

**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 <sup>3</sup>
<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
<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>humboldtensis</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

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<i>Hesperevax 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
<i>Mitella caulescens</i>	leafy-stemmed mitrewort	4	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

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<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	4	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 ssp. 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
<i>Sidalcea oregana ssp. 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 var. 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

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<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
<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

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<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
<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	Federally delisted/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
<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

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<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
<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	SSC	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

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<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
<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

1. CNPS list 1B includes plants that are rare, threatened, or endangered in California and elsewhere.  
 CNPS List 2 includes plants that are rare, threatened, or endangered in California but more common elsewhere.  
 CNPS List 4 includes plants of limited distribution and should be documented as they are watch list species  
 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.

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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.				
2. Plant habitat descriptions are from CNDDDB (September 2007), Tibor (2001), and Hickman (1993). 3. Habitat that is defined as present is not restricted to the study area but also includes adjacent areas if they are identified as suitable for supporting the specified species.				

## 5.0 Species Descriptions and Habitat Suitability

### 5.1 Special Status Plant Species

Based on the 30 species reported by the CNDDDB (CDFG, 2007a), 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 5.5.1 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 April 13, June 19, July 20, and August 2, 2007.

### 5.2 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 (CDFG, 2007a). This species blooms June through October (Tibor, 2001). Associate 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 dunemat/northern foredune grassland. These areas are considered highly suitable to support an occurrence of this special status species.

**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, there has only been one coastal marsh milk-vetch occurrence reported from the Humboldt Bay area (occurrence number 23; CDFG, 2007a). Fieldwork that has been conducted at this historical site in the last few years did not result in the detection of any plants; therefore this special status species may be extirpated from Humboldt County. 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 Phase II study area for this special status species is scattered throughout salt marsh habitat including the north and south sloughs. Due to the significant presence of cordgrass in salt marsh habitat located within the study area, this habitat is only considered marginally suitable for

supporting an occurrence of coastal marsh milk-vetch. Suitable high quality salt marsh habitat surrounds the study area, particularly near the footpath. Those areas are considered more likely to support an occurrence of this special status species.

**Flaccid sedge** (*Carex leptalea*) and **meadow sedge** (*C. 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, which is scattered throughout the study area. Although these species can occur at or near sea level, habitat within the project area is only considered marginally suitable due to the vicinity of Humboldt Bay and the lack of known occurrences immediately surrounding the Bay.

**Lyngbye's sedge** (*Carex lyngbyei*) is a perennial in the Cyperaceae Family that blooms May through August (Tibor, 2001). This species occurs in brackish freshwater marshes or swamps (CDFG, 2007a). Suitable habitat for Lyngbye's sedge is scattered throughout the project area. The majority of suitable salt marsh habitat is located in the southern portion of the study area, and includes both sides of the existing path from the railroad tracks south to the Herrick Avenue Park and Ride. The north and south sloughs are also considered moderate to high quality habitat for supporting an occurrence of Lyngbye's sedge.

**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 (CDFG, 2007a). This special status species blooms in June (Tibor, 2001). Suitable habitat moderate quality habitat for Oregon coast Indian paintbrush is located in the dunemat/northern foredune grassland.

**Humboldt Bay owl's clover** (*Castilleja ambigua* ssp. *humboldtensis*) 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 in the study area. 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. This includes the high quality salt marsh that is located adjacent to the footpath and scattered sections throughout the study area including the north and south sloughs.

**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 study 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 (CDFG, 2007a). 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, 2007). Suitable habitat in the study area includes portions of the dunemat association/northern foredune grassland that have 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 (CDFG, 2007a). Pacific gilia blooms May through August (Tibor, 2001). Suitable habitat within the project area is limited to the dunemat association. This habitat is considered moderately suitable for supporting an occurrence 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 moderate to high quality habitat within the study area includes the dunemat/northern foredune grassland.

**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 (CDFG, 2007a). This annual herb blooms March through June (Tibor, 2001). Suitable habitat within the study area includes the dunemat/northern foredune grassland. Areas within the dunemat association that have a substantial assemblage of native species are considered higher quality and more likely to support an occurrence if 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 (CDFG, 2007a). 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 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 (CDFG, 2007a). 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 are wetland areas that lack a dense overstory.

**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 (CDFG, 2007a). Suitable habitat within the project area

includes the dunemat association. Habitat in the northern portion of the study area is only considered marginally suitable because there is a greater distribution of non-native species compared to the southern portion of the study area along the main trail.

**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 (CDFG, 2007a). 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 (CDFG, 2007a). 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 association. This habitat is only considered marginally suitable for supporting an occurrence of western lily due to a lack of appropriate soils.

**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. 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 Humboldt County (CDFG, 2007a). Suitable moderate to high quality habitat for this is scattered throughout the salt marsh habitat, particularly in area that lack or only have a moderate cover of cordgrass.

**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 (CDFG, 2007a). Suitable moderate quality habitat within the study area includes the dunemat vegetation, particularly in areas where grasses are most dominant and there is some soil profile development. Suitable low quality habitat for Siskiyou checkerbloom also includes scattered locations throughout the disturbed habitat.

**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 (CDFG, 2007a); this species is reported to occur in gravelly soils or native soils that are largely intact (CDFG, 2007a).

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 study area is consistent with the habitat described above for Siskiyou checkerbloom.

**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 three occurrences in the Humboldt Bay area (CDFG, 2007a). Those occurrences are located in salt marshes up to 10 feet above MSL (CDFG 2007a); 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 study 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, which includes Mendocino, Humboldt and Del Norte counties (CDFG, 2007a). Suitable moderate to high quality habitat for this species includes the Palustrine emergent wetland and Palustrine scrub shrub located throughout the study area; however the majority of suitable habitat for marsh violet is located beyond the boundaries of the study area.

### 5.3 Special Status Wildlife Species

Based on the 27 species reported by the CNDDDB (CDFG, 2007a) and BIOS (CDFG, 2007b), 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 Table 2 of this report for the results of wildlife species detected in and adjacent to the study area.

**Cooper's Hawk** (*Accipiter cooperii*) and **Sharp-shinned Hawk** (*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 in the Palustrine scrub shrub habitat. However, this habitat lacks 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 throughout the study area.

Wading birds, including **Great Egret** (*Ardea alba*), **Cattle Egret** (*Bubulcus ibis*), **Great Blue Heron** (*A. herodias*), **Snowy Egret** (*Egretta thula*), **Black-crowned Night Heron** (*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.

**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, 2005d), 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 reported by the CNDDDB. According to the CNDDDB (CDFG, 2007a), one museum egg set was collected in 1920 from the Elk River Spit, and one pair of plovers was observed in May 1977 on the Elk River Spit (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.

A portion of the Phase I study area, within the Truesdale beach and park section of the study area, was identified as containing suitable Western Snowy Plover beach foraging habitat (SHN, 2007a). No habitat within the Phase II study area is identified as containing suitable breeding or foraging habitat for Western Snowy Plover; however, suitable foraging habitat is located adjacent to the study area, along the east side of the Elk River Estuary. This area includes sandy beach habitat with sparse vegetation cover that abuts Estuarine intertidal emergent wetland habitat located at or near OHHM. 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 study 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 study area. Due to the distance of the Elk River Spit from potential impact areas, 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.

**The Bald Eagle** (*Haliaeetus leucocephalus*) is a member of the Family Accipitridae. Bald Eagles are found throughout North America; this species was federally delisted in 2007; however, the Bald Eagle remains state listed. Bald Eagles are opportunistic foragers with variable diets based of prey availability. Bald Eagles build large stick nests that are often reused from year to year by the same pair. Breeding habitat is associated with aquatic habitats (coastal areas, rivers, lakes, and reservoirs) with forested shorelines or cliffs in North America (USFWS, 2005c). Foraging habitat is located adjacent to the study area within the Elk River Estuary; however, Bald Eagles will not be affected by the project as proposed.

**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. Ospreys were observed throughout Elk River area during 2006 and 2007 field surveys, particularly hunting for fish in the Elk River Estuary. The project as proposed will not affect the Elk River Estuary; therefore, no impacts to Osprey are anticipated.

**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. Suitable habitat for Brown Pelican is located adjacent to the study area, but not actually within potential impact areas. The northern end of the Elk River Spit is an important loafing and preening area and pelicans were commonly observed during field visits, in both 2006 and 2007. 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.

**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 in 2006 and 2007. 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.

**Northwestern Pond Turtle** (*Emys marmorata marmorata*) are in the Family Emydidae and use similar habitat types as the northern red-legged frog. Western pond turtles are also commonly found in lotic (flowing) habitats. The freshwater ponds surrounding the WWTP, east of the study area, are suitable habitat for western pond turtles assuming that salinity is not limiting. Suitable habitat will be avoided therefore the proposed project is not expected to result in an impact to northwestern pond turtles.

**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 Hedionita 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.