# **Chapter 3.** Results: Environmental Setting

## 3.1 Environmental Setting

State Route 32 in the ESL primarily serves local traffic associated with residential development along the project corridor. There are five intersections along the project corridor: Fir Street, Forest Avenue, El Monte Avenue, Bruce Road, and Yosemite Drive. In addition, there are four intersections associated with the SR 99 Interchange.

Chico is located in the northern Sacramento Valley at the base of the Sierra Nevada Foothills. Land uses along the project corridor vary from private commercial and residential to public access.

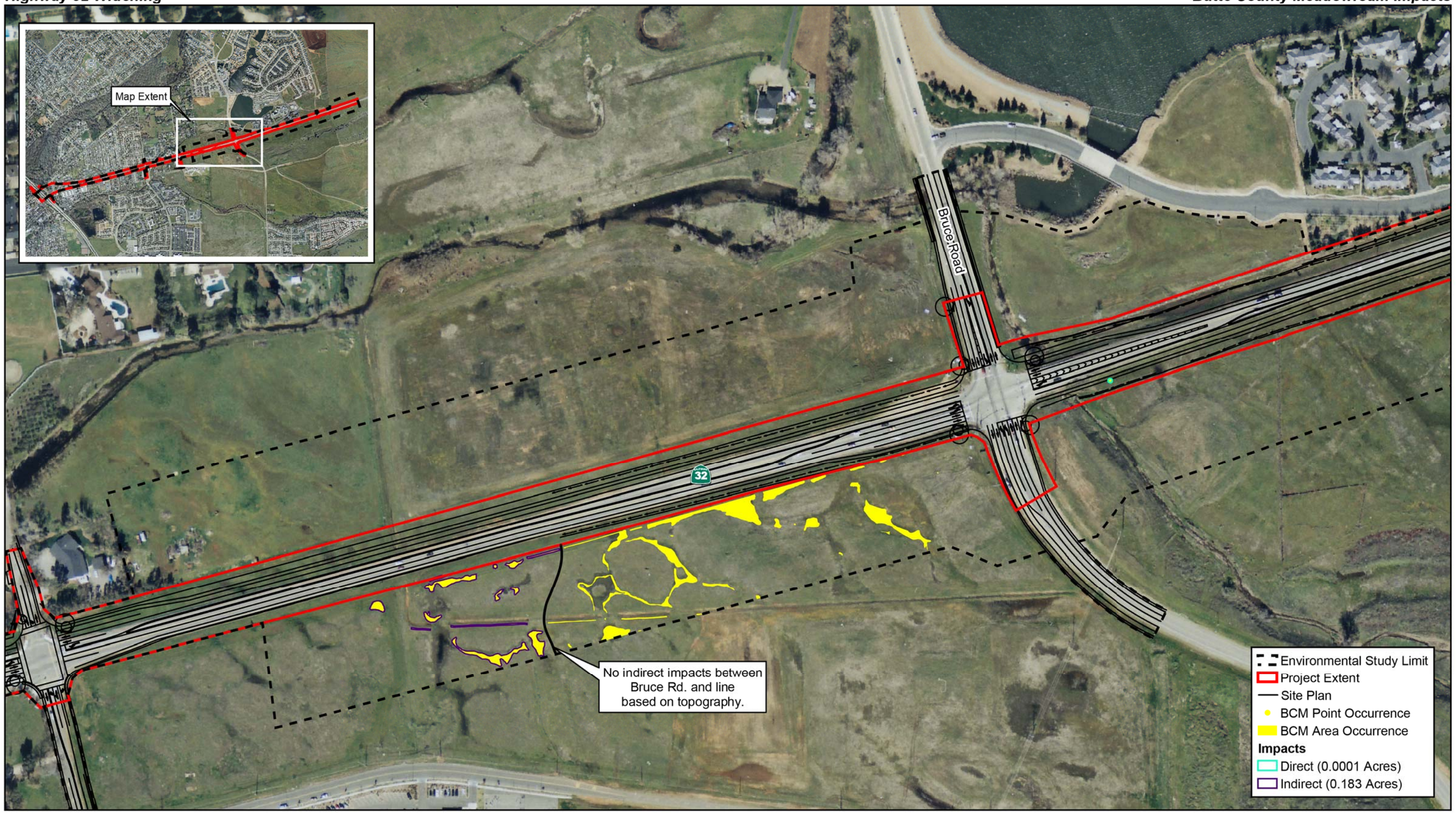
## 3.2 Description of the Existing Biological and Physical Conditions

The ESL occurs in an alluvial fan terrace comprised largely of annual grasslands that are at the base of the foothills to the east. This close proximity to the foothills plays a significant role in the soil type and various wetland communities found within and adjacent to the ESL. At the eastern side of the project route is a large vernal pool landscape. This unique landscape is also the site of special-status flora and fauna that inhabit and are dependent upon vernal pools. Along the south end of the project route, these sensitive habitats abut SR 32.

The elevation for the project route begins at 215 feet at the intersection of SR 32 and SR 99 and ends at 345 feet just beyond the intersection of SR 32 and Yosemite Drive. This 130-foot increase in elevation extending from west to east has a significant effect on the plant communities along the project route. The section of road between SR 99 and El Monte Avenue remains relatively flat; and the section of SR 32 between El Monte Avenue to just beyond Yosemite Drive begins to gradually ascend into the Sierra Nevada foothills. Vernal and wetland features are located between, El Monte Avenue to just beyond Yosemite Drive within parcels 2, 3, 4, and 7. Additional vernal and wetland features are located in the ESL adjacent to parcel 8, and within parcel 5 (**Attachment A**). Dead Horse Slough meanders through the ESL crossing SR 32 east of Forest Avenue and the South Fork Dead Horse Slough crosses SR32 just east of Bruce Road. The land adjacent to SR 32 between SR 99 and El Monte Avenue has already been heavily developed. As the elevation increases eastward, the plant community changes to a drier habitat represented by valley oak savannah on eastern portion of the project corridor.

Known populations of BCM are found within parcels 3 and 4, with one small population on the south side of SR 32 within the ESL east of the South Fork Dead Horse Slough (**Figure 5**).

***Highway 32 Widening*** ***Butte County Meadowfoam Impacts***




N

Project Extent derived from MTCO CAD, Butte County parcel right of way & proposed avoidance.
Date of Aerial: Feb. 26, 2002 (BCAG).
Map Date: Dec. 1, 2005/Revised: Nov. 28, 2006.

0 100 200 Feet

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Figure 5.

### 3.2.1 Environmental Study Limit

In most areas of the western portion of the ESL there is development up to the edge of the right-of-way; however, on the eastern end of the ESL several of the areas adjacent to the ESL are not developed and have the potential to support special-status species. The ESL is the same as the project boundary on the west and was expanded to include 250 feet on either side of the ESL on the eastern end to account for indirect impacts associated with the widening of SR 32 (**Figure 2**).

### 3.2.2 Physical Conditions

#### Topography

Moderate rolling hills and extensive flatland typify the topography of the ESL and the surrounding area. Slopes are dominantly convex and incised by many shallow drainage ways and depressions. The slopes throughout the area range from approximately 0 to 8 percent. The elevation on the area ranges from approximately 215 to 245 feet within the ESL.

The NRCS has identified and mapped three soils occurring within the area. Soils within the survey area include Doemill-Jokerst Complex 3 to 8 percent slopes, Redtough-Redswale Complex 0 to 2 percent slopes, and Almendra Loam 0 to 2 percent slopes (**Appendix E**). Soil characteristics include gravelly and very cobbly loams with frequent flooding and ponding and duripan layer within 4 inches of the surface toward the eastern portion of the survey area. Soils in the central portion of the survey area are loams and gravelly loams with frequent ponding and a duripan layer between 7 to 14 inches of the surface. The western soils are described as loams forming from alluvial parent material with rare flooding for brief periods from December through March. Soil series descriptions are presented in **Appendix E**.

The hydrologic regime within the ESL is dominated by precipitation and seasonal surface runoff, primarily between November and March. Seasonal surface runoff generally drains from the east to the west with the roadbed being a general high point. The water is collected in roadside ditches and channeled into small unnamed intermittent features and, the ephemeral drainage Dead Horse Slough. Hydrologic features identified and mapped within the area include the following types: intermittent drainage, jurisdictional riparian, fresh emergent wetland, seasonal wetland, vernal swale, vernal pool, and culverts (**Attachment A**).

### 3.2.3 Biological Conditions in the Environmental Study Limit

The vegetation assemblages occurring in the ESL include the following: Blue oak woodland and California annual grassland. Habitat types within the ESL include annual grasslands, blue oak woodland, northern hardpan vernal pool, and seasonal wetland.

## 3.3 Regional Species and Critical Habitat

**Table 1** lists habitat and special-status species that have the potential to occur within the ESL. Currently, USFWS has recently designated vernal pool critical habitat within Butte County. Portions of the ESL fall into this newly designated critical habitat.

**Table 1: Listed, Proposed Species, and Critical Habitat Potentially Occurring or Known to Occur in the ESL.**

| **COMMON NAME** *(Scientific Name)* | **Status** | **General Habitat Description** | **Habitat Present/ Absent** | **Rationale** |
|---|---|---|---|---|
| NORTHERN VOLCANIC MUD FLOW VERNAL POOL | CH/CDF G /-- | These pools occur on tertiary volcanic mudflows called lahars. The pools are small, forming in irregular depressions in gently sloping surfaces. | P/CH | Observed on-site |
| **PLANTS** | | | | |
| RED BLUFF DWARF RUSH (*Juncus leiospermus* var. *leiospermus)* | --/--/List 1B | Moist seepages, vernally wet swales, vernal pool margins, often on Tuscan soils and basalt tablelands. 200–3300 ft | A | Not observed during protocol level surveys |
| HOOVER SPURGE (*Chamaesyce hooveri)* | FT/--/-- | This species grows as a mat on relatively barren soil; prefers large, deep Vernal Pools along the eastern edge of California's Central Valley. | A | Not observed during protocol level surveys |
| BUTTE COUNTY CALYCADENIA *(Calycadenia oppositifolia)* | -- /LSC/List 4 | Meadows and seeps, Valley and foothill grassland | A | Not observed during protocol level surveys |
| BUTTE COUNTY MEADOWFOAM (*Limnanthes floccossa* ssp. *californica)* | FE/ SE/ List 1B | Vernally moist drainages and pools from Chico Municipal Airport southward to Shippee Rd. (the type locality) and the Thermalito Forebay. It has also been recorded for North Table Mtn. | P | Known to occur on-site |
| PINK CREAMSACS *(Castilleja rubicundula ssp. rubicundula)* | -- /LSC/List 1B | Meadows and seeps, Valley and foothill grassland | A | Not observed during protocol level surveys |
| AHART'S PARONYCHIA (*Paronychia ahartii)* | --/--/List 1B | Thin soils of grassy and rocky fields. 100–1000 ft | A | Not observed during protocol level surveys |
| ADOBE LILY (*Fritillaria pluriflora*) | -- /CSC/List 1B | Chaparral, cismontane woodland, valley and foothill grassland / often adobe. | A | Not observed during protocol level surveys |
| BUTTE COUNTY FRITILLARY *(Fritillaria eastwoodiae)* | --/--/List 3.2 | Chaparral, Cismontane woodland, Lower montane coniferous forest (openings)/sometimes serpentinite | A | No habitat present |

| **COMMON NAME** *(Scientific Name)* | **Status** | **General Habitat Description** | **Habitat Present/ Absent** | **Rationale** |
|---|---|---|---|---|
| | | | | |
| BUTTE COUNTY CHECKERBLOOM (*Sidalcea robusta*) | --/-- /List1B | Chaparral, cismontane woodland | A | No habitat present |
| VEINY MONARDELLA (*Monardella douglasii* ssp. *venosa*) | --/--/List 1B | Chaparral, cismontane woodland, valley and foothill grassland /heavy clay | A | No habitat present |
| BIDWELL'S KNOTWEED (*Polygonum bidwelliae*) | --/--/List 4 | Chaparral, cismontane woodland, Valley and foothill grassland. | P | Known to occur on-site |
| **INVERTEBRATES** | | | | |
| VERNAL POOL FAIRY SHRIMP (*Branchinecta lynchi)* | FT/--/-- | The vernal pool fairy shrimp occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. | HP | Known to occur within 0.5 miles of the ESL in hydrologically connected vernal pools. Assumed Present. |
| VERNAL POOL TADPOLE SHRIMP (*Lepidurus packardi)* | FE/--/-- | Tadpole inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet to the 89-acre Olcott Lake at Jepson Prairie. | HP | Known to occur within 0.5 miles of the ESL in hydrologically connected vernal pools. Assumed Present. |
| CALIFORNIA LINDERIELLA FAIRY SHRIMP (*Linderiella occidetalis)* | FSC/--/-- | California fairy shrimp tend to live in large, fairly clear vernal pools and lakes. However, they can survive in clear to turbid water with pH from 6.1 to 8.5, and they have been found in very small pools. | HP | Known to occur within 0.5 miles of the ESL in hydrologically connected vernal pools. Assumed Present. |
| CONSERVANCY FAIRY SHRIMP (*Branchinecta conservation)* | FE/--/-- | Conservancy fairy shrimp tend to live in large turbid, vernal pools with a pH between 6.8 and 7.5. They are tolerant of water temperatures from 41° F to 75.2° F. | A | Vernal pools are too shallow and small. No known occurrence within 8 miles of the ESL. |
| VALLEY ELDERBERRY LONGHORN BEETLE (*Desmocerus californicus dimorphus*) | FT/ --/-- | Within stems of blue elderberry bushes (Sambucus mexicana). | A | No elderberry bushes occur within the survey area |
| **FISH** | | | | |
| DELTA SMELT (*Hypomesus transpacificus*) | FT/ ST/-- | Estuarine systems in the Sacramento-San Joaquin Delta | A | No connection to known delta |
| CHINNOK SALMON SPRING RUN (*Oncorhynchus tshawytscha*) | FT/ ST/-- | Unimpeded access to the Pacific Ocean and upstream spawning habitat | A | No connection to anadromous fisheries, no EFH |

| **COMMON NAME** *(Scientific Name)* | **Status** | **General Habitat Description** | **Habitat Present/ Absent** | **Rationale** |
|---|---|---|---|---|
| | | | | |
| CHINNOK SALMON WINTER RUN (*Oncorhynchus tshawytscha*) | FE/ SE/-- | Unimpeded access to the Pacific Ocean and upstream spawning habitat | A | No connection to anadromous fisheries, no EFH |
| CENTRAL VALLEY STEELHEAD (*Oncorhynchus mykiss*) | FT/--/-- | Large freshwater streams | A | No connection to anadromous fisheries |
| **BIRDS** | | | | |
| WESTERN BURROWING OWL (*Athene cunicularia hypugaea)* | FSC/--/-- | Open country, golf courses, road cuts, airports. | A | Not observed during surveys |
| WHITE-TAILED KITE *(Elanus laucurus)* | FSC/ CSC/-- | Breed in lowland grasslands, agriculture, wetlands, oak-woodland and savannah habitats, and riparian areas associated with open areas. Believed to be resident, becoming nomadic during periods of low prey abundance. | HP | Not observed during surveys |
| OAK TITMOUSE *(Baeolophus inornatus)* | LSC/--/-- | Open mixed hardwood and mixed hardwood conifer woodlands. Will forage and breed in riparian areas. | HP | Not observed during surveys |
| SWAINSON'S HAWK (*Buteo swainsoni)* | --/ST/-- | Soars over open plains and prairie. Perches on posts, banks, or stones. | HP | Not observed during surveys |
| TRICOLORED BLACKBIRD (*Agelaius tricolor)* | FSC/ CSC/-- | Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland blackberry or grainfields; nesting habitat must be large enough to support 50 pairs | A | No habitat present |
| BALD EAGLE (*Haliaeetus leucocephalus*) | FE/SE/-- | Extended limbs of large trees, snags, and sometimes large rocks as hunting perches, large dominant conifer trees, invariably within one-mile of feeding area | A | No habitat present |
| **REPTILES & AMPHIBIANS** | | | | |
| WESTERN SPADEFOOT TOAD (*Spea hammondii)* | FSC/ CSC/-- | Western spadefoot toads breed from January to May in temporary pools. Water temperatures in these pools must be between 48° F and 86° F. | HP | Not observed during field surveys |
| NORTHWESTERN POND TURTLE (*Clemmys marmorata marmorata*) | FSC/ CSC/-- | Permanent or nearly aquatic habitats by slow moving waters with abundant aquatic vegetation. | A | No habitat present |

| COMMON NAME *(Scientific Name)* | Status | General Habitat Description | Habitat Present/ Absent | Rationale |
|---|---|---|---|---|
| | | | | |
| GIANT GARTER SNAKE *(Thamnophis gigas)* | FT/ST/-- | Marshes, sloughs, ponds, small lakes, low gradient streams, irrigation and drainage canals, and rice fields. Permanent aquatic habitat, or seasonally flooded during the snake's active season (early-spring through mid-fall), with herbaceous wetland vegetation. | HP | Not observed during field surveys |
| CALIFORNIA RED-LEGGED FROG (*Rana aurora draytonii*) | FT/ CSC/-- | Ponds and small reservoirs, but may also be found along lakeshores and in marshy areas. | A | No habitat present |
| **MAMMALS** | | | | |
| SILVER-HAIRED BAT (*Lasionycteris noctivagans*) | --/CSC/-- | Coniferous and/or mixed deciduous forests adjacent to ponds or other sources of water. | A | No habitat present |

**SE** = State-listed Endangered
**ST** = State-listed Threatened
**FE** = Federally-listed Endangered
**CSC** = California Species of Concern
**LSC =** Local Species of Concern

**CODE DESIGNATIONS**
**FT** = Federally-listed Threatened
**FPT** = Federally Proposed Threatened
**SPT** = State Proposed Threatened
**FSC** = Federal Species of Concern
**FC** = Federal Candidate Species

**List 1B -List 3** = CNPS Rare, Threatened or Endangered plants
**A**=Species Absent
**HP**=Habitat Present
**P**=Species Present
**CH**=Critical Habitat

## *Notable Species Not Included in this Assessment*

Protocol-level botanical surveys were conducted during the appropriate floristic window by Mary Bailey, consulting botanist, Lyna Black, environmental scientist, and Shirley Innecken, senior botanist. Surveys were conducted on April 14, and 19, 2004, July 26, 2004, and March 10, 14, and 24, 2005. Reference populations located within Stillwater Plains in the City of Redding, Vina Plains in Tehama County, and the Enloe Preserve in Chico, were located and observed prior to the field surveys to identify blooming status and visual characteristics. Surveys were conducted specifically for BCM, Hoover's spurge, hairy Orcutt, and Greene's tuctoria. Butte County meadowfoam was the only special-status botanical species located within the ESL.

Anadromous Fisheries

The proposed project will be constructed during the dry season to avoid construction-related impacts to anadromous fish. Although some water may still be present during

construction, there is not enough water to support anadromous fish. Additionally, anadromous fish have a low potential to occur within Little Chico Creek, which Dead Horse Slough is a tributary to, within the proposed ESL according to Paul Ward, Senior Fisheries Biologist CDFG, and Michael Aceituno, NOAA (January 4, 2005, # 151422SWR2004SA20169:HLB). Although Little Chico Creek does not support a self-sustaining population of Central Valley steelhead and Central Valley spring-run Chinook salmon, they have been observed within Little Chico Creek and may occasionally use the creek for migration, spawning, or rearing (**Appendix B**). However, in a separate letter written for formal consultation for the Humboldt Road Bridge Crossing, which occurs less than a mile downstream, the National Marine Fisheries Service (NMFS) determined a "may affect, not likely to adversely affect" for the same species based on the following (March 2006, 151422SWR2006SA00098:HLB, **Appendix B**):

- Dead Horse Slough and Little Chico Creek are not hydrologically connected to the Sacramento River or any other anadromous streams, and it is unlikely that federally listed Central Valley spring-run Chinook salmon and Central Valley steelhead can access this stream channel and be directly or indirectly affected by the proposed action (referring to the bridge replacement).

- The ESL is not within designated critical habitat for Central Valley spring-run Chinook salmon and Central Valley steelhead.

The project will have no direct impacts on anadromous fish species within the ESL. Congress defined essential fish habitat (EFH) for federally managed fish species as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." Any habitat utilized by Chinook salmon is considered EFH and guidelines to protect these areas are put forth by the Magnuson-Stevens Act. No direct impacts will occur to EFH based on the assumption that bridge construction will be conducted in June through October, when anadromous fish are not present (NOAA letter of Concurrence, March 2006 151422SWR2006SA00098:HLB). Thus, since Dead Horse Slough is a tributary to Little Chico Creek, it is assumed that the determination will be the same.

<u>Conservancy Fairy Shrimp</u>

The Conservancy fairy shrimp is federally listed as endangered. Its original range is unknown but is thought to include the central valley and southern coastal regions. It is currently found in several conservancies throughout the valley. Conservancy fairy shrimp prefer moderately turbid, deep, cool-water vernal pools. They have been collected from early November to early April.

Although the project occurs within the historical range of the Conservancy fairy shrimp, they are not expected to occur. The 1996 BO for the Enloe Project (currently known as Meriam Park) states that Conservancy fairy shrimp were not detected during surveys and that the pools within the Enloe [Meriam Park] ESL are too shallow to provide sufficient ponding (BO, 1-1-95-F-9, 1996). These pools are similar in size, shape, and characteristics to the pools located within the ESL. In addition,

they are hydrologically connected to the vernal pools that occur on the south side of SR 32. The closest known population is located within the Vina Plains Preserve, which is located at the northernmost point of Butte County (Eriksen and Belk 1999). Additionally, a recent BO issued for the project located just south of 20th Street with similar vernal pool habitat determined that suitable habitat for Conservancy fairy shrimp was not present (Jarvis Gardens BO 1-1-06-F-0135, 2006).

Valley elderberry longhorn beetle

Valley elderberry longhorn beetle only occur within their host plant *Sambucus mexicana*, which does not occur within or adjacent to the ESL.