 4 miles of the coast, generally on marine terraces below 300 feet above MSL (CNDDDB, 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 (CNDDDB, 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 (CNDDDB, 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 (CNDDDB, 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 (CNDDDB, 2006); this species is reported to occur in gravelly soils or native soils that are largely intact (CNDDDB, 2006). Both coast checkerbloom and Siskiyou checkerbloom closely resemble each other and their habitats and ranges overlap, which although not specified in the CNDDDB 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 (CNDDDB, 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 (CNDDDB, 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 CNDDDB 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 CNDDDB. According to the CNDDDB, 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 MHW. 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 thousand 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 known 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 frogs 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 Hedionna 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 kisutchi*) 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 on 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 CNDDDB Natural Communities

Natural communities are habitats that are generally defined by vegetation type and geographical location and are increasingly restricted in abundance and distribution. CNDDDB natural communities are habitat for numerous special status plant and animal species. The natural communities that are included in the CNDDDB 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

primrose (*Camissonia cheiranthifolia*) in more sheltered sites (Holland, 1986). The state rarity status for northern foredune grassland is very threatened (state rank S1) with less than 2,000 acres remaining in the state. A disturbed form of northern foredune grassland and dunemat vegetation is located throughout the western portion of the study area.

**Sitka Spruce Forest.** Sitka spruce grows in mild wet coastal climates and occurs in a narrow band along the Pacific coast from Northern California to Alaska. Sitka spruce forest is usually found growing on steep seaward upland slopes or topographically flat areas, but can also occur in wetlands, such as stream and river backwaters, bottoms, and floodplains. Species commonly associated with upland Sitka spruce forests include redwood (*Sequoia sempervirens*), western hemlock (*Tsuga heterophylla*), hazelnut (*Corylus cornuta*), cascara (*Rhamnus purshiana*), salmonberry (*Rubus spectabilis*), Douglas's iris (*Iris douglasiana*), false lily-of-the-valley (*Maianthemum dilatatum*), and sword fern. The state rarity status for Sitka spruce forest is very threatened (state rank S1.1) with less than 2,000 acres remaining in the state.

Palustrine forested wetlands that are dominated with Sitka spruce have a different assemblage of species. The overstory typically consists of Sitka spruce, Oregon crabapple (*Malus fusca*), red alder, with a subcanopy of cascara, willows, twinberry (*Lonicera involucrate*), and wax myrtle (*Myrica californica*). Dominant shrubs include salmonberry, thimbleberry (*Rubus parviflorus*), and elderberry (*Sambucus racemosa*). Common herbaceous species are sword fern, false lily-of-the-valley, milk maids (*Cardamine californica*), Douglas iris, and grass species including Pacific reed grass (*Calamagrostis nutkaensis*).

No Sitka spruce forests are located within the project area.

## 5.0 Survey Results

### 5.1 Special Status Plant Species

Out of the 22 special status plant species that have suitable habitat in the study area, the only species that was detected during the focused botanical surveys was Point Reyes bird's-beak. Four occurrences of this species were encountered in the Estuarine intertidal emergent habitat (Figure 3). Table 2 presents dominant species and phenological stage information for each occurrence.

Occurrence No.	Number of Plants	Phenological Stage	Dominant Species
1	1	Flower	<i>Salicornia virginica</i> 50% <i>Spartina densiflora</i> 25% Bare ground 20% <i>Triglochin maritima</i> 5% <i>Cordlylanthus maritimus</i> ssp. <i>palustris</i> 5%
2	>100	Half flower/ half fruit	<i>Salicornia virginica</i> 50% <i>Cordlylanthus maritimus</i> ssp. <i>palustris</i> 25% <i>Spartina densiflora</i> 10% <i>Spergularia macrotheca</i> 10% <i>Jaumea carnosa</i> 5%
3	1	Flower	<i>Salicornia virginica</i> 50% <i>Distichlis spicata</i> 25% <i>Spartina densiflora</i> 10% <i>Jaumea carnosa</i> 5% <i>Atriplex patula</i> 5% <i>Cordlylanthus maritimus</i> ssp. <i>palustris</i> 5%
4	44	Flower	<i>Salicornia virginica</i> 50% <i>Cordlylanthus maritimus</i> ssp. <i>palustris</i> <i>Cordlylanthus maritimus</i> ssp. <i>palustris</i> 20% <i>Spergularia macrotheca</i> 15% <i>Spartina densiflora</i> 10% Bare ground 5%

The northernmost occurrence consisted of only one individual flowering plant, without fruit developing. Occurrence number 2 was the largest out of the four occurrences and consisted of over 100 individuals (Figure 3). Occurrence number 3 was located in a salt marsh pocket that is infrequently tidally inundated and is located above the MHW. This occurrence was the only one where salt grass was a dominant species. Threats to the Point Reyes bird's-beak occurrences include competition with non-native species but, otherwise, the occurrences are relatively protected from other threats such as foot traffic and trampling. A CNDDDB occurrence form will be submitted to the database.

Pink sand verbena was not detected in the study area during the 2006 focused surveys but it should be noted that one plant was detected in the study area during a 1999 survey (SHN, 1999). The individual occurred in the foredune/dunemat habitat located west of the northern Crowley property (SHN, 1999).

## 5.2 Special Status Plant Wildlife Survey Results

Thirty-four avian species and two mammal species were observed during the field visits (Table 3). Three of the 27 special status species known to occur within the vicinity of the study area were observed including the Osprey, Brown Pelican, and Double-crested Cormorant.

**Table 3**  
**Wildlife Species Observed During**  
**Elk River Wildlife Trail Improvement Project 2006 Surveys, Eureka, California**

Species	Date Observed	Area where bird was observed
Violet Green Swallow	7/7	NIY <sup>1</sup> , NCP <sup>2</sup>
Cliff swallow	7/7	NIY, NCP
Barn Swallow	7/7	NIY, NCP
American Goldfinch	7/7/, 7/12	NIY, NCP, SCP <sup>3</sup>
Lesser Goldfinch	11/30	SCP
House Sparrow	7/7	NIY, NCP
Song Sparrow	7/7/, 7/12	NIY, NCP, SCP
Fox Sparrow	11/29, 11/30	NCP, SCP
White-crowned Sparrow	7/12, 11/30	SCP
Osprey	7/7/, 7/12	Over Bay
Red-shouldered Hawk	11/29	SCP
American Kestrel	11/30	SCP
Forester's Tern	7/7/, 7/10	Estuary/Spit
Double-crested Cormorant	7/7, 11/29	Estuary/Spit
Brown Pelican	7/7	Estuary/Spit
Great Egret	7/7, 11/29	Estuary/Spit
Great Blue Heron	7/12, 11/29	SCP
European Starling	7/7	NIY, NCP
Cedar Waxwing	7/7/06	NIY, NCP
Marbled Godwit	7/7, 7/10, 11/29	Estuary/Spit
Western Sandpiper	7/7/06	Estuary/Spit
Western Gull	7/7, 11/29	Estuary/Spit
Herring Gull	7/7, 11/29	Estuary/Spit
Black Phoebe	7/12, 11/30	SCP
Bushtit	11/30	SCP
Marsh Wren	11/30	SCP
California Towhee	11/30	SCP
Western Meadowlark	11/30	SCP
American Robin	11/30	SCP
Purple Finch	7/12	SCP
Ruby-crowned Kinglet	11/29	NCP
Bufflehead	11/29	Estuary/Spit
Widgeon	11/29	Estuary/Spit
Mallard	7/7, 11/30	Estuary/Spit, SCP
<b>Mammals</b>		
Raccoon	7/7/06	Estuary/Spit
Gray Fox	7/12	SCP

1. NIY: Industrial yard located on the north end of the study area.
2. NCP: North Crowley Property located immediately north of Hilfiker Road.
3. SCP: South Crowley Property located immediately south and east of Hilfiker Road.

## 6.0 Recommendations

### 6.1 Wetlands

The study area contains a total of approximately 8.12 acres of wetlands (Figure 3). Approximately 6.58 acres are Palustrine emergent/scrub shrub and approximately 1.54 acres are Estuarine intertidal. In addition to delineating jurisdictional wetlands, approximately 0.35 acres were delineated as ESHAs (Figure 3).

### 6.2 Special Status Plant Species

If the proposed trail improvement project includes any impacts to the high quality sand dune and northern foredune vegetation located south of the study area, adjacent to the existing EWWTP, a focused survey should be conducted for Humboldt Bay wallflower. This species flowers March through April and was not surveyed during the floristically appropriate period in 2006 because floristic surveys started in July.

Avoidance of the Point Reyes bird's-beak occurrences in the study area is highly recommended. Any impacts to these plants would not only require mitigation that reduces potential impacts to a less than significant level pursuant to §15380 of the California Environmental Quality Act (CEQA), but would also require state and federal permits if the wetland habitat that this special status species occurs in is impacted. The proposed project should avoid all salt marsh habitat, as this is a jurisdictional wetland that is regulated by a number of resource agencies and supports special status plant species. The proposed project should incorporate a buffer and best management practices during construction operations to ensure that there are no impacts, including but not limited to alteration of the hydrologic regime. Altering the hydrology of the salt marsh, which could include increased erosion into the salt marsh, could result in secondary impacts such as displacement of native salt marsh species and an increase in the cover of non-native species.

If the proposed project avoids the Point Reyes bird's-beak occurrences and does not include any impacts to suitable habitat for Humboldt Bay wallflower, no further botanical coordination is recommended for the proposed project.

### 6.3 Wildlife Species

The northern industrial yard currently offers little to no habitat value for wildlife and could be greatly improved by removing construction debris and human encampments. Replanting the northern industrial yard with native trees and shrubs would greatly improve the overall habitat values of this section of the study area. The majority of the northern Crowley property has the potential to be high quality habitat for wildlife. The wetland/upland mosaic is attractive to many bird species. Unfortunately, the current condition of the northern Crowley property is degraded due to human encampments in nearly every willow thicket. This portion of the study area would be greatly improved by the development of the Elk River Wildlife Trail and removal of human encampments and debris. The southern Crowley property has great potential for wildlife use primarily due to the extensive wetlands that exist on this portion of the study area. The estuarine habitat portion of the study area could be greatly improved for wildlife by removing invasive non-native plants that form low-diversity monocultures and restoring native plants.

All wetlands should be avoided to the extent possible and areas delineated as ESHAs should be preserved. Additionally, the clusters of American dunegrass in the western portion of the study area should be preserved and enhanced to the extent possible. There is a unique opportunity to incorporate the wetlands and ESHA throughout the project area with the proposed trail improvements. Quality wildlife viewing occurs on the northern Crowley property and placement of the trail between the ESHA and wetlands would contribute immensely to this opportunity. If the trail is placed on the southern Crowley property, we recommend locating it close to the wetlands to maximize viewing the area's natural resources. There is ample upland habitat along the western portion of the study area to place the trail in a manner to maximize viewing scenic and natural resources in Humboldt Bay and the Elk River Estuary. The trail should be routed around the Palustrine emergent wetland and salt marsh habitat in the parking and landscape area to avoid impacts to these environmentally sensitive resources.

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Appendix A

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**Wetland Delineation**



Reference: 006107

January 30, 2007

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

**Subject: Wetland Delineation for the Proposed Elk River Trail Improvement Project, Eureka, California**

Dear Mr. Bird:

On July 10 and 31, August 1, and November 29 and 30, 2006, SHN Consulting Engineers & Geologists, Inc. (SHN) completed a wetland delineation within the city limits of Eureka, California (west ½ of Section 33, Township 5 North, Range 1 West Humboldt Base Meridian; Figure 1). The study area encompasses approximately 29 acres and is bordered to the north by industrial and residential property, to the east by railroad tracks and industrial/retail businesses, to the south by the Eureka Wastewater Treatment Plant, and to the west by the Elk River Estuary. A 2002 aerial photograph obtained from the City of Eureka (City) was used as the base map for fieldwork and reporting.

This wetland delineation was conducted in accordance with the U.S. Army Corps of Engineers (ACOE) 1987 *ACOE Wetland Delineation Manual* (Environmental Laboratories, 1987), *Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone* (California Coastal Commission, 1994), and the City of Eureka General Plan Policy Document (City of Eureka, 1999).

Under Section 404 of the Clean Water Act, waters of the United States (including associated wetlands) are placed under federal jurisdiction of the ACOE. Furthermore, within California's coastal zone, the Coastal Act as administered by the California Coastal Commission (CCC) affords wetlands additional protection and regulation. As stated in the 1987 *ACOE Wetland Delineation Manual* (Environmental Laboratories, 1987) and discussed further in the California Coastal Commission's *Procedural Guidance for the Review of Wetland Projects in California's Coastal Zone* (California Coastal Commission, 1994), specific criteria are used to identify wetlands or determine wetland status, including: hydrophytic vegetation, hydric soils, and wetland hydrology.

The objective of this wetland delineation was to identify and delineate all wetlands within the study area using the specific criterion, as stated above. The following definitions are from ACOE (1987) unless specified otherwise. Hydrophytic vegetation is dominated by plant species known to be adapted to wetland sites, as specified in the regional index (U.S. National Ecology Research Center, 1988). Hydric soils have characteristics that developed in a reducing atmosphere, which exists when periods of prolonged soil saturation result in anaerobic conditions within the upper 12 inches of the soil profile. Hydric soils support the growth and regeneration of hydrophytic vegetation. Wetland hydrology is the sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation.

Wetland hydrology is demonstrated through direct or indirect evidence of flooding, ponding, or saturation for a significant portion of the growing season (Environmental Laboratories, 1987; California Coastal Commission, 1994; ODSL, 2005). Wetlands identified in this report had the presence of all three indicators. Refer to Section 4.3.6 of this report for other regulated/sensitive habitats that were delineated.

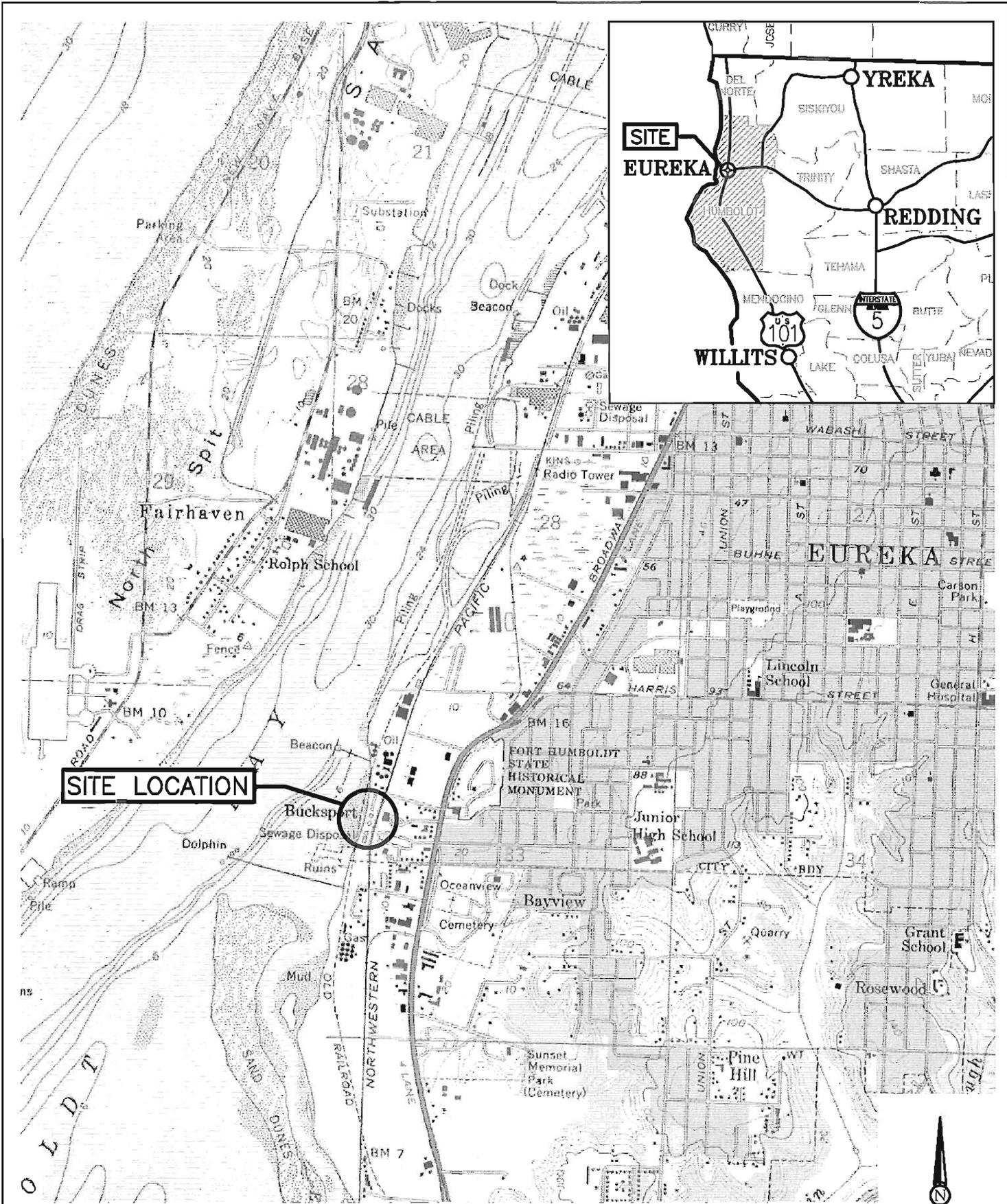
## 1.0 Environmental Setting

The study area is located on undeveloped land in the southwest portion of Eureka. For organizational purposes, portions of the study area are referenced 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). Assessors Parcel Numbers (APNs) that correspond with the five sections of the study area are as follows:

- Northern industrial yard: APNs 007-081-013, -015, -016; and APNs 007-091-002 and -003
- Northern Crowley property: APNs 007-091-005, -006, -007, -008, -011, and -012; and portions of APNs 019-321-009 and -012
- Southern Crowley property: APNs 019-321-004 and 019-271-004; and portions of APNs 091-321-005 and -012
- Parking and landscape area: APNs 091-331-001, -002, -011, and -009; and APN 019-321-006
- Estuarine habitat: APNs 007-081-001; APNs 007-091-001 and portions of -005, -011, and -012; and portions of APNs 091-321-006, 019-331-001 and 019-331-009.

The northern industrial yard contains miscellaneous construction material and debris, dilapidated fencing, and several human encampments and associated debris. The northern Crowley property is mostly natural, lacking construction debris or remnants of development/ industry; however, it contains several human encampments and associated debris, as well as dilapidated fencing along the railroad tracks on the east side and along the estuary. The southern Crowley property has intact perimeter fencing and an access road in the center of the property where the Eureka Fire Department conducts training exercises. Furthermore, the southern Crowley property contains various debris piles, and infrastructure remnants including building foundations, overhead lighting, ponds, and fencing. The southern Crowley property also appears to have been partially cleared of vegetation within the past five years and is now in early stages of regeneration or succession. The parking and landscaping section of the study area contains a parking lot for the Elk River Wildlife Trail and a mowed area directly north of the parking lot. The estuarine habitat extends the entire length of the study area from the northern industrial yard to the existing Elk River Wildlife Trail and contains mostly intact mud flat and salt marsh habitat. Other forms of relict industry including the former fuel line trestle and other miscellaneous pilings occur within the estuarine portion of the study area.

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



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& Geologists, Inc.

City of Eureka  
Elk River Trail Improvement Project  
Eureka, California

January 2007

Site Location Map  
Wetland Delineation  
SHN 006107

006107-LOCATION

Figure 1

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**EXPLANATION**  
 ——— PROJECT AREAS  
 ——— STUDY AREA BOUNDARY

**SCALE**  
 1" = 100'

VERIFY SCALES  
 BAR IS ONE INCH ON ORIGINAL DRAWING  
 0 1"  
 IF NOT ONE INCH ON THIS DRAWING, SCALES ACCORDINGLY

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 812 W. Wabash  
 Eureka, CA 95501 FAX (707)441-8877



NO.	DATE	REVISION	BY

DR	CN/CMR
CHK	
APVD	

CITY OF EUREKA  
 ELK RIVER WILDLIFE TRAIL IMPROVEMENT PROJECT  
 EUREKA, CALIFORNIA  
**WETLAND DELINEATION STUDY AREA**

SHEET  
**2** OF 4  
 DATE 1/2007  
 PROJ. NO.  
 006107

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 (*Potentilla anserina*), spearscale (*Atriplex triangularis*), common rush (*Juncus effuses*), pickleweed (*Salicornia virginica*), brass-buttons (*Cotula coronopifolia*), and dense-flowered cordgrass (*Spartina densiflora*), with scattered seaside arrow grass (*Triglochin maritima*).

## 2.0 Soils

Elevations within the study area range from sea level to approximately 10 feet above Mean Sea Level (MSL). Soil types for the study area are described in the *Soils of Western Humboldt County California* (McLaughlin and Harradine, 1966) as Sand Dune (SD), and may include portions of Bayside silty clay loam (Ba6). According to McLaughlin and Harradine (1966), Bayside silty clay loam is formed in very low-lying areas, is very poorly drained and is often affected by salts, and the surface horizon is frequently puddled. The average annual precipitation is 38.10 inches and the average annual air temperature is 53.2 degrees Fahrenheit (NOWData-NOAA online weather data, 2006).

## 3.0 National Wetland Inventory

The U.S. Fish and Wildlife Service is the federal agency responsible for tracking wetland trends as well as maintaining a reliable inventory through its National Wetland Inventory (NWI; USDI, 1987). The NWI can be queried for specific locations throughout the United States to aid federal, state, and local agencies in making informed decisions concerning wetlands. The study area has both freshwater and estuarine wetland habitat types (Figure 3):

### 3.1 Freshwater Wetlands

According to the NWI (USDI, 1987), the northern and southern Crowley property portion of the study area contains a mix of two freshwater wetland types:

- PEM/SS1C: Palustrine Emergent, Scrub-Shrub, Broadleaved deciduous, and Seasonally Flooded. This wetland type is a combination of two common freshwater wetlands in the Eureka area, Palustrine emergent seasonally flooded wetland that is dominated by herbaceous species and Palustrine scrub-shrub seasonally flooded wetland that is dominated by broadleaved deciduous trees and shrubs.

### 3.2 Estuarine Wetlands

The NWI (USDI, 1987) identifies several wetland class and sub-class types within the estuary and mouth of Elk River. The following two types apply to the study area:

- E2AB3M: Estuarine, Intertidal, Aquatic Bed, Rooted Vascular, and Irregularly Exposed. The NWI identifies the tidally influenced wetlands in the northern portion of the study area as this type (Figure 3). This estuarine wetland is typical of salt marshes that occur near the

Mean High Water Mark (MHW) that are dominated with saline tolerant herbaceous hydrophytes and are regularly inundated.

- E2US3N: Estuarine, Intertidal, Unconsolidated Shore, Mud, and Regularly Exposed. The NWI identifies the tidally influenced wetlands in the southern portion of the study area as this type (Figure 3). This estuarine wetland is often referred to as mudflat, is regularly tidally inundated, and may be vegetated with brown and green algae.

While NWI maps are an excellent reference point for the presence or absence of wetlands, the resolution of the NWI tends to be on a macro scale, and can underestimate the full extent of a given wetland or miss wetlands that are dominated by herbaceous vegetation.

## 4.0 Wetland Delineation

### 4.1 Methodology

Prior to conducting fieldwork, the SHN wetland delineation team reviewed existing information to assist with the determination of wetland boundaries within the study area. This review included *Soils of Western Humboldt County California* (McLaughlin and Harradine, 1966); NWI maps (USDI, 1987), U.S. Geological Survey (USGS) topographic quadrangle maps (Eureka), and aerial photographs. All field mapping was completed with a Trimble GeoExplorer XT™ handheld Global Positions System (GPS) differentially corrected for horizontal accuracy of less than three feet.

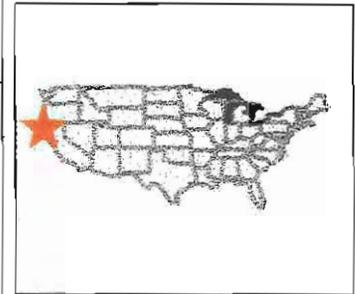
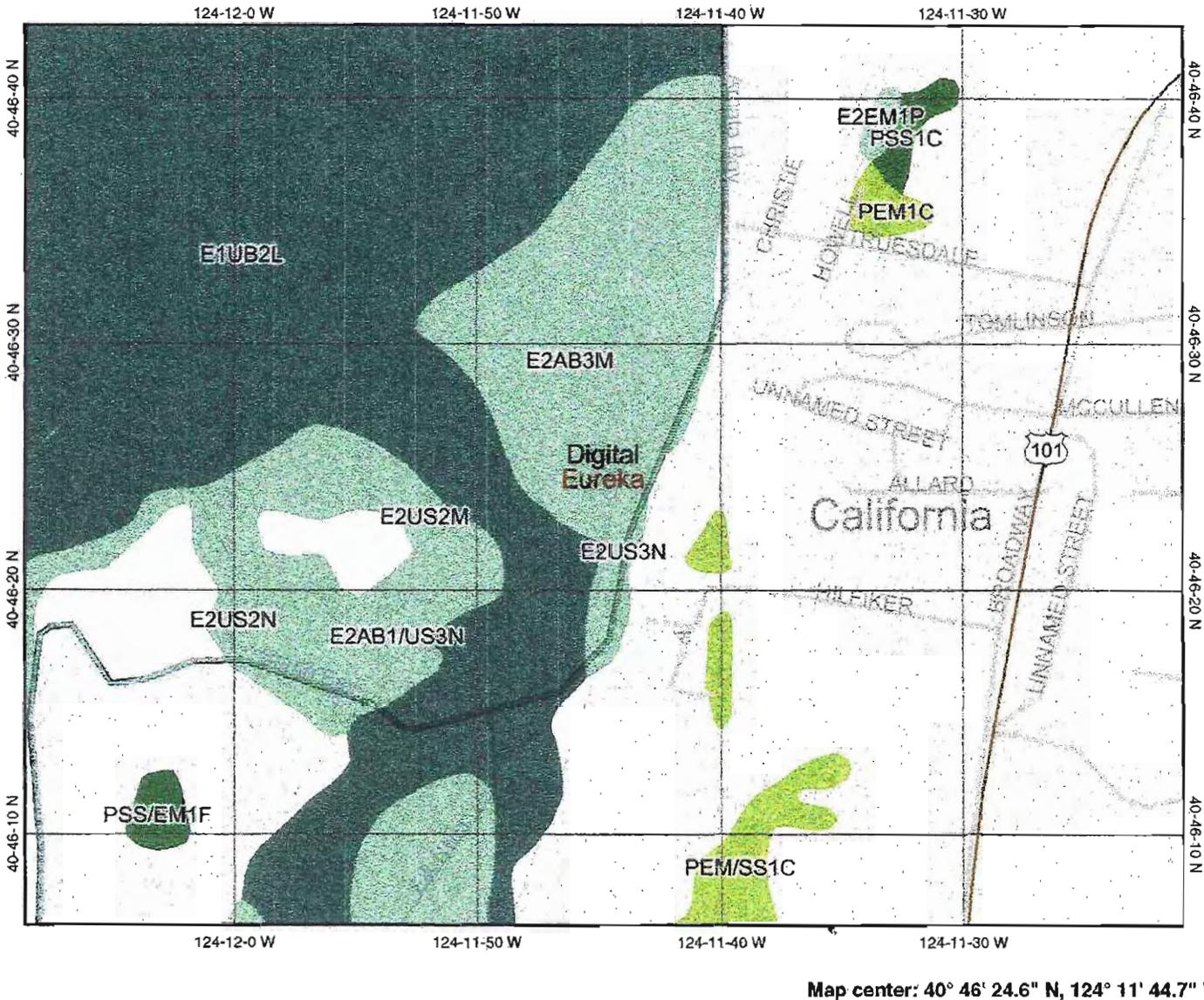
### 4.2 Overview

Twenty-eight sample points were characterized in the study area for the aforementioned botanical, hydrological, and soil parameters (Figure 4). Point locations were selected:

1. to achieve appropriate coverage and characterization of wetland and upland habitats;
2. to determine the approximate boundary line between wetlands and uplands by determining the extent of one or more key wetland criteria (hydrology, hydric soils, and hydrophytic vegetation);
3. to document potential changes in the vegetative community; and
4. in locations where habitat alteration has occurred, to verify presence/absence of hydric soils and hydrology.

With the exception of two sample points (14 SC and 17 SC), soils at all sample points were dug to a minimum depth of 12 inches, with most sample points dug to a depth of 16 inches. Sample points are typically paired or are located along a transect to determine wetland boundaries. Furthermore, the distribution of sampling points allows for extrapolation to other similar vegetation types and elevations within the study area. Soil profile depths were measured from the surface to each horizon, and the thickness of each horizon was also measured; the Munsell Soil Color Chart (Kollmorgen, 1990) was referenced to determine the matrix and mottle colors (if present). Soils

# Elk River Access Project



### Legend

- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- Urban Areas 300K
- States 100K
- South America
- North America

Scale: 1:10,577

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Map created from U.S. Fish and Wildlife's National Wetland Inventory webpage: <http://www.fws.gov/nwi/>

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Consulting Engineers  
& Geologists, Inc.

City of Eureka  
Elk River Wildlife Trail Improvement Project  
Eureka, California

Wetland Delineation  
SHN 006107

January 2007

Wetland.cdr

Figure 3

I:\2006\006107-ELKRIVER\006107-wetlands delineation.dwg



**EXPLANATION**

-  ENVIRONMENTALLY SENSITIVE HABITAT AREA (ESHA) (±0.35 ACRES)
-  SALT MARSH (±1.54 ACRES)
-  WETLAND AREA
-  STUDY AREA BOUNDARY
-  WETLAND SAMPLE POINT
-  MEAN HIGH WATER MARK ELEVATION 5.6' NAVD88

NORTHERN CROWLEY PROPERTY WETLANDS = ±1.55 ACRES  
 SOUTHERN CROWLEY PROPERTY WETLANDS = ±4.92 ACRES  
 LANDSCAPE AND PARKING AREA = ±0.11 ACRES FRESHWATER WETLAND

**SCALE**  
 1"=100'

VERIFY SCALES  
 THIS IS ONE INCH ON ORIGINAL DRAWING  
 IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

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 EUREKA, CALIFORNIA  
**WETLAND DELINEATION**  
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were closely inspected for hydric soil indicators as well as primary and secondary hydrology indicators. Each pit was located by GPS, flagged with a pine stake, and refilled at the conclusion of data collection.

At each sample point, the vegetation stratum was inspected and identified to the lowest taxonomic level (species) possible at the time of the field visit. However, it should be noted that seasonality dictates species presence or absence so it is possible that some herbaceous species were not present during all the surveys. Relative percent cover of each plant species was visually estimated within the sample point and within each stratum. The 50/20 method was applied to each stratum to determine the dominant plant species and to satisfy the hydrophytic vegetation criteria. The herbaceous stratum was inspected at a 5-foot radius centered on the sample point; shrub and tree strata were inspected similarly at a 30-foot radius. The wetland indicator status of plant species for this investigation was based on the regional index (U.S. National Ecology Research Center, 1988); botanical nomenclature follows *The Jepson Manual, Higher Plants of California* (Hickman, 1993).

### 4.3 Results

For each sample point, an ACOE Routine Wetland Determination Data Form was completed. Copies of all data forms are included in Attachment 1. Photos of representative sample points are included in Attachment 2.

#### 4.3.1 Northern Industrial Yard

The northern industrial yard portion of the study area does not contain any wetland features. The site is dry and heavily disturbed. This area is dominated by ruderal vegetation that is characteristic of disturbed upland habitat (Photo 1).

#### 4.3.2 Northern Crowley Property

Nine sample points (4 paired, 5 single) were inspected to characterize the northern Crowley (NC) property.

Sample Points 1 NC and 4 NC were taken within the willow thicket (*Salix sitchensis* and *S. lucida*) in the eastern portion of the northern Crowley property (Photo 2). Vegetation is hydrophytic and indicative of Palustrine scrub-shrub wetland. Soils have low chroma (10YR 2/1), two or more horizons, a gley matrix color at 12 inches (where mottles became abundant and contrasted), and tended to be sandy in texture. These soils are likely native Bayside silty clay loam.

Sample points 2 NC, 3B NC, 6 NC and 7 NC were taken west of the willow boundary, within the Palustrine emergent and scrub-shrub transition zone that is dominated by the herbaceous hydrophyte slough sedge (*Carex obnupta*; Photo 3). At these points, vegetation remained predominately hydrophytic and indicative of Palustrine emergent/scrub-shrub type wetland. However, although soils were still low in chroma, their value increased to 10 YR 4/2 or 4/3. Profiles remained relatively uniform with one or two horizons, mottles were absent, and texture was sandy.

At sample point 7 NC a well-defined organic pan (approximately 1-inch in diameter) was observed 12 inches from the surface; the formation of an organic pan is an indicator of hydric conditions within sandy soils (Environmental Laboratories, 1987).

Sample points 3A NC and 6B NC are upland points based on the shift in vegetation communities from a preponderance of hydrophytes found at 3B NC and 6 NC (wetland paired plot sample points) to upland species. Though sample points 3A NC and 6B NC have relatively low chroma (10YR 4/2), this indicator appears to be relatively widespread in this portion of the study area and is not necessarily a good indicator of wetland status. Furthermore, both sample point profiles were uniform, showed little to no variation in matrix color, mottles and streaking were absent, and lacked organic pan formation or organic horizons. Likewise, hydrology indicators were completely absent from these sample points.

Sample point 5 NC is an upland point characterized on the edge of the arroyo willow (*Salix lasiolepis*) thicket on the western portion of the northern Crowley property (Figure 4). Although arroyo willow is a hydrophyte (FACW), it is found in drier portions of the study area when compared to sample points where Sitka willow was dominant (FACW+; sample points 1 NC and 4 NC). Furthermore, the sandy soils at sample point 5 NC are clearly well drained, and both value and chroma are higher (10YR 5/2 dry; 10YR 3/1 wetted) than wetland points located nearby. This sample point was inspected during both the dry and wet weather seasons. The soil profile showed no horizon change or mottle formation, and hydrology indicators were absent during both field inspections.

The northern Crowley property portion of the study area contains approximately 1.55 acres of wetland habitat but it is degraded from ongoing human encampments and associated debris (Photo 4).

#### 4.3.3 Southern Crowley Property

The southern Crowley property (SC) was characterized using 17 sample points (five single points, six paired points, and six points along two transects). The western half of the southern Crowley property is clearly defined from the eastern half by the placement of fill from historic industrial activities. Topography is several feet higher on the western half due to the historic fill.

Sample points 10 SC, 13 SC, 14 SC, and 17 SC are upland points located on fill. In general, fill sample points lacked hydrophytes; contain non-native gravel and debris-dominated soils, and generally lacked hydrology. Sample point 2 SC also occurs on the fill prism; however, soil compaction and the wet climate has allowed for standing water to persist long enough to form a small isolated wetland dominated by the obligate hydrophyte pennyroyal (*Mentha pulegium*; Photo 5).

Sample points 1 SC, 15 SC, 3 SC, 16 SC, 8 SC, 7 SC, 6 SC, 11SC, 9 SC, and 12 SC occur in wetlands in the eastern and southern halves of the southern Crowley property (Figure 4). These sampling points are hydrophyte dominated (Photo 6), contain soils low in chroma and value; furthermore, soils tended to be well developed with abundant mottles and contrast, and hydrology is evident.

Evidence of recent vegetation removal or other disturbance is scattered in the eastern portion of the northern Crowley property (Photo 7). These soils appear to be consistent with Bayside silty clay loam.

At sample points 4 SC and 5 SC recent disturbance (dumping of gravel and wood chips, as well as goat grazing) made determining the wetland boundary more difficult (Photo 8). These two sample points were inspected during both the dry and wet weather seasons. No evidence of hydrology or redoximorphic features in the soil was observed during either of the site inspections therefore these sample points were determined to be upland.

Two transects were used to determine wetland boundaries through remnant industrial infrastructure on the southern Crowley property. One transect includes sample points 3 SC, 4 SC, and 5 SC and the other transect corresponds with sample points 6 SC, 7 SC, and 8 SC. As stated above, sample points 4 SC and 5 SC are upland and have been recently disturbed. Sample point 3 SC is wetland; it had a predominance of hydrophytes, hydrology was detected during the August field inspection, and the soil was low chroma with an abundance of gley mottles between 10 and 16 inches of the surface. Sample points 6 SC, 7 SC, and 8 SC were all determined to be wetland but 6 SC and 7 SC are separated from 8 SC by an old road prism, which was confirmed with upland sample point 17 SC. The road prism lacked hydrology and hydric soil indicators.

Sample points 9 SC, 10 SC, and 12 SC are located in the southern portion of the southern Crowley property (Photo 10). All three characterizations points are dominated by hydrophytes and hydrology was evident with saturation in the upper 12-inches of the soil profile. The three-sample points contained mottles in the lower profile, while sample points 9 SC and 12 SC where gley within 8-10 inches of the surface. Sample point 12 SC has been by construction of the historic pond features in that area of the site.

The southern Crowley property also contains two cattail (*Typha latifolia*) dominated human-made ponds (Photo 11). Sample points were not necessary to characterize these wetlands because hydrophyte vegetation is highly confined by water levels and then rapidly transitions to upland dominated vegetation beyond the water line.

The southern Crowley property portion of the study area contains approximately 4.92 acres of wetlands. The wetlands within the northeastern portion of the site have been substantially altered, such as filled, during previous industrial activities or contain remnants of historic infrastructure. The wetlands within the southern portion of the site are far less disturbed, as evident by the intact soil profiles, and are relatively high quality.

#### **4.3.4 Parking and Landscaping Area**

The pre-existing parking and landscape area contains no wetlands except at the northern extent where paired sample points 8 PLA and 8B PLA were characterized. Sample point 8 PLA is located in a small depression that has a higher percentage of hydrophytes and a lower percentage of upland species than the upland sample point 8B PLA. Soil colors and values were similar between the sample points, however, saturation within the soil profile was apparent in 8 PLA.

The parking and landscape area of the study area contains approximately 0.11 acres of Palustrine emergent/scrub-shrub wetland and 0.04 acres of salt marsh for a total of approximately 0.15 acres of within this portion of the study area.

#### 4.3.5 Estuarine Habitat

Estuarine habitat, including both NWI wetland classes E2AB3M and E2US3N, was not characterized with sample points because it either clearly resides below the MHWL or is vegetated with salt marsh species and/or there is evidence of periodic tidal intrusion, including eel grass remnants. Habitat delineated as salt marsh encompasses approximately 1.54 acres (Figure 4). This total includes the 0.04 acres of salt marsh delineated in the parking and landscape area. Habitat delineated as estuarine includes both of the NWI classes; however our delineation map varies from the NWI map. As stated above, the NWI maps depict wetlands on a macro scale and do not correspond with ground truthing, as is the case with this project.

#### 4.3.6 Sensitive Areas

As stated at the beginning of this report, wetlands within the California Coastal Zone are under the regulation of a number of agencies including ACOE, CCC, California Department of Fish and Game (DFG), U.S. Fish and Wildlife Service (USFWS), and local lead agencies. The definition of a wetland varies among the agencies ranging from a stricter mandate regarding the quality of water resources to a broader mandate concerning the protection of sensitive habitats (DFG, 1994). ACOE regulates wetlands pursuant to Section 404 of the Clean Water Act and requires the presence of all three wetland criteria to meet the ACOE definition of jurisdictional wetlands. CCC and DFG have broader mandates including the protection of coastal resources, biological resources (biodiversity), and ecological functions; therefore, the presence of all three wetland criteria is not required to identify these environmentally sensitive areas (CCC, 1994; DFG, 1994). For the purpose of this study, areas that provide important habitat for wildlife, contribute to the functional values of adjacent wetlands, and/or provide habitat for special status species are considered Environmentally Sensitive Habitat Areas (ESHA) and have been identified. Areas identified as ESHA are not meant to meet a strict regulatory definition of any resource agency but instead have been delineated based on SHN's scientific understanding of the important values of these areas and our best professional judgment. Habitat that has been delineated as ESHA is consistent with Section 6.A.6 of the City of Eureka General Plan Policy Document (City of Eureka, 1999).

#### 4.3.7 Wetland/Upland Acreage

Out of the approximately 29-acre study area, approximately 8.12 acres were delineated as wetlands (Figure 4). Although portions of the study area tend to dry out due to the lack of an impermeable confining layer, hydrologic factors (such as, a high and fluctuating water table and high precipitation) exert an overriding influence on the plant species that occur in the wetland portions (Environmental Laboratories, 1987), as well as the morphology and structure of the soils present in the study area. The majority of the study area included some species considered to be hydrophytic. However, in Humboldt County, many species listed as facultative wetland indicators occur frequently in transitional or upland habitats, and are poor indicators of wetland status in the

Gary Bird

**Wetland Delineation for the Proposed Elk River Access Trail, Eureka, California**

January 30, 2007

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absence of the other corroborating soils and hydrological factors. Overall, the combination of hydrophytic vegetation, hydric soils, and saturation or ponding was used in this delineation to define wetlands. Please see Attachment 2 for representative photos of the study area.

**4.3.8 ESHA Acreage**

Areas that have been identified as ESHA are located adjacent to habitat delineated as wetlands, particularly on the southern Crowley property, or are distinct segments particularly on the northern Crowley property. ESHA encompasses approximately 0.35 acres in the study area.

**5.0 Limitations**

The conclusions in this wetland delineation reflect the best professional judgment of the SHN wetland delineation team and should not be considered final until verified by the ACOE and California Coastal Commission, as well as reviewed by the California Department of Fish and Game, and/or other local agencies with interest in wetland regulation/conservation. Property boundaries and wetland/upland mapping is approximate. Furthermore, the conclusions in this report represent a "snap shot in time" and not all herbaceous species were present at the time of the fieldwork. In addition, the delineation was not completed at the height of the wet season.

Please feel free to call us anytime at 707-441-8855 regarding the results of this report or the project.

Sincerely,

**SHN Consulting Engineers & Geologists, Inc.**



Aimee C. Weber, CAE  
Botanist and Certified Associate Ecologist



Michael G. van Hattem  
Wildlife Biologist

ACW:MvH:lms

- Attachments: 1. Wetland Delineation Data Forms  
2. Study Area Photos

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Attachment 1

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**Wetland Delineation Data Forms**

GPS SOIL PIT 1

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>FLK River - Northern Area</u> Applicant/Owner: <u>CITY OF EUREKA</u> Investigator: <u>ACLO &amp; MHT</u>	Date: <u>7/10/2006</u> County: <u>Humboldt</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>Emergent</u> Transect ID: _____ Plot ID: <u>1NC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Equisetum arvense</u>	<u>H</u>	<u>FAC</u>	9. _____		
2. <u>Rubus ursinus</u>	<u>H</u>	<u>FACW*</u>	10. _____		
3. <u>Aster plurisus</u>	<u>H</u>	<u>FAC</u>	11. _____		
4. <u>Althium felix-femina</u>	<u>H</u>	<u>FAC</u>	12. _____		
5. <u>Silyb. alutansis</u>	<u>H</u>	<u>FAC</u>	13. _____		
6. <u>Saxif. sitchensis</u>	<u>T</u>	<u>FACW*</u>	14. _____		
7. <u>Myrica californica</u>	<u>S</u>	<u>FAC**</u>	15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 7/7 = 100%

Remarks: \_\_\_\_\_

**HYDROLOGY**

___ Recorded Date (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ___ No Recorded Date Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> ___ Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Soaked Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>N/A</u> (in.) Depth to Free Water in Pit: <u>N/A</u> (in.) Depth to Saturated Soil: <u>ENTIRE PROFILE</u> (in.)	Remarks: <u>At Peak of Wet Season, STANDING WATER would be in pit</u>

**SOILS**

Map Unit Name (Series and Phase): \_\_\_\_\_ Drainage Class: \_\_\_\_\_  
 Field Observations \_\_\_\_\_  
 Taxonomy (Subgroup): \_\_\_\_\_ Confirm Mapped Type? Yes No

**Profile Description:**

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1	C	10YR 2/1	N/A	W/A	LOAM
1-12	A	10YR 2/1	N/A	W/A	SAND
12-16	B	10YR 3/1	① Gley 2 3/5G ② 7.5YR 3/6	Abundant/w/contrast " " " "	SAND

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Molature Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: DARK PROFILE

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Remarks:		

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Elk River Wildlife Trail - Crowley</u> Applicant/Owner: <u>City of Lenoir</u> <u>North</u> Investigator: <u>ADD. MINT. JMA.</u>	Date: <u>7-10-06</u> County: <u>Humboldt</u> State: <u>NC</u>						
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width:100%; border: none;"> <tr> <td style="text-align: center;"><input checked="" type="radio"/> Yes</td> <td style="text-align: center;"><input type="radio"/> No</td> </tr> <tr> <td style="text-align: center;"><input type="radio"/> Yes</td> <td style="text-align: center;"><input checked="" type="radio"/> No</td> </tr> <tr> <td style="text-align: center;"><input type="radio"/> Yes</td> <td style="text-align: center;"><input checked="" type="radio"/> No</td> </tr> </table>	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No
<input checked="" type="radio"/> Yes	<input type="radio"/> No						
<input type="radio"/> Yes	<input checked="" type="radio"/> No						
<input type="radio"/> Yes	<input checked="" type="radio"/> No						
Community ID: <u>Herbaceous</u> Transect ID: _____ Plot ID: <u>2 NC</u>							

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex obnupta</u>	<u>H</u>	<u>OBL</u>	9. _____		
2. <u>Anthoxanthum odoratum</u>	<u>H</u>	<u>FACU</u>	10. _____		
3. <u>Carex demissa</u>	<u>H</u>	<u>FACW</u>	11. _____		
4. <u>Bubus ursinus</u>	<u>H</u>	<u>FACU*</u>	12. _____		
5. <u>Bubus alpestris</u>	<u>S</u>	<u>FACW*</u>	13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 4/5 = 80%

Remarks:

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <u>11-06</u> <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>no hydrology at this time of year but is probably inundated for at least 5% of yr.</u>  <u>Due to low-lying topography (confirmed during November 2006 site visit)</u>

November

**SOILS**

Map Unit Name (Series and Phase): \_\_\_\_\_ Drainage Class: well-drain  
 Taxonomy (Subgroup): \_\_\_\_\_ Field Observations Confirm Mapped Type? Yes No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-9"	A <sub>1</sub>	10YR 3/2	—	—	sand
9-16"	A <sub>2</sub>	10YR 4/3	—	—	sand

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: soil consists of river rock & rail road ties w/in upper 6" - evidence of historic fill. No organic streaking  
 no redox features

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Remarks: hydrology confirmed during the wet season.		

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>EIK River - Homeless Zone</u> Applicant/Owner: _____ Investigator: <u>ACW &amp; MVT</u>	Date: <u>11-29-06</u> County: _____ State: _____
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>herbaceous</u> Transect ID: _____ Plot ID: <u>3ANC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Agrostis sp.</u>	<u>H</u>	<u>—</u>	9. _____	_____	_____
2. <u>Anthoxanthum adicatum</u>	<u>H</u>	<u>FACU</u>	10. _____	_____	_____
3. <u>Juncus lescurii</u>	<u>H</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Tribus discolor</u>	<u>S</u>	<u>FACW*</u>	12. _____	_____	_____
5. <u>Briza maxima</u>	<u>H</u>	<u>UPL</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 2/4 = 50%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: <u>N/A</u> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <u>none</u> <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <u>FAILS</u> <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>      </u> (in.) Depth to Free Water in Pit: <u>      </u> (in.) Depth to Saturated Soil: <u>      </u> (in.)	Remarks: <u>no hydrology indicators. Soil moist from recent rain</u>

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16"	A	10YR 4/2	—	—	sand
Hydric Soil Indicators:					
<input type="checkbox"/> Heterotol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: uniform profile - no organic layer, profile development, or streaking					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	(Circle) Is this Sampling Point Within a Wetland? Yes <input checked="" type="radio"/> No
Remarks: Good location to put trail through not CC wetland because of the presence of UPL grass spp, no hydrology, and low chroma is only a function of parent material - not from hydric soil conditions	

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Elk River Homeless Zone</u> Applicant/Owner: _____ Investigator: <u>ACU &amp; MHT</u>	Date: <u>11-29-06</u> County: _____ State: _____
Do Normal Circumstances exist on the site? <span style="float:right"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>urb/shrub mix</u> Transect ID: _____ Plot ID: <u>3B NC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex obnupta</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Rubus discolor</u>	<u>S</u>	<u>FACW*</u>	10. _____	_____	_____
3. <u>Juncus tenuis</u>	<u>H</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Rubus ursinus</u>	<u>H</u>	<u>FACW*</u>	12. _____	_____	_____
5. <u>Cyperus scropanius</u>	<u>S</u>	<u>NPL</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 4/5 = 90%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tidal Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches ( <u>inferred</u> ) <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>Peak of wet season pH would be inundated but is dry now because sand is well drained.</u>

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-3	A	10YR 3/1	—	—	SAND
3-16"	B	10YR 4/2	—	—	SAND
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chrome Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks:					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle) Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Remarks: This is a wetland compared to 3A because there are OBL plants, only 1 UPL spp, 90% are hydrophytes, more developed profile (2 horizons); explanation for lack of hydro indicators is we are not at peak of wet season and soil is well drained.	

Sample point 4 NC - wet

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Elk River W.T. - Crowley north</u>	Date: <u>7-10-02 &amp; 11-29-06</u>
Applicant/Owner: _____	County: <u>Humboldt</u>
Investigator: <u>ACW, MVA, JMA</u>	State: <u>OH</u>
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes No Yes No Yes No Community ID: <u>Scrub-shrub</u> Transect ID: _____ Plot ID: <u>4 NC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex obnupta</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Salix hitchensii</u>	<u>T</u>	<u>FACW*</u>	10. _____	_____	_____
3. <u>Lonicera involucrata</u>	<u>S</u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Thalassia versicolor</u>	<u>H</u>	<u>FACW</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-1): 4/4 = 100%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <u>soil is moist in July</u> <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <u>Saturated in November</u> <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>Inferred hydrology for at least 5% of g.s. Soil was saturated in upper 12" during November site visit.</u>	

**SOILS**

Map Unit Name (Series and Phase): \_\_\_\_\_ Drainage Class: well drained  
 Field Observations \_\_\_\_\_  
 Taxonomy (Subgroup): \_\_\_\_\_ Confirm Mapped Type? Yes No

**Profile Description:**

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"	A <sub>1</sub>	10YR 2/1	—	—	sand
8-12"	A <sub>2</sub>	10YR 8/1	—	—	sand
12-16"	A <sub>3</sub>	Gley 2 <sup>5</sup> /5pb	7.5YR 3/1	abundant/loss of structure	sand

**Hydric Soil Indicators:**

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: Algal crust in vicinity of sample point

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: Habitat in vicinity of soil pit has been degraded due to human encampment associated debris.

Sample point SNC - upland

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

11-29-06

Project/Site: <u>Elk River w/ Crowley North</u>	Date: <u>7-10-06</u>
Applicant/Owner: <u>City of Eureka</u>	County: <u>Humboldt</u>
Investigator: <u>ANDRUS, TMA</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>Scrub-shrub</u>
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID: _____
Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Plot ID: <u>SNC</u>

West side of encampment

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix lasiolepis</u>	<u>S</u>	<u>FACW</u>	9. _____		
2. <u>Anthoxanthum d.</u>	<u>H</u>	<u>FACU</u>	10. _____		
3. <u>Foeniculum vulgare</u>	<u>H</u>	<u>FACU</u>	11. _____		
4. <u>Rubus ursinus</u>	<u>H</u>	<u>FACW</u>	12. _____		
5. <u>Rubus discolor</u>	<u>S</u>	<u>FACW</u>	13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 3/5 = 60%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	<p>Wetland Hydrology Indicators: <u>N/A</u></p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <u>No evidence of hydrology during both July and November site visits. (except fac-neutral passes)</u></p>	

**SOILS**

Map Unit Name (Series and Phase): \_\_\_\_\_ Drainage Class: well-drained

Taxonomy (Subgroup): \_\_\_\_\_ Field Observations Confirm Mapped Type? Yes No

**Profile Description:**

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-10"	A	10YR 3/1	—	—	sand

**Hydric Soil Indicators:**

<input type="checkbox"/> Hicrossol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Reducing Conditions	<input type="checkbox"/> Listed on National Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chrome Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: soil is 5/2 when dry but 3/1 when

**WETLAND DETERMINATION**

*verified on 11/29/06 visit*

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	Is this Sampling Point Within a Wetland? Yes <input checked="" type="radio"/> No
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: 7/10/06 recheck pH during wet weather season. If there is still no evidence of hydrology, then this willow thicket will be delineated as ESHA.

11-29-06 sand is moist (recent rain events) but otherwise no evidence of hydrology - Not a wetland but is ESHA. Soil is very well drained, no streaking, some organic layer on top so profile is developing but not sufficient enough to be delineated as wetland

Sample point 6 NC - wet

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Elk River Wet. / Crowley north</u> Applicant/Owner: <u>City of Eureka</u> Investigator: <u>ACW, WWH, JMH</u>	Date: <u>7-10-06</u> County: <u>Humboldt</u> State: <u>CA</u>						
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width:100%; border: none;"> <tr> <td style="text-align: center;"><input checked="" type="radio"/> Yes</td> <td style="text-align: center;"><input type="radio"/> No</td> </tr> <tr> <td style="text-align: center;"><input type="radio"/> Yes</td> <td style="text-align: center;"><input type="radio"/> No</td> </tr> <tr> <td style="text-align: center;"><input type="radio"/> Yes</td> <td style="text-align: center;"><input checked="" type="radio"/> No</td> </tr> </table>	<input checked="" type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Yes	<input checked="" type="radio"/> No
<input checked="" type="radio"/> Yes	<input type="radio"/> No						
<input type="radio"/> Yes	<input type="radio"/> No						
<input type="radio"/> Yes	<input checked="" type="radio"/> No						
Community ID: <u>herb</u> Transect ID: _____ Plot ID: <u>6 NC</u>							

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex olupta</u>	<u>H</u>	<u>OBL</u>	9. _____		
2. <u>Salix lasiolepis</u>	<u>S</u>	<u>FACW</u>	10. _____		
3. <u>Anthoxanthum odor.</u>	<u>H</u>	<u>FACW</u>	11. _____		
4. <u>Rubus arvensis</u>	<u>M</u>	<u>FACW</u>	12. _____		
5. _____			13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-1): 3/4 = 75%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <i>(confirmed during 11/06 visit)</i> <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>soil is <sup>more</sup> moist than sp-5 but doesn't have mottles like the scrub-shrub area</u> <u>likely inundated for at least 5% of growing season</u>	

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-10"	A	10YR 4/2	—	—	sand
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks:					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	(Circle) Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Remarks: Hydrology was confirmed during November 2006 site visit.	

Sample Point 6BNC - upland

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Elk River Trail/Crowley North</u> Applicant/Owner: <u>CITY OF EUROKA</u> Investigator: <u>ACW &amp; MUTT</u>	Date: <u>11-29-06</u> County: _____ State: _____
Do Normal Circumstances exist on the site? <span style="float:right"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float:right"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>herbaceous</u> Transect ID: _____ Plot ID: <u>6BNC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Anemophila cecanaria</u>	<u>H</u>	<u>UPL</u>	9. _____	_____	_____
2. <u>Anthoxanthum odoratum</u>	<u>H</u>	<u>FACU</u>	10. _____	_____	_____
3. <u>Carex sp.</u>	<u>H</u>	<u>—</u>	11. _____	_____	_____
4. <u>Holcus lanatus</u>	<u>H</u>	<u>FAC</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 1/3 = 33%

Remarks: \_\_\_\_\_

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: <u>N/A</u> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Dilt Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>      </u> (in.) Depth to Free Water in Pit: <u>      </u> (in.) Depth to Saturated Soil: <u>      </u> (in.)	Remarks: <u>no hydrology, probably not even at peak of wet season</u>

ERWT-6B  
sample point

of wet season

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2"	A	10YR 5/2	—	—	sandy
2-16"	B	10YR 4 2/3	—	—	sand
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks:					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> (Circle) Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soils Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	(Circle) Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Entire region has low chroma, so the presence of low chroma soil alone should not qualify as a 1 parameter wetland. Dominant plants are NPL spp.	

No evidence of hydrology during the wet season.

Sample point 7 NC - WET

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>Elk River Trail / Crowley North</u> Applicant/Owner: <u>CITY OF KANAWHA</u> Investigator: <u>ARW &amp; MATT</u>	Date: <u>11-29-06</u> County: _____ State: _____
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>Herbaceous Emergent</u> Transect ID: _____ Plot ID: <u>7</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex obnupta</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Salix sitchensis</u>	<u>T</u>	<u>FACW*</u>	10. _____	_____	_____
3. <u>Rubus ursinus</u>	<u>H</u>	<u>FACW*</u>	11. _____	_____	_____
4. <u>Holcus lanatus</u>	<u>H</u>	<u>FAC</u>	12. _____	_____	_____
5. <u>Cyperus scoparius</u>	<u>S</u>	<u>UPL</u>	13. _____	_____	_____
6. <u>Carex sp</u>	<u>H</u>	<u>-</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 5/6 = 83%

Remarks: \_\_\_\_\_

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>12"</u> (in.)	Remarks: <span style="border: 1px solid black; padding: 5px; display: inline-block;">ERWT-7</span>   Sample point



Start of Crowley site delineation

Sample Point 1 SC - wet

DATA FORM  
 ROUTINE WETLAND DETERMINATION  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>South Crowley / Elk River Wildlife Trail</u>	Date: <u>7-31-06 / 11:30 AM</u>	
Applicant/Owner: <u>City of Eureka</u>	County: <u>Humboldt</u>	
Investigator: <u>ALW &amp; MWH</u>	State: <u>CA</u>	
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>herbaceous</u>	
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No		
Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No		
(If needed, explain on reverse.)		Transect ID: _____
		Plot ID: <u>TSC</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Potentilla anserina</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Juncus balticus</u>	<u>H</u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Atriplex patula</u>	<u>H</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Triglochin maritimum</u>	<u>H</u>	<u>OBL</u>	12. _____	_____	_____
5. <u>Polygonum monspeliensis</u>	<u>H</u>	<u>FACW</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks:

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>to surface</u> (in.)	Remarks: <u>11-30-2006 Revisit soil pit 1 has standing water 1-6" on surface</u>



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Crowley South Elk River Trail</u> Applicant/Owner: <u>AKA B EKA</u> Investigator: <u>MVH &amp; ACW</u>	Date: <u>7-31-06 / 11-30-06</u> County: <u>Humboldt</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <span style="float:right;">Yes <input checked="" type="radio"/> No <input type="radio"/></span> Is the site significantly disturbed (Atypical Situation)? <span style="float:right;">Yes <input type="radio"/> No <input checked="" type="radio"/></span> Is the area a potential Problem Area? <span style="float:right;">Yes <input type="radio"/> No <input checked="" type="radio"/></span> (If needed, explain on reverse.)	Community ID: <u>herb</u> Transect ID: _____ Plot ID: <u>2 SC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Mentha Pulegioides</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Cyperus-eragrostis</u>	<u>H</u>	<u>FACW</u>	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: plant coverage 50%; Bareground 50%.  
Sabix spp trying to germinate but goats have eaten  
most seedlings

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <u>11-30-06</u> <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <u>11-30-06</u> <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: <u>11/30/06</u> Depth of Surface Water: <u>to surface (in.)</u> Depth to Free Water in Pit: <u>to surface (in.)</u> Depth to Saturated Soil: <u>to surface (in.)</u>	Remarks: <u>no evidence of hydrology but it likely inundated</u> <u>(ponded) for at least 5% of growing</u> <u>season</u>

GPS on 11-30-06. This area is saturated to  
face. GPS Mentha wetland



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

South

Project/Site: <u>Crowley site / Elk River trail</u>	Date: <u>8-1-06</u>
Applicant/Owner: <u>City of Eureka</u>	County: <u>Humboldt</u>
Investigator: <u>ACW &amp; MBH</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>scrub-shrub</u>
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No	
(If needed, explain on reverse.)	Transect ID: <u>1</u>
	Plot ID: <u>3SC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Cyperus eragrostis</u>	<u>H</u>	<u>FACW</u>	9. _____		
2. <u>Athyrium filix-femina</u>	<u>H</u>	<u>FAC</u>	10. _____		
3. <u>Rubus ursinus</u>	<u>H</u>	<u>FACW*</u>	11. _____		
4. <u>Alnus rubra</u>	<u>T</u>	<u>FACW</u>	12. _____		
5. <u>Salix sitchensis</u>	<u>T</u>	<u>FACW*</u>	13. _____		
6. <u>Panicum repens</u>	<u>H</u>	<u>FACW</u>	14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 10/6 = 100%

Remarks:

**HYDROLOGY**

<p><input type="checkbox"/> Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>16"</u> (in.)</p>	<p>Remarks:</p> <p><u>Soil moist @ 16" w/ shake test - assumed to be inundated for at least 5% of time.</u></p>

11-30-2006 - conditions the same - no standing water

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	O				organic
1-10"	A <sub>1</sub>	10YR 7/2	—	—	sandy loam
10-16"	A <sub>2</sub>	10YR 2/2	bley! 3/10y & 10YR 4/4	abundant/ subtle contrast	sandy loam
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Heterotol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks: no mottles w/in upper 10" but are abundant 10-16"					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	(Circle) Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Remarks: Soil pit is near disturbed area (i.e. covered slab and lots of wood mulch, which makes it significantly disturbed)	

Sample point 4 SC - Topland

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

South

Project/Site: <u>Crawley Eel River</u> Applicant/Owner: <u>City of Eureka</u> Investigator: <u>HW &amp; MUE</u>	Date: <u>8-1-06 / 11-30-06</u> County: <u>Humboldt</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>herb/shrub</u> Transect ID: <u>1</u> Plot ID: <u>45C</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix lucida</u>	<u>S</u>	<u>NI</u>	9. _____	_____	_____
2. <u>Bubon obcordator</u>	<u>S</u>	<u>FACW*</u>	10. _____	_____	_____
3. <u>Alnus rubra</u>	<u>T</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Hamamelis stolonifera</u>	<u>T</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Salix sitchensis</u>	<u>S</u>	<u>FACW+</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 4/4 = 100%

Remarks:

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: <u>N/A</u> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>no redox - soil not saturated</u> <u>11-30-06 recheck hydrology - no evidence</u>

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	O	—	—	—	organic
1-16"	A	10YR 3/2	—	—	gravelly loam
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: soil contains unsorted rock - evidence of disturbance					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	(Circle) Is this Sampling Point Within a Wetland? Yes <input checked="" type="radio"/> No
Remarks: No hydrology detected at either site visit. Low chroma is a function of the soils throughout the region and by itself is not a reliable enough indicator of the presence of hydric soil. Soils have been significantly disturbed and there is no	

Approved by HQUSACE 3/92

historic or current evidence of redox features.

sample point 5 SC - upland

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>South Crowley/EIK River Trail</u>	Date: <u>8-1-06/11:30-06</u>
Applicant/Owner: <u>City of Eureka</u>	County: <u>Humboldt</u>
Investigator: <u>ACW &amp; MTH</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>herbaceous</u> Transect ID: <u>1</u> Plot ID: <u>5 SC</u>
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No	
(If needed, explain on reverse.)	

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Brubus ursinus</u>	<u>H</u>	<u>FACW*</u>	9. _____		
2. <u>Epilobium ciliatum</u>	<u>H</u>	<u>FACW</u>	10. _____		
3. <u>Holcus lanatus</u>	<u>H</u>	<u>FAC</u>	11. _____		
4. <u>Galix gitchensis</u>	<u>S</u>	<u>FACW*</u>	12. _____		
5. <u>Galix buxifolia</u>	<u>S</u>	<u>UI</u>	13. _____		
6. <u>Alnus rubra</u>	<u>S</u>	<u>FACW</u>	14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 5/5 = 100%

Remarks:

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: <u>N/A</u> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	
Remarks: <u>no hydrology indicators, sample point rechecked 11:30-06, again no hydrology.</u>	



Sample point 6 SC - WET

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>ELK RIVER - CROWLEY South</u>	Date: <u>8/1/06 / 11-30-06</u>
Applicant/Owner: <u>CITY OF EUREKA</u>	County: <u>Hum</u>
Investigator: <u>MH, AW</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No
	Community ID: <u>herd/syno. 6A7H5</u> Transect ID: <u>2</u> Plot ID: <u>#6 SC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Rubus ursinus</u>	<u>H</u>	<u>FACW*</u>	9.		
2. <u>Rubus discolor</u>	<u>H</u>	<u>FACW*</u>	10.		
3. <u>Equisetum arvense</u>	<u>H</u>	<u>FAC</u>	11.		
4.			12.		
5. <u>Alnus rubra</u>	<u>T</u>	<u>FACW</u>	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 100%

Remarks:

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b>  Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>14</u> (in.)	
Remarks: <u>11-30-06 recheck sample point, Saturated within upper 12 inches.</u>	

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-16	A	10YR 2/2	N/A	N/A	LOAM
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chrome Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: 1/2" ORGANIC MATTER AT TOP OF PROFILE					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle) Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	[Circle] Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Remarks: SAMPLE POINT WOULD <del>BE</del> LIKELY BE INUNDATED DURING PEAK OF RAINY SEASON - This is the point on transect <del>at</del> closest to fence / RAILROAD in mature alder grove.	

11-30-2006 - Some standing water in low/depressions within alder grove. Approved by HOUSAGE 3/92

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>ELK RIVER / CROWLEY SITE</u> Applicant/Owner: <u>CITY OF EUREKA</u> Investigator: <u>MJM / AW</u>	Date: <u>8-1-06</u> County: <u>HUM</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input checked="" type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>Alder Stand</u> Transect ID: <u>2</u> Plot ID: <u>#7 SC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Rubus discolor</u>	<u>H</u>	<u>FACW<sup>sp</sup></u>	9. _____	_____	_____
2. <u>Rubus ursinus</u>	<u>H</u>	<u>FACW<sup>*</sup></u>	10. _____	_____	_____
3. <u>Equisetum arvense</u>	<u>H</u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Agrostis exarata</u>	<u>H</u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Ranunculus repens</u>	<u>M</u>	<u>FACW</u>	13. _____	_____	_____
6. <u>Alnus rubra</u>	<u>T</u>	<u>FACW</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks:

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <u>11-30-06</u> <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>0</u> (in.) Depth to Free Water in Pit: <u>0</u> (in.) Depth to Saturated Soil: <u>0</u> (in.)	Remarks: <u>Probably saturated at peak of wet season</u>

11-30-2006 some standing water in low/depressions within alder grove.



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>South Crowley Lake River W.T.</u> Applicant/Owner: <u>City of Fureka</u> Investigator: <u>MVH &amp; FACW</u>	Date: <u>8/1/06 &amp; 11/30/06</u> County: <u>Humboldt</u> State: <u>CA.</u>
Do Normal Circumstances exist on the site? Yes <input type="radio"/> No <input checked="" type="radio"/> Is the site significantly disturbed (Atypical Situation)? Yes <input checked="" type="radio"/> No <input type="radio"/> Is the area a potential Problem Area? Yes <input type="radio"/> No <input checked="" type="radio"/> (If needed, explain on reverse.)	Community ID: <u>Riparian/scrub-shrub</u> Transect ID: <u>2</u> Plot ID: <u>8 SC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Rubus ursinus</u>	<u>H</u>	<u>FACW*</u>	9. _____	_____	_____
2. <u>Rubus discolor</u>	<u>S</u>	<u>FACW*</u>	10. _____	_____	_____
3. <u>Narostis oxarata</u>	<u>#</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Festuca arvensis</u>	<u>H</u>	<u>FAC</u>	12. _____	_____	_____
5. <u>Ailanthus rubra</u>	<u>S</u>	<u>FACW</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

"Percent of Dominant Species that are OBL, FACW or FAC" (excluding FAC-). 100%

Remarks:

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands
<p>Field Observations:</p> Depth of Surface Water: _____ (In.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: <u>14"</u> (in.)	<p>Secondary Indicators (2 or more required):</p> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input checked="" type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)

Remarks:

soil saturated at 14" during dry season. Site visit on 11-30-06 confirmed presence of water in some low spots / depressions within alder grove.

**SOILS**

Map Unit Name (Series and Phase): _____  Taxonomy (Subgroup) _____	Drainage Class _____ Field Observations _____ Confirm Mapped Type?      Yes      No
---	---

Profile Descriptions:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16"	A	10YR 3/4	5YR 3/4	not very abundant with contrast	Loam

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: soil has been historically disturbed. Sample point is located between old building foundation and old road (based on location of fence).

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    * See above & below
Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No	

Remarks: transect #2, sample points 7 and 8 are bisected by upland road prism. Pit was not dug on old road prism due to a dominance of upland species

Approved by HQUSACE 3/92

Although soil does not have low chroma, this point was determined to be a wetland due to the presence of redox features (rhizospheres and mottles) and presence of hydrology.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Crowley Youth - Elk River Trail</u> Applicant/Owner: <u>City of Eureka</u> Investigator: <u>ACW &amp; MVH</u>	Date: <u>8-1-06</u> County: <u>Humboldt</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>Emergent Herbaceous</u> Transect ID: _____ Plot ID: <u>980</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Potentilla anserina</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Opuntia samentosa</u>	<u> </u>	<u>OBL</u>	10. _____	_____	_____
3. <u>Hibiscus lanatus</u>	<u> </u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Horstia exarata</u>	<u> </u>	<u>FACW</u>	12. _____	_____	_____
5. <u>Juncus balticus</u>	<u> </u>	<u>OBL</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

"Percent of Dominant Species that are OBL, FACW or FAC" 5/5 = 100%  
 (excluding FAC-).

Remarks:

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>± 10</u> (in.)</p>	

Remarks: Hydrology present during dry season. This portion of the southern Crowley property doesn't need to be rechecked during the wet season.

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class _____	
Taxonomy (Subgroup) _____		Field Observations Confirm Mapped Type?	Yes      No

Profile Descriptions:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-4 1/2"	O				
4 1/2-10"	A	10YR 7/2	2.5 YR 4/8	Abundant/contrasted	organic
10-16"	B	grey 3/5 G	2.5 YR 4/8	" "	sandy

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)	
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No

Remarks

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>South Crowley Elk River Trail</u> Applicant/Owner: <u>City of Fairport</u> Investigator: <u>ACW &amp; MTH</u>	Date: <u>8-1-06</u> County: <u>Humboldt</u> State: <u>VA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>Herbaceous</u> Transect ID: _____ Plot ID: <u>10 5C</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Rubus aliscolor</u>	<u>S</u>	<u>FACW*</u>	9. _____	_____	_____
2. <u>Anthoxanthum odoratum</u>	<u>H</u>	<u>FACU</u>	10. _____	_____	_____
3. <u>Juncus kusevii</u>	<u>I</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Equisetum arvense</u>	<u>I</u>	<u>FAC</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

"Percent of Dominant Species that are OBL, FACW or FAC" (excluding FAC-). 3/4 = 75%

Remarks:

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u>  /  </u> (in.) Depth to Free Water in Pit: <u>  /  </u> (in.) Depth to Saturated Soil: <u>  /  </u> (in.)	

Remarks:

no hydrology indicators

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class _____	
Taxonomy (Subgroup) _____		Field Observations Confirm Mapped Type?	Yes      No

Profile Descriptions:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-16	A	10YR 4/3	—	—	sand/silty fine texture

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: *no hydric soil indicators*

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)	
Wetland Hydrology Present?	<input type="radio"/> Yes <input checked="" type="radio"/> No    (Circle)	
Hydric Soils Present?	<input type="radio"/> Yes <input checked="" type="radio"/> No    (Circle)	Is this Sampling Point Within a Wetland?    Yes    No

Remarks: *Sample point has historical disturbance due to pond/berm, but that disturbance was some time ago that upland indicators are indicative of normal conditions*

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>South Crowley Elk River trail</u> Applicant/Owner: <u>City of Eureka</u> Investigator: <u>ACW &amp; MVH</u>	Date: <u>8-1-06</u> County: <u>Humboldt</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>scrub-shrub/Herbaceous</u> Transect ID: _____ Plot ID: <u>11 SC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Equisetum arvense</u>	<u>H</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>Hibiscus lanatus</u>	<u>I</u>	<u>FAC</u>	10. _____	_____	_____
3. <u>Polypogon monspeliensis</u>	<u>I</u>	<u>FACW*</u>	11. _____	_____	_____
4. <u>Rubus ursinus</u>	<u>I</u>	<u>FACW*</u>	12. _____	_____	_____
5. <u>Salix lasiolepis</u>	<u>S</u>	<u>FACW</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

"Percent of Dominant Species that are OBL, FACW or FAC" 5/5 = 100%  
(excluding FAC-).

Remarks:

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: _____ (in.)  Depth to Free Water in Pit: _____ (in.)  Depth to Saturated Soil: <u>10"</u> (in.)	Remarks:

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class _____	
Taxonomy (Subgroup) _____		Field Observations Confirm Mapped Type?	Yes      No

Profile Descriptions:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-1/2"	D	—	—	—	organic
1/2-8"	A	10YR 7/2	10YR 3/4	Abundant/strong	sandy
8-16"	B	6.5Y 7/10gy	3.5YR 7/6	" "	sandy

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)	
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No

Remarks

Sample point representative of Palustrine scrub-shrub vegetation community that extends east beyond the Study Area

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>South Crowley Elk River Trail</u> Applicant/Owner: <u>City of Eureka</u> Investigator: <u>ACW &amp; MWT</u>	Date: <u>8-1-06</u> County: <u>Humboldt</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> Is the site significantly disturbed (Atypical Situation)? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> Is the area a potential Problem Area? <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on reverse.)	Community ID: <u>Herbaceous</u> Transect ID: _____ Plot ID: <u>12 SC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Potentilla anserina</u>	<u>H</u>	<u>OBL</u>	9. _____	_____	_____
2. <u>Rubus ursinus</u>	<u> </u>	<u>FACW</u> *	10. _____	_____	_____
3. <u>Holcus lanatus</u>	<u> </u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Athyrium odor.</u>	<u> </u>	<u>FACU</u>	12. _____	_____	_____
5. <u>Ranunculus repens</u>	<u> </u>	<u>FACW</u>	13. _____	_____	_____
6. <u>Rubus discolor</u>	<u>S</u>	<u>FACU</u> *	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

"Percent of Dominant Species that are OBL, FACW or FAC" 5/6 = 83%  
 (excluding FAC-).

Remarks:

**HYDROLOGY**

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p><u>&lt;</u> Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p>___ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p><u>&lt;</u> FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>  /  </u> (in.)</p> <p>Depth to Free Water in Pit: <u>  /  </u> (in.)</p> <p>Depth to Saturated Soil: <u>  8"  </u> (in.)</p>	

Remarks: Based on topography (abandoned pond) sample point is inundated at least at the peak of the wet season, is NOT the majority of H.

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class _____	
Taxonomy (Subgroup) _____		Field Observations Confirm Mapped Type?	Yes      No

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-1"	A <sub>1</sub>		*		organic
1-10"	A <sub>1</sub>	10YR 4/2	*		sand
10-110"	A <sub>2</sub>	10YR 3/2	*		

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input checked="" type="checkbox"/> High Organic Content in Surface Layer In Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input checked="" type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: \* mottles abundant but too small to differentiate color

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)	
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)	
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No    (Circle)	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No

Remarks: Based on similar vegetation in abandoned pond to the west, hydric soils & hydrology observed at this sample point are extrapolated to western pond.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>South Crowley - Elk River Trail</u> Applicant/Owner: <u>City of Eureka</u> Investigator: <u>ACW &amp; MWH</u>	Date: <u>11-30-06</u> County: <u>Humboldt</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>herbaceous</u> Transect ID: _____ Plot ID: <u>13 SC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Agrostis sp.</u>	<u>H</u>	<u>—</u>	9. _____	_____	_____
2. <u>Juncus tenuis</u>	_____	<u>FACW</u>	10. _____	_____	_____
3. <u>Rumex acetosella</u>	_____	<u>FAC-</u>	11. _____	_____	_____
4. <u>Holcus lanatus</u>	_____	<u>FAC</u>	12. _____	_____	_____
5. <u>Trifolium repens</u>	_____	<u>FACU+</u>	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

"Percent of Dominant Species that are OBL, FACW or FAC" 2/4 = 50%  
 (excluding FAC-).

Remarks: Plants are a function of the wet maritime climate. A few hydrophytes without reliable soil and hydrology indicators is not substantial enough to delineate as wetland.

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <u>- FAILS</u> <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	

Remarks: no evidence of ponding, inundation, saturation or other hydrology indicators

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class _____	
Taxonomy (Subgroup) _____		Field Observations Confirm Mapped Type?	Yes      No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-14"	A	10YR 2/1			fill
14-16"	A/E	10YR 4/2			"

Hydric Soil Indicators:

<input type="checkbox"/> Histosol	<input type="checkbox"/> Concretions
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Listed on Local Hydric Soils List
<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Other (Explain in Remarks)

Remarks: non-native soils, fill material consisting of unconsolidated rocks, rubble, gravel, and wood chips - even at 16"

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)
Hydric Soils Present?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Is this Sampling Point Within a Wetland?    Yes <input checked="" type="radio"/> No	

Remarks: Substantial fill prism. Sample point taken at presumably wettest spot in this disturbed habitat. No evidence suggesting a trend towards developing wetland conditions. Vegetation along east

Approved by HQUSACE 3/92

side of south crowley access road, which is ± 24" lower in elevation than west side, does not have as significant of fill prism and is dominated by hydrophytes.

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

South

Project/Site: <u>Crowley Site / Elk River Trail</u> Applicant/Owner: <u>City of Eureka</u> Investigator: <u>ADW &amp; MVH</u>	Date: <u>11-30-06</u> County: _____ State: _____
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No (If needed, explain on reverse.) <u>Fill</u>	Community ID: <u>herb/shrub</u> Transect ID: _____ Plot ID: <u>14 SC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Fragaria anemosa</u>	<u>A</u>	<u>FAC</u>	9. _____	_____	_____
2. <u>Rubus discolor</u>	<u>1</u>	<u>FACW</u>	10. _____	_____	_____
3. <u>Rubus ursinus</u>	<u>1</u>	<u>FACW</u>	11. _____	_____	_____
4. <u>Fuchsia sp</u>	<u>1</u>	<u>NIZ</u>	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 3/3 = 100%

Remarks: \_\_\_\_\_

**HYDROLOGY**

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ___ No Recorded Data Available	Wetland Hydrology Indicators: <u>N/A</u> Primary Indicators: ___ Inundated ___ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands Secondary Indicators (2 or more required): ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	Remarks: <u>no hydrology indicators</u>

ERWT-Crowley 14



**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

South

Project/Site: <u>Crowley Site / Elk River Trail</u> Applicant/Owner: <u>City of Buena</u> Investigator: <u>ACW &amp; MVH</u>	Date: <u>11-30-06</u> County: _____ State: _____
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>herb/scrub-shrub</u> Transect ID: _____ Plot ID: <u>BSC</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix sitchensis</u>	<u>S</u>	<u>FACW+</u>	9. _____		
2. <u>Juncus effusus</u>	<u>H</u>	<u>OBL</u>	10. _____		
3. <u>Eriophorum ciliatum</u>		<u>FACW</u>	11. _____		
4. <u>Agrostis stolonifera</u>		<u>FACW</u>	12. _____		
5. <u>Panicum s. ripens</u>		<u>FACW</u>	13. _____		
6. <u>Triglochin maritima</u>		<u>FACW</u>	14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: \_\_\_\_\_

**HYDROLOGY**

___ Recorded Data (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ___ No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands <b>Secondary Indicators 12 or more required!!</b> ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>5"</u> (in.) Depth to Free Water in Pit: <u>5"</u> (in.) Depth to Saturated Soil: <u>surface</u> (in.)	
Remarks: _____	

SOILS

0-1" organic layer

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-8"	A	10YR 2/1	—	—	Sandy loam
8-12"	B	10YR 3/1	10YR 4/3	abundant/prominent	sand
Hydric Soil Indicators:					
<input type="checkbox"/> Histic <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors		<input checked="" type="checkbox"/> Concretions <input checked="" type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: soil horizons difficult to distinguish due to water in pit					

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Remarks:	

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

South

Project/Site: <u>Crowley Site / Elk River Trail</u>	Date: <u>11-30-06</u>
Applicant/Owner: <u>City of Eureka</u>	County: <u>Humboldt</u>
Investigator: <u>ALW &amp; MWH</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>Scrub-shrub</u> Transect ID: _____ Plot ID: <u>16 SC</u>
Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No	
Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Alytus rubra</u>	<u>S/T</u>	<u>FACW</u>	9. _____	_____	_____
2. <u>Salix lucida</u>	<u>T</u>	<u>N.I.</u>	10. _____	_____	_____
3. <u>Lonicera involucrata</u>	<u>S</u>	<u>FAC</u>	11. _____	_____	_____
4. <u>Rubus discolor</u>	<u>S</u>	<u>FACW*</u>	12. _____	_____	_____
5. <u>Rubus ursinus</u>	<u>H</u>	<u>FACW*</u>	13. _____	_____	_____
6. <u>Juncus balticus</u>	<u>#</u>	<u>OBL</u>	14. _____	_____	_____
7. <u>Epilobium ciliatum</u>	<u>H</u>	<u>FACW</u>	15. _____	_____	_____
8. <u>Oenanthe sarmentosa</u>	<u>#</u>	<u>OBL</u>	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC): 77 = 100%

Remarks:

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Blained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
<b>Field Observations:</b> Depth of Surface Water: <u>7"</u> (in.) Depth to Free Water in Pit: <u>7"</u> (in.) Depth to Saturated Soil: <u>to Surface</u> (in.)	Remarks:



Sample point 17 sc - Upland

**DATA FORM  
ROUTINE WETLAND DETERMINATION  
(1987 COE Wetlands Delineation Manual)**

Project/Site: <u>South Crowley / Elk River Trail</u> Applicant/Owner: <u>City of Eureka</u> Investigator: <u>ADW &amp; MCH</u>	Date: <u>11-30-06</u> County: <u>Humboldt</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>scrub-shrub / herbaceous</u> Transect ID: Plot ID: <u>17sc</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Cerium malle</u>	<u>H</u>	<u>UPL</u>	9.		
2. <u>Agrostis stolonifera</u>		<u>FACW</u>	10.		
3. <u>Rubus ursinus</u>		<u>FACW</u>	11.		
4. <u>Anthoxanthum odoratum</u>		<u>UPL</u>	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 2/4 = 50%

Remarks:

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: <u>N/A</u> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>no hydrology</u>	

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
<b>Profile Description:</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4		10YR 4/1			
<b>Hydric Soil Indicators:</b>					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: Soil is road prism fill					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/> (Circle)	
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/> (Circle)	
Hydric Soils Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>	
			Is this Sampling Point Within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> (Circle)
Remarks: could only dig pit 4" because this is the road fill (road fill prism in front on old gate - road divides the ATRU stand)			

Approved by H0USACE 3/92

only meets hydric condition because of low chroma but no evidence of reducing conditions or hydrology.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Elk River West side of Hilfiker</u> Applicant/Owner: <u>City of Parka</u> Investigator: <u>ACW &amp; WHH</u>	Date: <u>11-29-06</u> County: <u>Humboldt</u> State: <u>AK</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>Herb</u> Transect ID: Plot ID: <u>8 PLA</u>

**VEGETATION**

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Carex pansa</u>	<u>H</u>	<u>FACU</u>	9. <u>Panicum capota</u>	<u>H</u>	
2. <u>Juncus patens</u>	<u>I</u>	<u>FAC</u>	10. <u>Hydrochalis radicata</u>	<u>I</u>	
3. <u>Holcus lanatus</u>	<u>I</u>	<u>FAC</u>	11. <u>Ammophila arenaria</u>		
4. <u>Juncus tenuis</u>		<u>FACW</u>	12. <u>Vicia sp.</u>		
5. <u>Anthoxanthum odoratum</u>	<u>H</u>	<u>FACU</u>	13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

*Associates*

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). 3/5 = 60%

Remarks: Area mowed. No inflorescence on C. pansa

**HYDROLOGY**

Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <input checked="" type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations:  Depth of Surface Water: <u>1</u> (in.) Depth to Free Water in Pit: <u>1</u> (in.) Depth to Saturated Soil: <u>1 1/2"</u> (in.)	
Remarks: <u>inundated at peak of wet season</u>	

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-4"	A	10YR 7/2			sand
4-11 1/2"	B	10YR 4/2	-	-	sand
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks:					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No (Circle)	(Circle)
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Remarks: sample point is located in a depression. Just down slope from sample point 8BPLA, vegetation is dominated by upland herbaceous species.	

DATA FORM  
 ROUTINE WETLAND DETERMINATION  
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Elk River Wildlife Trail/Parkings</u>	Date: <u>11-29-06</u>
Applicant/Owner: <u>City of Eureka Landscape Area</u>	County: <u>Humboldt</u>
Investigator: <u>ACW &amp; MWH</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: <u>Herbaceous</u>
Is the site significantly disturbed (Atypical Situation)? <input checked="" type="radio"/> Yes <input type="radio"/> No	Transect ID:
Is the area a potential Problem Area? <input checked="" type="radio"/> Yes <input type="radio"/> No	Plot ID: <u>8B PLA</u>
(If needed, explain on reverse.)	

VEGETATION

Associates

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Arnica montana</u>	<u>H</u>	<u>UPL</u>	9. <u>Daucus carota</u>	<u>H</u>	<u>UPL</u>
2. <u>Grindelia stricta</u>	<u>H</u>	<u>FACW</u>	10. <u>Hypochaeris radicata</u>	<u>H</u>	<u>UPL</u>
3. <u>Juncus leucostachyus</u>	<u>H</u>	<u>FACW</u>	11. <u>Vicia sp.</u>	<u>H</u>	<u>UPL</u>
4. <u>Rumex acetosella</u>	<u>H</u>	<u>FAC</u>	12.		
5. <u>Anthox odoratum</u>	<u>H</u>	<u>FACW</u>	13.		
6.			14.		
7.			15.		
8.			16.		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 2/5 = 40%

Remarks:

HYDROLOGY

<input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands <b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: _____ (in.) Depth to Free Water in Pit: _____ (in.) Depth to Saturated Soil: _____ (in.)	
Remarks: <u>no hydrology</u>	

ERWT-8B | Sample point

**SOILS**

Map Unit Name (Series and Phase): _____		Drainage Class: _____			
Taxonomy (Subgroup): _____		Field Observations Confirm Mapped Type? Yes No			
Profile Description:					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-1"	A	10 YR 3/2	—	—	sand
1-16"	B	10 YR 5/2	—	—	"
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)			
Remarks: SAND not saturated unlike 8 - clearly UPL					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle) Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is this Sampling Point Within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (Circle)
Remarks:	

Attachment 2

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**Study Area Photos**



Photo 1. Photo 1 shows the northern industrial yard with ruderal vegetation, historic and ongoing disturbance, and a lack of wetland habitat. Photo taken by SHN on 11-29-2006, orientation is to the south.



Photo 2. Photo 2 shows the willow dominated Palustrine scrub-shrub wetland on the northern Crowley property portion of the study area. Photo taken by SHN on 11-29-2006, orientation is to the east.



Photo 3. In the foreground (green arrow), slough sedge is dominant similar to sample points 2 NC, 3B NC, 6 NC and 7 NC, whereas sample point's 3A NC, 6B NC, and 5 NC are upland sample points (red arrow). Photo taken by SHN on 11-29-2006, orientation is to the south.



Photo 4. Willow dominated (Palustrine scrub-shrub) portions of the study area were degraded due to human encampments and debris.



Photo 5. A small depression on the compacted fill prism holds water long enough to support a small wetland dominated by pennyroyal (*Mentha pulegium*). Photo taken by SHN on 7-31-2006, orientation is to the south.



Photo 6. Sample point 1 SC is dominated by obligate hydrophytes, remains wet year round, and exhibits well developed hydric soils. Photo taken by SHN on 7-31-2006, orientation is to the south.



Photo 7. Sample point 15 SC is dominated by obligate hydrophytes, but also was hand cleared of willows within the last five years. Photo taken by SHN on 7-31-2006, orientation is to the south.



Photo 8. Wetland boundaries at sample point 4 SC and 5 SC were difficult to discern due to relatively recent disturbance and goat grazing. Photo taken by SHN on 7-31-2006, orientation is to the north.



Photo 9. Remnant industrial infrastructure remains at several wetland locations on the southern Crowley property. Photo taken at sample points 16 SC and 17 SC just north of sample points 6 SC through 8 SC. Photo taken by SHN on 7-31-2006, orientation is to the south.



Photo 10. All three characterizations points (9 SC, 10 SC, and 12 SC) are dominated by hydrophytes, hydrology is evident, and hydric soils are present including gley horizons in the profile. Photo taken by SHN on 7-31-2006, orientation is to the south.



Photo 11. Two cattail-dominated ponds occur on the south Crowley property. The soil removed to create these depression forms the upland berm enclosing each pond. Photo taken by SHN on 7-31-2006, orientation is to the south.



**Species List**  
**Elk River Wildlife Trail Improvement Project 2006 Surveys, Eureka, California**

Scientific Name	Common Name	Presence (1=tree, 2=shrub, 3=herb)
<i>Alnus rubra</i>	red alder	1
<i>Eucalyptus globulus</i>	blue gum	1
<i>Ilex aquifolium</i>	English holly	1
<i>Malus fusca</i>	Oregon crab apple	1
<i>Pinus attenuata</i>	knobcone pine	1
<i>Pinus contorta</i> ssp. <i>contorta</i>	beach pine	1
<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas-fir	1
<i>Rhamnus purshiana</i>	cascara	1
<i>Salix hookeriana</i>	Hooker's willow	1
<i>Salix lasiolepis</i>	arroyo willow	1
<i>Salix sitchensis</i>	Sitka willow	1
<i>Sequoia sempervirens</i>	coast redwood	1
<i>Baccharis pilularis</i>	coyote brush	2
<i>Cytisus scoparius</i>	Scotch broom	2
<i>Gaultheria shallon</i>	salal	2
<i>Genista monspessulana</i>	French broom	2
<i>Lonicera involucrata</i> var. <i>ledebourii</i>	black twinberry	2
<i>Lupinus arboreus</i>	yellow bush lupine	2
<i>Myrica californica</i>	wax myrtle	2
<i>Ribes sanguineum</i> var. <i>glutinosum</i>	pink-flowering currant	2
<i>Rosa</i> sp.	rose	2
<i>Rubus discolor</i>	Himalaya berry	2
<i>Rubus parviflorus</i>	thimbleberry	2
<i>Rubus spectabilis</i>	salmonberry	2
<i>Sambucus racemosa</i>	red elderberry	2
<i>Vaccinium ovatum</i>	evergreen huckleberry	2
<i>Abronia latifolia</i>	yellow sand-verbena	3
<i>Achillea millefolium</i>	common yarrow	3
<i>Agrostis exarata</i>	western bent-grass	3
<i>Agrostis</i> sp.	bent grass	3
<i>Agrostis stolonifera</i>	creeping bent-grass	3
<i>Aira caryophyllea</i>	silver European hairgrass	3
<i>Ambrosia chamissonis</i>	silver burweed	3
<i>Ammophila arenaria</i>	European beachgrass	3
<i>Anagallis arvensis</i>	scarlet pimpernel	3
<i>Anaphalis margaritacea</i>	pearly everlasting	3
<i>Anthoxanthum odoratum</i>	sweet vernal grass	3
<i>Armeria maritima</i> ssp. <i>californica</i>	sea-pink	3
<i>Artemisia</i> sp.		3

**Species List**  
**Elk River Wildlife Trail Improvement Project 2006 Surveys, Eureka, California**

Scientific Name	Common Name	Presence (1=tree, 2=shrub, 3=herb)
<i>Aster chilensis</i>	common California aster	3
<i>Athyrium filix-femina</i>	lady fern	3
<i>Atriplex leucophylla</i>	beach saltbush	3
<i>Atriplex patula</i>	spear oracle	3
<i>Atriplex triangularis</i>	spearscale	3
<i>Bellis perennis</i>	English daisy	3
<i>Blechnum spicant</i>	deer fern	3
<i>Brassica nigra</i>	black mustard	3
<i>Briza maxima</i>	large quaking or rattlesnake grass	3
<i>Briza minor</i>	small quaking or rattlesnake grass	3
<i>Bromus</i> spp.	brome grasses	3
<i>Cakile maritima</i>	sea rocket	3
<i>Calystegia soldanella</i>	beach morning-glory	3
<i>Camissonia cheiranthifolia</i>	beach primrose	3
<i>Cardamine oligosperma</i>	western bittercress	3
<i>Cardionema ramosissimum</i>	sandmat	3
<i>Carex deweyana</i> ssp. <i>leptopoda</i>	short-scaled sedge	3
<i>Carex obnupta</i>	slough sedge	3
<i>Carex</i> sp.	sedge	3
<i>Chamomilla suaveolens</i>	pineapple weed	3
<i>Cichorium intybus</i>	chicory	3
<i>Cirsium arvense</i>	Canada thistle	3
<i>Cirsium vulgare</i>	bull thistle	3
<i>Claytonia sibirica</i>	Siberian candyflower	3
<i>Conium maculatum</i>	poison hemlock	3
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	Point Reyes bird's-beak	3
<i>Cortaderia jubata</i>	pampas grass	3
<i>Crocosmia</i> sp.	crocosmia	3
<i>Cuscuta salina</i>	Dodder	3
<i>Cynosurus echinatus</i>	hedgehog dogtail grass	3
<i>Cyperus eragrostis</i>	nut-grass or tall flat-sedge	3
<i>Dactylis glomerata</i>	orchard grass	3
<i>Daucus carota</i>	wild carrot or Queen Anne's lace	3
<i>Deschampsia cespitosa</i> ssp. <i>cespitosa</i>	tufted hair-grass	3
<i>Digitalis purpurea</i>	foxglove	3
<i>Distichlis spicata</i>	saltgrass	3
<i>Eleocharis</i> sp.	spike-rush	3
<i>Epilobium ciliatum</i>	northern willow herb	3
<i>Equisetum arvense</i>	common horsetail	3

**Species List**  
**Elk River Wildlife Trail Improvement Project 2006 Surveys, Eureka, California**

Scientific Name	Common Name	Presence (1=tree, 2=shrub, 3=herb)
<i>Equisetum hyemale</i> ssp. <i>affine</i>	common scouring rush	3
<i>Erechtites minima</i>	toothed coast fireweed	3
<i>Eriogonum latifolium</i>	beach buckwheat	3
<i>Eschscholzia californica</i>	California poppy	3
<i>Festuca arundinacea</i>	tall fescue	3
<i>Festuca rubra</i>	red fescue	3
<i>Foeniculum vulgare</i>	fennel	3
<i>Fragaria vesca</i>	wood strawberry	3
<i>Fuschia</i> sp.	ornamental fuschia	3
<i>Galium</i> sp.	bedstraw	3
<i>Geranium dissectum</i>	cut-leaved geranium	3
<i>Geranium molle</i>	dovefoot geranium	3
<i>Geranium</i> sp.	geranium	3
<i>Gnaphalium</i> sp.	cudweed	3
<i>Grindelia stricta</i>	gumweed	3
<i>Hedera helix</i>	English ivy	3
<i>Heracleum lanatum</i>	cow parsnip	3
<i>Holcus lanatus</i>	common velvet grass	3
<i>Hordeum jubatum</i>	foxtail barley	3
<i>Hypericum perforatum</i>	Klamath weed or common St. John's-wort	3
<i>Hypochaeris radicata</i>	hairy cat's-ear	3
<i>Iris douglasiana</i>	Douglas iris	3
<i>Jaumea carnosa</i>	fleshy jaumea	3
<i>Juncus balticus</i>	Baltic rush	3
<i>Juncus bolanderi</i>	Bolander's rush	3
<i>Juncus bufonius</i>	common toad rush	3
<i>Juncus effusus</i>	common rush	3
<i>Juncus ensifolius</i>	dagger-leaf rush	3
<i>Juncus leseurii</i>	salt grass	3
<i>Juncus patens</i>	spreading rush	3
<i>Lathyrus latifolius</i>	everlasting pea	3
<i>Lathyrus</i> sp.	pea	3
<i>Lemna</i> sp.	duckweed	3
<i>Lessingia filaginifolia</i>	beach aster	3
<i>Leucanthemum vulgare</i>	ox-eye daisy	3
<i>Leymus mollis</i>	American dunegrass	3
<i>Linum bienne</i>	western blue flax	3
<i>Lolium perenne</i>	perennial ryegrass	3

**Species List**  
**Elk River Wildlife Trail Improvement Project 2006 Surveys, Eureka, California**

Scientific Name	Common Name	Presence (1=tree, 2=shrub, 3=herb)
<i>Lolium multiflorum</i>	Italian ryegrass	3
<i>Lonicera hispidula</i> var. <i>vacillans</i>	hairy honeysuckle	3
<i>Lotus corniculatus</i>	birdfoot trefoil	3
<i>Lotus micranthus</i>	rose-flowered lotus	3
<i>Lupinus bicolor</i>	miniature lupine	3
<i>Lysichiton americanum</i>	skunk cabbage	3
<i>Melilotus officinalis</i>	yellow sweet clover	3
<i>Mentha pulegium</i>	pennyroyal	3
<i>Montia parvifolia</i>	streambank spring beauty	3
<i>Navarretia squarrosa</i>	skunkweed	3
<i>Oenanthe sarmentosa</i>	Pacific water-parsley	3
<i>Parentucellia viscosa</i>	yellow parentucellia	3
<i>Petasites frigidis</i> var. <i>palmatus</i>	western coltsfoot	3
<i>Phalaris arundinacea</i>	reed canary grass	3
<i>Plantago lanceolata</i>	English plantain	3
<i>Plantago major</i>	common plantain	3
<i>Poa</i> sp.	bluegrass	3
<i>Polygonum arenastrum</i>	beach knotweed	3
<i>Polypogon monspeliensis</i>	rabbitfoot grass or annual beard grass	3
<i>Polystichum munitum</i>	sword fern	3
<i>Potentilla anserina</i>	silverweed	3
<i>Prunella vulgaris</i>	self-heal	3
<i>Pteridium aquilinum</i> var. <i>pubescens</i>	western bracken fern	3
<i>Ranunculus occidentalis</i>	western buttercup	3
<i>Ranunculus repens</i>	creeping buttercup	3
<i>Raphanus sativus</i>	wild radish	3
<i>Rorippa nasturtium-aquaticum</i>	water cress	3
<i>Rubus ursinus</i>	Pacific bramble or California blackberry	3
<i>Rumex acetosella</i>	sheep sorrel	3
<i>Rumex crispus</i>	curly dock	3
<i>Rumex salicifolius</i>	willow dock	3
<i>Salicornia virginica</i>	pickleweed	3
<i>Scirpus americanus</i>	three-square bulrush	3
<i>Scirpus cernuus</i>	low club-rush	3
<i>Scirpus microcarpus</i>	small-flowered bulrush	3
<i>Scrophularia californica</i>	coast figwort	3
<i>Senecio vulgaris</i>	common butterweed	3
<i>Solidago spathulata</i>	dune goldenrod	3

**Species List**  
**Elk River Wildlife Trail Improvement Project 2006 Surveys, Eureka, California**

Scientific Name	Common Name	Presence (1=tree, 2=shrub, 3=herb)
<i>Sonchus asper</i> ssp. <i>asper</i>	prickly sow thistle	3
<i>Spartina densiflora</i>	cordgrass	3
<i>Spergularia macrotheca</i>	sandspurry	3
<i>Stachys ajugoides</i>	hedge nettle	3
<i>Stachys chamissonis</i>	Chamisso's hedge nettle	3
<i>Tanacetum camphoratum</i>	dune tansy	3
<i>Trifolium pratense</i>	red clover	3
<i>Trifolium repens</i>	white clover	3
<i>Trifolium wormskioldii</i>	springbank clover	3
<i>Triglochin maritima</i>	seaside arrow-grass	3
<i>Typha latifolia</i>	broadleaf cattail	3
<i>Urtica dioica</i> ssp. <i>holosericea</i>	stinging nettle	3
<i>Verbascum thapsis</i>	woolly mullein	3
<i>Veronica americana</i>	American brooklime	3
<i>Vicia americana</i> var. <i>americana</i>	American vetch	3
<i>Vicia hirsuta</i>	hairy vetch	3
<i>Vinca major</i>	greater periwinkle	3