# 3.7 BIOLOGICAL RESOURCES

This section describes the existing biological resources in the study area. These resources include wetlands, plants, landmark and heritage trees, wildlife habitat, and special status species, which are plants and animals that are legally protected under state and federal Endangered Species Acts. These resources also include other sensitive resources, such as certain species of birds that nest or winter in the project area. CPUC examined potential impacts to these resources from construction or operation of the project and project alternatives. CPUC also examined the potential for construction activities to spread noxious or invasive weeds or agricultural pests and diseases in the project area.

## 3.7.1 ENVIRONMENTAL SETTING

### *VEGETATION COMMUNITIES AND ASSOCIATED WILDLIFE HABITATS*

For purposes of this section and to provide a full discussion of potential issues, the term "project area" is generally defined to include habitats that occur and species that may occur along the proposed and alternative pipeline alignments within a 70-foot corridor, which generally corresponds to the likely construction easements associated with the proposed project and the project alternatives. Not all habitats within these corridors will be affected, however. For example, all major water crossings will be directionally drilled. Therefore, there will be no construction-related effects at these water crossings.

Three common and two sensitive plant communities are known to occur within the project area. Common plant communities are native or naturalized communities that are locally and regionally common and provide at least some habitat functions and values. Common plant communities identified in the project area include agricultural, ruderal, and ruderal/developed areas.

Sensitive plant communities are those communities that are biologically diverse and regionally uncommon, according to Holland (1986). Sensitive plant communities identified in the project area include marsh and riparian scrub and woodland. Additional sensitive plant communities that may occur in the project area include vernal pool and swale, alkali and native bunchgrass grassland, and seasonal wetlands.

The project area includes portions of Sherman, Twitchell, Andrus, Tyler, Bouldin, Brannan, and Staten Islands, Brack Tract, Canal Ranch, and Terminous Tract, in the Sacramento-San Joaquin River Delta (Delta), and the adjacent Central Valley in Sacramento and San Joaquin counties. The project area is characterized primarily by agricultural land and contains small amounts of pasture, developed and ruderal plant communities, and slough channels. Small amounts of riparian scrub, woodland and marsh occur along the banks of slough levees. Marsh vegetation may occur along some agricultural ditches and around ponded areas. Many low-lying agricultural areas are flooded during the rainy winter period.

At least 230 species of birds and 43 species of mammals are found in the Delta (California Department of Fish and Game, 1987). Many of these species occupy the area only during the winter. The most conspicuous

groups of wintering wildlife include waterfowl and other waterbirds, shorebirds, and raptors. Wildlife species and populations on different islands vary primarily according to the amount and types of crops grown, the amount of natural habitats remaining, and the extent of seasonal flooding of agricultural fields.

The Delta provides habitat that is important to shorebirds in particular. Thousands of shorebirds use fields that flood shallowly from levee seepage and rainfall in winter, and are flooded for weed control in late summer and fall.

The Delta also provides habitat for wintering waterfowl that migrate down the Pacific Flyway each year. Large numbers of snow geese, tundra swans, white-fronted geese, pintails, and mallards are attracted to the Delta because of the large amount of waste grain and winter wheat foraging habitat, and also because the seasonally flooded fields provide both food and roosting habitat.

The sandhill crane is one of the more conspicuous species that migrates to the Delta each year. Both the lesser sandhill crane and the greater sandhill crane use traditional wintering areas in the Delta from October through February.

The Delta also supports an abundance of wintering raptors, including red-tailed hawks, ferruginous hawks, rough-legged hawks, white-tailed kites, American kestrels, sharp-shinned hawks, Cooper's hawks, and Peregrine falcons. During the winter, raptors forage opportunistically throughout the Delta on rodents that are made accessible by the flooding of fields and other agricultural activities. The habitats comprising the project area are briefly described below.

## Agriculture

Most of the project area is in active agricultural use. The predominant agricultural uses are cultivation of field crops (e.g., corn and tomatoes), vineyards, orchards, and small amounts of fallow lands. Agricultural land is locally and regionally common.

## Pasturelands

Pasturelands make up a small amount of the project area and occur disjunctly, with the largest pasturelands located in the Lodi gas field area. Most of the pastures were cultivated at some time in the recent past and thus are comprised mainly of introduced annual grasses and forbs rather than native perennial grassland species.

Pasturelands are characterized primarily by common introduced plant species, including wild oats, bromes, fescue, Bermuda grass, Italian rye, mustards, and yellow starthistle. On Delta islands and in saline or alkaline soils, saltgrass also occurs.

## Marshes, Riparian Scrub, and Woodland

Marshes, riparian scrub, and woodland habitat also account for a small portion of the of the project area. Marshes are dominated by emergent herbaceous vegetation growing in inundated or saturated soil. Marsh communities occupy in-channel islands, and occur along the lower banks of rivers and sloughs within the normal high watermark zone. Marsh communities may also occur along irrigation ditches, circulation ditches, and ponds.

Areas of riparian scrub and woodland occur along Delta waterways and levees, and also along water channels and ponded areas on the Delta islands.

## Drainages

A number of tidal sloughs, rivers, and perennial drainages occur, in the project area, along with numerous irrigation or circulation ditches. The sloughs, rivers, and perennial drainages contain varying amounts of marsh, riparian, and ruderal vegetation. Some channels are becoming colonized by invasive plants. Slough channels and perennial drainages can provide habitat for a number of rare species, including Suisun Marsh aster, Delta tule pea, Delta mudwort, and Mason's lilaeopsis. Numerous agricultural ditches, ranging from 2 to 5 feet deep, are located within the project area. The ditches are generally actively maintained and contain little vegetation.

## Ruderal and Developed Areas

Developed habitat areas are sparsely distributed throughout the project area, occurring adjacent to homes, ranch facilities, and other dwellings. The vegetation in these areas is a mix of ruderal and horticultural species. Ruderal areas account for a small portion of the project area. Roadways and associated rights-of-way account for a small portion of the lands within the proposed pipeline alignment, a moderate portion for the Existing Pipeline Corridor Alternative pipeline alignment, and a substantial portion of the Public Right-of-Way Route Alternative pipeline alignment. Ruderal and developed area vegetation communities are locally and regionally common.

## Special-Status Species

Several special-status species occur in the project vicinity. However, no special-status species are known to occur in areas directly affected by the proposed project or project alternatives. Tables 3.7-1 and 3.7-2 provide a description of each special-status species with potential to occur in areas directly affected by the proposed project and project alternatives, along with their legal status (if any), habitat association, and occurrence in the project vicinity.

### *Special-Status Plants*

Special-status plant species with the potential to occur in areas affected by the proposed project are defined as those special-status species with known populations in the vicinity of the project area and with habitats similar or identical to those found in the project area.

Table 3.7-1 lists special-status plant species with the potential to occur in areas directly affected by the proposed project and project alternatives. Although unlikely, small amounts of suitable habitat for these species may exist within the area affected by the proposed project and project alternatives.

### *Special-Status Wildlife*

Several special-status wildlife species are known to occur in the project vicinity (Table 3.7-2). Many of these species are not known to occur in the area affected by the proposed project and no suitable habitat exists in the project area. Special-status wildlife species known to occur or with the potential to occur in the project vicinity and that have at least the *potential* to be affected by the proposed project and project alternatives are listed in Table 3.7-2. Table 3.7-2 also lists the status of each species (i.e., the technical designation under federal and state laws), California distribution, habitats, and occurrence in the project area. Several additional species may occasionally use project area habitats (e.g., peregrine falcon), but the proposed project and project alternatives could not result in significant effects to these species.

### *Special-Status Fish*

A number of special-status fish species inhabit the project area. Fish species that occur in the project vicinity include winter-run, late fall-run, and spring-run Chinook salmon, steelhead trout, green sturgeon, Delta smelt and longfin smelt, and splittail. Some are anadromous species, such as Chinook salmon, steelhead trout, and green sturgeon; whereas others are year-round residents, such as Delta smelt, longfin smelt, and Sacramento splittail. The proposed project and project alternatives are designed to avoid all aquatic habitats that have the potential to support such species, therefore, these species are not discussed further in this EIR.

## Other Sensitive Biological Resources

Other sensitive biological resources also occur in the vicinity of the proposed project and project alternatives and are described below.

**TABLE 3.7-1**
**SPECIAL-STATUS PLANTS WITH THE POTENTIAL TO OCCUR IN AREAS DIRECTLY AFFECTED BY THE PROJECT AND PROJECT ALTERNATIVES**



| Common and Scientific Names | Legal Status [a] (Federal/State /CNPS) | Distribution | Habitat | Plant Identification Period/Flowering Period | Occurrences in Study Area |
|---|---|---|---|---|---|
| Heartscale *Atriplex cordulata* | SC/**B**/1B | Central Valley and valleys of adjacent foothills | Alkali grassland and meadow, alkali scrub, and vernal pool margins | Summer/ May - Oct. | None; suitable habitat may exist for this species |
| Alkali milkvetch *Astragalus tener* var. *tener* | SC/**B**/1B | Central western California | Subalkaline flats, vernal pool margins, alkali meadows and grasslands | Spring/ March - June | None; suitable habitat may exist for this species |
| San Joaquin spearscale *Atriplex joaquiniana* | SC/--/1B | Western Central Valley and valleys of adjacent foothills | Alkali grassland, alkali scrub, vernal pool margins | Summer/ Apr. - Sept. | Nearest reported population is located over 3 miles north of the proposed pipeline; suitable habitat may exist for this species |
| Palmate bird's-beak *Cordylanthus palmatus* | E/E/1B | Colusa, Yolo, Alameda, San Joaquin, Madera, and Fresno counties | Alkali grassland and meadows, alkali scrub | Summer/ May - Oct. | None; suitable habitat may exist for this species |
| Slough thistle *Cirsium crassicaule* | SC/**B**/1B | Endemic to San Joaquin Valley | Marshes, swamps, chenopod scrub, riparian scrub | Summer/ May - Aug. | None; suitable habitat may exist for this species |
| Legenere *Legenere limosa* | SC/**B**/1B | Southern Sacramento Valley and adjacent portions of the Coast Ranges | Vernal pools | Spring/ May - June | Nearest known population is more than 2 miles north of the proposed pipeline; suitable habitat may exist for this species |
| Blue skullcap *Scutellaria lateriflora* | **B**/**B**/2 | Inyo, San Joaquin counties; widespread outside California, to British Columbia and eastern U.S. | Wet meadows and marshes | Summer/ July - Sept. | There is one non-site-specific occurrence reported for this species in the Delta Islands area south of Isleton; suitable habitat may exist for this species |

**TABLE 3.7-1 Continued**



| Common and Scientific Names | Legal Status [a] (Federal/State /CNPS) | Distribution | Habitat | Plant Identification Period/Flowering Period | Occurrences in Study Area |
|---|---|---|---|---|---|
| Antioch Dunes evening primrose *Oenothera deltoides* ssp. *Howellii* | E/**B**/1B | Contra Costa, Solano, and Sacramento counties | Sandy dunes in the Delta region | Spring/ March - June | Brannan Island State Recreation Area |
| Succulent owl's-clover *Castilleja campestris* ssp. *succulenta* | T/E/1B | Fresno, Merced, Madera, Mariposa, San Joaquin, Stanislaus counties | Vernal pools, moist valley and foothill grassland, often in acidic soils | Spring/ April - May | None; nearest population is more than 2 miles north of proposed pipeline; suitable habitat may exist for this species |
| Sanford's sagittaria *Sagittaria sanfordii* | SC/**B**/1B | Butte, Del Norte, Fresno, Kern, Merced, Sacramento, Shasta, San Joaquin, Tehama counties; extirpated from Ventura and Orange counties | Freshwater marshes, ponds, ditches, in standing or slow-moving water | Summer/ May - Oct. | None; nearest population is on island in the North Mokelumne River less than 1/4 mile south of the proposed pipeline; suitable habitat exists for this species |
| Greene's tuctoria *Tuctoria greenei* | E/R/1B | Central Valley | Vernal pools | Summer/ May - July | None; suitable habitat may exist for this species |

[a] Status explanations:

**Federal**

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
**B** = No status definition.

**State**

R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
E = listed as endangered under the California Endangered Species Act.
**B** = No status definition.

**TABLE 3.7-1 Continued**



**CNPS**

1A = List 1A species: presumed extinct in California
1B = List 1B species: rare, threatened, or endangered in California and elsewhere
2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere
3 = List 3 species: plants about which more information is needed to determine their status.
**B** = No status definition.

**TABLE 3.7-2**
**SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO BE AFFECTED BY THE PROPOSED PROJECT AND PROJECT ALTERNATIVES**



| Common and Scientific Names | Status [a] Federal/State | California Distribution | Habitats | Occurrence in Study Area |
|---|---|---|---|---|
| **Invertebrates** | | | | |
| Vernal pool fairy shrimp *Branchinecta lynchi* | T/-- | Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County; isolated populations also in Riverside County | Common in vernal pools; also found in sandstone rock outcrop pools | Not known to occur; no suitable habitat |
| Vernal pool tadpole shrimp *Lepidurus packardi* | E/-- | Shasta County south to Merced County | Vernal pools and ephemeral stock ponds | Not known to occur; no suitable habitat |
| Valley elderberry longhorn beetle *Desmocerus californicus dimorphus* | T/-- | Streamside habitats below 3,000 feet through the Central Valley of California | Riparian and oak savanna habitats with elderberry shrubs; elderberries are host plant | Yes; occurs along south side of Seven Mile Slough and along Bear Creek & Mokelumne River near Lockeford |
| **Amphibians** | | | | |
| California tiger salamander *Ambystoma californiense* (=*A. tigrinum c.*) | C/SSC | Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to Santa Barbara County | Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy | Unknown; moderate potential to occur in uncultivated grasslands with nearby stock ponds, vernal pools, or sloughs |
| California red-legged frog *Rana aurora draytoni* | T/SSC | Found along the coast and coastal mountain ranges of California from Humboldt County to San Diego County; Sierra Nevada (midelevations [above 1,000 feet] from Butte County to Fresno County) | Permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation and riparian species along the edges; may estivate in rodent burrows or cracks during dry periods | None; extirpated from Valley floor |
| Western spadefoot *Scaphiopus hammondii* | SC/SSC | Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California | Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands | Unknown; low potential to occur in uncultivated grasslands with nearby vernal pools, sloughs, or stock ponds |

**TABLE 3.7-2 Continued**



| Common and Scientific Names | Status [a] Federal/State | California Distribution | Habitats | Occurrence in Study Area |
|---|---|---|---|---|
| **Reptiles** | | | | |
| California horned lizard *Phrynosoma coronatum frontale* | SC/SSC | Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California | Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging | Unknown; low potential to occur |
| Giant garter snake *Thamnophis gigas* | T/T | Central Valley from Fresno north to the Gridley/Sutter Buttes area; has been extirpated from areas south of Fresno | Sloughs, canals, and other small water-ways where there is a prey base of small fish and amphibians; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter | Yes; known to occur near Decker Island |
| Pond turtle *Clemmys marmorata* ssp. | SC/SSC | Occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; range overlaps with that of the northwestern pond turtle throughout the Delta and in the Central Valley from Sacramento County to Tulare County | Woodlands, grasslands, and open forests; aquatic habitats, such as ponds, marshes, or streams, with rocky or muddy bottoms and vegetation for cover and food | Yes; found near ADuck Pond@ near Seven Mile Slough |
| **Birds** | | | | |
| Double-crested cormorant *Phalacrocorax auritus* | --/SSC | Winters along the entire California coast and inland over the Coast Ranges into the Central Valley from Tehama County to Fresno County; a permanent resident along the coast from Monterey County to San Diego County, along the Colorado River, Imperial, Riverside, Kern, and King Counties, and the islands off San Francisco; breeds in Siskiyou, Modoc, Lassen, Shasta, Plumas, and Mono Counties; also breeds in the San Francisco Bay Area and in Yolo and Sacramento Counties | Rocky coastlines, beaches, inland ponds, and lakes; needs open water for foraging, and nests in riparian forests or on protected islands, usually in snags | Yes; historic colony known from Sherman Island |

**TABLE 3.7-2 Continued**



| Common and Scientific Names | Status [a] Federal/State | California Distribution | Habitats | Occurrence in Study Area |
|---|---|---|---|---|
| White-faced ibis *Plegadis chihi* | SC/SSC | Both resident and winter populations on the Salton Sea and in isolated areas in Imperial, San Diego, Ventura, and Fresno Counties; breeds at Honey Lake, Lassen County, at Mendota Wildlife Management Area, Fresno County, and near Woodland, Yolo County; winters in Merced County and along the Sacramento River in Colusa, Glenn, Butte, Sutter, and Yolo Counties | Prefers freshwater marshes with tules, cattails, and rushes, but may nest in trees and forage in flooded agricultural fields, especially flooded rice fields | Yes, during winter and migration |
| Mountain plover *Charadrius montanus* | PT/SSC | Does not breed in California; in winter, found in the Central Valley south of Yuba County, along the coast in parts of San Luis Obispo, Santa Barbara, Ventura, and San Diego Counties; parts of Imperial, Riverside, Kern, and Los Angeles Counties | Occupies open plains or rolling hills with short grasses or very sparse vegetation; nearby bodies of water are not needed; may use newly plowed or sprouting grainfields | Unknown; moderate potential to occur during bried time periods in agriculture fields during winter and migration |
| Long-billed curlew *Numenius americanus* | --/SSC | Nests in northeastern California in Modoc, Siskiyou, and Lassen Counties; winters along coast or in interior valleys west of Sierra Nevada | Nests at high-elevation grasslands adjacent to lakes or marshes during migration and in winter; frequents coastal beaches and mudflats or interior grasslands and agricultural fields | Yes, duing winter |
| Swainson's hawk *Buteo swainsoni* | --/T | Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley; the state=s highest nesting densities occur near Davis and Woodland, Yolo County | Nests in oaks or cottonwoods in or near riparian habitats; forages in grasslands, irrigated pastures, and grain fields | Yes; known to nest in several locations near proposed alignment and forage in agriculture fields |
| Ferruginous hawk *Buteo regalis* | SC/SSC | Does not nest in California; winter visitor along the coast from Sonoma County to San Diego County, eastward to the Sierra Nevada foothills and southeastern deserts, the Inyo-White Mountains, the plains east of the Cascade Range, and Siskiyou County | Open terrain in plains and foothills where ground squirrels and other prey are available | Yes, during winter |
| Northern harrier *Circus cyaneus* | --/SSC | Throughout lowland California; has been recorded in fall at high elevations | Grasslands, meadows, marshes, and seasonal and agricultural wetlands providing tall cover | Yes, resident |

**TABLE 3.7-2 Continued**



| Common and Scientific Names | Status [a] Federal/State | California Distribution | Habitats | Occurrence in Study Area |
|---|---|---|---|---|
| White-tailed kite *Elanus caeruleus* | --/FP | Lowland areas west of Sierra Nevada from head of Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border | Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging | Yes, resident |
| Greater sandhill crane *Grus canadensis tabida* | --/T | Breeds on the plains east of the Cascade Range and south to Sierra County; winters in the Central Valley, southern Imperial County, Lake Havasu National Wildlife Refuge, and the Colorado River Indian Reserve | Summers in open terrain near shallow lakes or freshwater marshes; winters in plains and valleys near bodies of fresh water | Yes; occurs in agriculture fields near Canal Ranch |
| Tricolored blackbird *Agelaius tricolor* | SC/SSC | Largely endemic to California; permanent residents in the Central Valley from Butte County to Kern County; at scattered coastal locations from Marin County south to San Diego County; breeds at scattered locations in Lake, Sonoma, and Solano Counties; rare nester in Siskiyou, Modoc, and Lassen Counties | Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields; nesting habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony; requires large foraging areas, including marshes, pastures, agricultural wetlands, dairies, and feedlots, where insect prey is abundant | Yes; known to occur near Jahant Slough near Collierville and also east of Galt. |
| Western burrowing owl *Athene cunicularia hypugea* | SC/SSC | Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast | Rodent burrows in sparse grassland, desert, and agricultural habitats | Unknown; moderate potential to occur in uncultivated grasslands during breeding season; high potential to occur during winter in agriculture habitats |

**TABLE 3.7-2 Continued**



| Common and Scientific Names | Status [a] Federal/State | California Distribution | Habitats | Occurrence in Study Area |
|---|---|---|---|---|
| Short-eared owl<br>*Asio flammeus* | --/SSC | Permanent resident along the coast from Del Norte County to Monterey County, although very rare in summer north of San Francisco Bay, in the Sierra Nevada north of Nevada County, in the plains east of the Cascades, and in Mono County; small, isolated populations also nest in the Central Valley; winters on the coast from San Luis Obispo County to San Diego County, in the Central Valley from Tehama County to Kern County, in the eastern Sierra Nevada from Sierra County to Alpine County, on the Channel Islands, and in Imperial County | Freshwater and salt marshes, lowland meadows, and irrigated alfalfa fields; needs dense tules or tall grass for nesting and daytime roosts | Yes; known to occur on Sherman Island |
| **Mammals** | | | | |
| Pallid bat<br>*Antrozous pallidus* | --/SSC | Low elevations throughout California | Rocky outcrops, cliffs, and crevices for roosting; access to open habitats required for foraging | Unknown; low potential for breeding; moderate potential for foraging |
| Pale Townsend's (=western) big-eared bat<br>*Plecotus townsendii pallescens* | SC/SSC | Klamath Mountains, Cascades, Sierra Nevada, Central Valley, Transverse and Peninsular Ranges, Great Basin, and the Mojave and Sonora Deserts | Mesic habitats; gleans insects from brush or trees and feeds along habitat edges | Unknown; low potential for breeding; moderate potential for foraging |

[a] Status explanations:

**Federal**

E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.
SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
-- = No status definition.

**TABLE 3.7-2 Continued**



**State**

| | | |
|---|---|---|
| E | = | listed as endangered under the California Endangered Species Act. |
| T | = | listed as threatened under the California Endangered Species Act. |
| FP | = | fully protected under the California Fish and Game Code. |
| SSC | = | species of special concern in California. |
| -- | = | No status definition. |

### *Wintering Waterfowl and Shorebirds*

Large numbers of waterfowl inhabit the managed seasonal wetlands on both private and public lands during the winter. Abundant species include northern pintail, northern shoveler, mallard, gadwall, American widgeon, green-winged teal, lesser scaup, ring-necked duck, and white-fronted geese. Seasonal wetlands in the project area also support shorebirds, including American avocet, black-necked stilt, dowitcher, western and least sandpipers, and dunlin.

### *Nesting Swallows*

Nesting swallows are protected under the Migratory Bird Treaty Act. Several species nest and forage within the area affected by the proposed project. The cliff swallow is the most abundant. Cliff swallows commonly nest under bridge structures in large colonies. Other nesting swallow species in the area affected by the proposed project are the northern rough-winged swallow, the barn swallow, and the tree swallow. Although no nesting swallows have been recorded in the project area, they likely occur under bridge structures (especially bridges over water) throughout the project vicinity.

### *Nesting Herons*

Rookeries in the general vicinity of the project area include mixed species, such as great blue herons and great egrets. Nesting begins in late March and most of their young have fledged by early July. No active rookeries have been reported within the project area, but potential nesting habitat is present wherever riparian trees occur along sloughs and waterways in the vicinity.

## 3.7.2 REGULATORY SETTING

### *FEDERAL AND STATE REGULATIONS*

### Special-Status Species

Special-status species are plants and animals that are legally protected under state and federal Endangered Species Acts. Additional species may also be sufficiently rare to qualify for inclusion as special status. For purposes of this EIR, the list of special-status plants and animal species was derived from the following categories:

- plants or animals listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 Code of Federal Regulations 17.12 [listed plants], 17.11 [listed animals] and various notices in the Federal Register [proposed species]);

- plants or animals listed or proposed for listing by the state of California as threatened or endangered under the California Endangered Species Act (14 California Code of Regulations 670.5);

- plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);

- plants or animals that are candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (61 Federal Register 40, February 28, 1996);

- plants or animals designated as being "of special concern" (former C2 candidates) by Region 1 of U.S. Fish and Wildlife Service (USFWS);

- plants considered by the California Native Plant Society to be "rare, threatened, or endangered in California" (List 1B in Skinner and Pavlik 1994);

- animal species of special concern to the California Department of Fish and Game (CDFG) (Remsen, 1978 [birds]; Williams, 1986 [mammals]; Jennings and Hayes, 1994 [reptiles and amphibians]; Moyle et al., 1989 [fish]); and

- animals fully protected in California (California Fish and Game Code, Sections 3511 [birds]; 4700 [mammals]; and 5050 [reptiles and amphibians]).

## *LOCAL ORDINANCES*

Sacramento County has adopted a tree ordinance to protect native trees, native oak trees, and landmark trees. Similarly, San Joaquin County has adopted a tree ordinance to protect native oak trees, heritage trees, and historical trees. These ordinances are described below.

### Sacramento County Tree Ordinance

- Native trees include all non-oak native trees except cottonwoods.

- Native oak trees are defined as those measuring 6 inches or greater in diameter at 4.5 feet above ground except in areas zoned exclusively for agriculture. Native oak groves are to be protected, in addition to individual trees.

- Landmark trees are defined as non-native oaks having a diameter at breast height of 19 inches or more.

### San Joaquin County Tree Ordinance

- Native oak trees include valley oak (*Quercus lobata*) trees with a trunk diameter of 6 inches to 32 inches for a single trunk tree, or a combined trunk diameter of 8 inches or greater for a multitrunk tree, measured 4.5 feet above the ground; interior live oak (*Quercus wislizenii*)

trees, California live oak (*Quercus agrifolia*) trees, or blue oak (*Quercus douglasii*) trees with a trunk diameter of 4 inches to 32 inches for a single trunk tree or a combined trunk diameter of 6 inches or greater for a multitrunk tree, measured 4.5 feet above the ground.

- Heritage oak trees are defined as native oak trees that have a single trunk diameter of 32 inches or greater measured at 4.5 feet above the ground.

- Historical trees include any tree or group of trees designated by the Planning Commission because of size, age, location, or history.

## 3.7.3 SIGNIFICANCE CRITERIA

Criteria for determining the significance of biological resource impacts were developed based on questions contained in the environmental checklist form in Appendix G of the State CEQA Guidelines. Based on the checklist questions, a project may have a significant effect on the environment if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations by CDFG or USFWS;

- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in regional plans, policies, and regulations or by CDFG or USFWS;

- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through removal, filling, hydrological interruption, or other means;

- interfere substantially with the movement of any native or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Section 15064(h) of the State CEQA Guidelines states that a change in the environment is not a significant effect if the change complies with a standard that is a quantitative, qualitative, or a performance requirement found in a statute, ordinance, resolution, rule, regulation, order, or other standard of general application. For the purposes of this EIR, no such standard is considered relevant to the assessment of significant effects.

# 3.7.4 IMPACTS OF THE PROPOSED PROJECT AND MITIGATION MEASURES

## *METHODOLOGY*

Existing available information was reviewed to determine the location and types of habitats and the plant, wildlife, and fish resources that could exist in the project area. Unless otherwise noted, the methodology is the same for the analysis of alternatives. The information review included:

- a search of CDFG's Natural Diversity Database for the 7.5-minute U.S. Geological Survey Lockeford, Lodi North, Thornton, Isleton, Rio Vista, and Jersey Island quadrangles (Natural Diversity Data Base, 1999);
- the proponent's environmental assessment and technical appendix (Dames & Moore, 1998);
- the proponent's environmental assessment and technical appendix, first amendment, Appendix A and Attachment 1 (Dames & Moore, 1999a);
- Lodi Gas Storage project wetland delineation report (Dames & Moore, 1999b);
- additional information provided by the project proponent (Dames & Moore, 1999);
- contacts with the USFWS and other knowledgeable individuals;
- *Summary of Sensitive Plant and Wildlife Resources in Suisun Marsh during the Years 1984-1994* (California Department of Water Resources, 1994);
- *Suisun Marsh Study* (Miller, 1975);
- a review of the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California* (Skinner and Pavlik, 1994) and *The Jepson Manual: Higher Plants in California* (Hickman, 1993); and
- a review of Jones & Stokes Associates file information for the proposed project area.

Habitats and their extent were identified by aerial photograph interpretation and verification of the previously identified habitat types. Blue-line aerial photograph-maps, taken in December 1998 and plotted at a scale of 1 inch = 400 feet (Dames & Moore 1999a), were used for aerial photograph interpretation by a qualified botanist of habitat types and their extent.

## *IMPACTS ON VEGETATION RESOURCES*

### Impact 3.7-1: Potential Disturbance to Special-Status Plant Species in Unsurveyed or Modified Portions of the Alignment

Although no special-status species or populations are known to occur within areas affected by the proposed project, a review of CDFG's Natural Diversity Database (1999) and consultation with USFWS indicates that the proposed project could potentially result in effects on threatened, endangered, rare, and other special-status plants if they occur within areas directly affected by the project. Such effects could include the direct mortality of individual or small populations of these species, which would be considered a significant impact. Impacts would be avoided to the fullest extent by the use of directional drilling of pipelines under rivers, sloughs, wetlands, roadways, and avoidance of sensitive habitats. Implementation of Mitigation Measures 3.7-1a, 3.7-1b, and 3.7-1c would further minimize the potential for adverse effects on threatened, endangered, rare, and other special-status species and reduce this impact to a less-than-significant level.

#### *Mitigation Measure 3.7-1a: Conduct floristic surveys to identify the location and extent, if any, of threatened, endangered, proposed, and special-status plants*

Prior to construction activities in any area, a qualified biologist will be retained by CPUC to determine the need to conduct detailed floristic surveys and to conduct appropriate surveys according to CDFG Guidelines (Nelson, 1987) to identify the locations of threatened, endangered, proposed, and other special-status plants. Significant surveys have been conducted by the project proponent and this information will be used in the assessment. Surveys to locate special-status species may be conducted in areas affected by construction activities during the appropriate identification periods (April through July) in the relatively few vegetation communities that contain suitable habitat for the species. Systematic field techniques will be used and all plants encountered by the botanist will be identified to determine if they are threatened, endangered, proposed, or other special-status plants. Any special-status plant populations identified will be staked in the field, photographed, documented on Natural Diversity Data Base forms, and submitted to CDFG. It is unlikely that any special-status species will be located during these surveys. However, if threatened, endangered, or other special-status plants are located during the floristic surveys, the project proponent should implement Mitigation Measures 3.7-1b and/or 3.7-1c.

If project construction is to occur during times of the year other than April through July, the qualified botanist retained by CPUC will conduct a detailed habitat evaluation of areas to be affected by the project. Areas that the botanist determines are unlikely to support special-status plant species will be identified and construction will be allowed to occur. Areas that have a high likelihood to support special-status species will either be avoided by changes in construction techniques or alignment, or the area will be avoided until floristic surveys can be conducted and the site can be cleared by the botanist for construction.

Active agricultural fields, excluding ruderal edge habitat that *could* contain habitat for special-status species, slough and river channels, and other sensitive habitat locations (e.g., wetland, riparian scrub and woodland) already designated for surface avoidance (e.g., by using directional drilling) do not require surveys because

they do not support special-status plant species or have already been identified as locations or community types to be avoided by project activities according to the project design.

*Monitoring Action* — Construction sites will be surveyed, as described, above by CPUC to determine the presence or potential presence of special-status plant species.

*Responsibility* — CPUC

*Timing* — Construction sites will be surveyed as described above prior to construction activities in each area during the entire project construction phase.

### *Mitigation Measure 3.7-1b: Avoid and protect known federal and state listed plants*

The project will avoid federal and state listed plants, if any, that are identified in the construction area, right-of-way, and new or enhanced access road areas. This avoidance will be accomplished by protecting the population with fencing and prohibiting all construction activities in these designated areas (e.g., through directional drilling or relocation of alignment).

Before construction activities are initiated near federal or state listed plant populations, the CPUC biological monitor will identify the location for a protective barrier. Federal and state listed plant populations with a high potential to be disturbed will be identified and protected by installing fencing (e.g., barrier fencing, sedimentation fencing, straw bales) and posting signs. The CPUC biological monitor will use a combination of field notes, photographs, maps, global positioning system, and field stakes to locate special-status plant populations during the preconstruction period. Protective barriers will be in place before construction activities are initiated in areas with special-status plant populations and remain in place until all construction activities that could disturb the special-status plants are completed.

*Monitoring Action* — All identified state and federally listed plant species will be avoided during construction

*Responsibility* — CPUC

*Timing* —During the entire construction phase of the project.

***Mitigation Measure 3.7-1c: Minimize long-term impacts on special-status plant populations***

To minimize long-term impacts on plant species that are considered special-status species (California Native Plant Society Lists 1B and 2) but are not state or federally listed, the project proponent will attempt to avoid impacts to these populations by prohibiting all construction activities in these areas (see Mitigation Measure 3.7-1b). If directional drilling or project realignment is not feasible, the project proponent will implement the following general measures:

- Notify CDFG at least 10 days in advance of construction that avoidance measures are not feasible.
- Depending on the species, seed, propagules, and/or viable plant material will be collected and stored or maintained at a location acceptable to CDFG.
- The topsoil (6-12 inches) from the excavated site will be stockpiled with intact roots, rhizomes, and seed bank. The topsoil and collected plant material will be replaced during the appropriate season following completion of construction. This activity will be monitored by a botanist familiar with the local flora.
- Contact CDFG to report findings after construction is complete.
- Monitor the success in reestablishing the special-status plant population through one growing season and report the results to CDFG.

*Monitoring Action* — Ensure that each step of the mitigation measure described above is implemented.

*Responsibility* — CPUC

*Timing* — During the entire construction phase of the project as necessary.

## Impact 3.7-2: Potential Introduction or Spread of Noxious and Invasive Weeds and Pests During Construction Activities

Construction activities could result in the introduction or spread of noxious weeds or pests into currently uninfested areas, potentially resulting in effects on native plant species or commercially important agricultural crops. Plants, seeds, or pests may be dispersed on construction equipment or in imported materials if the appropriate measures are not implemented. This impact is considered significant. The spread of noxious weeds and pests is of concern to local, state and federal agencies, including county agricultural commissioners' offices, the California Department of Food and Agriculture, CDFG, and USFWS. Implementation of Mitigation Measure 3.7-2 would minimize the potential for adverse effects on sensitive vegetation resources and reduce this impact to a less-than-significant level.

### *Mitigation Measure 3.7-2: Control dispersal of noxious and invasive weeds and pests during construction activities*

To prevent the spread of noxious and invasive weeds and pests, including phylloxera, into previously uninfected areas, the project proponent will implement the following measures:

- Coordinate with the Sacramento and San Joaquin County Agricultural Commissioners' offices and CDFG to determine noxious and invasive weeds and pests of concern in the proposed project area.

- Stake noxious and invasive weed and pest infestation areas prior to construction and clearly identify their locations on the construction drawings (by project design, occurrences along roadways and levee banks will be avoided and therefore do not need to be staked).

- Control populations of existing, staked, noxious and invasive weeds of concern in the proposed project area prior to initiation of construction activities by applying an acceptable herbicide or by employing acceptable mechanical methods of removal.

- Test soil from each field for phylloxera before excavation for pipeline construction. If phylloxera is detected, ensure that other soil is not mixed with affected soil, and replace affected soil within the same field.

- Clean equipment at designated wash stations (at the separation and compressor facility) away from waterways prior to use in the project area and after leaving infestation areas.

- Use certified weed-free imported materials (e.g., strawbales, erosion control seed).

- Conduct follow-up monitoring and treatment of noxious and invasive weeds and pests introduced by project construction activities, if any, on lands (e.g., uncultivated grassland) and waterways (e.g., infrequently maintained ditches) in the project area that are not under active cultivation or vegetation management.

*Mitigation Action* — Ensure that appropriate language is incorporated into bid specifications to require the measures above to be implemented and monitor project construction activities to ensure compliance and appropriate action.

*Responsibility* — CPUC and LGS

*Timing* — During development of bid specifications and during project construction.

## Impact 3.7-3: Potential Removal or Disturbance of Marsh or Riparian Scrub/Woodland Habitat

Implementation of the proposed project could result in the temporary removal or disturbance of small amounts of marsh or riparian scrub/woodland habitat associated with infrequently maintained irrigation ditches. Impacts could result from direct construction activities related to the project. The project will result in a minimal effect on marsh and riparian scrub/woodland communities because the project includes provisions to alter the project location slightly or to use directional drilling under all rivers, sloughs, wetlands, and sensitive habitats to avoid direct impacts to sensitive biological resources. However, some marshes and riparian scrub/woodland areas, such as in infrequently maintained irrigation ditches, may be affected by the project.

This impact is considered less than significant because this habitat type is common to the local area and the effects would be extremely small, temporary, and occur only in areas already disturbed by ongoing activities.

### *Mitigation Measures*

None required.

## Impact 3.7-4: Potential Disturbance of Sensitive Habitats

Implementation of the proposed project could result in the temporary disturbance of sensitive habitats that may occur in the project area, including vernal pools and swales, alkali grassland, native bunchgrass grassland, and seasonal wetlands. The effect on these areas would be minimal because the project includes provisions to avoid direct impacts to sensitive biological resources by moving the project boundaries slightly to avoid the habitats, or by using directional drilling procedures to go under rivers, sloughs, wetlands and sensitive habitats. Some sensitive habitat areas may be indirectly affected by construction activities in adjacent areas or by modifications to the project alignment. These impacts are considered potentially significant because of the designation of vernal pools and swales, alkali grassland, native bunchgrass grassland, and seasonal wetlands as sensitive resources. Implementation of Mitigation Measures 3.7-3a, 3.7-3b, and 3.7-3c would minimize this impact and reduce it to a less-than-significant level.

### *Mitigation Measure 3.7-3a: Confine construction activities and equipment to the designated construction work area*

To minimize potential impacts on sensitive vegetation and wetland resources, the contractor will be required to designate work areas outside the currently identified zone. These designated work areas may include staging areas and pipeline trench and construction access corridors. Before construction, additional work areas will be surveyed by a qualified biologist, relocated as necessary to avoid effects on sensitive resources, approved by CPUC and demarcated before construction with lath and flagging, temporary orange construction fencing, or chain link fencing. Construction contractors will require that construction personnel stay within these designated work areas as a condition of employment. The project proponent will provide

CPUC with draft bid specifications for review to ensure compliance with appropriate measures. Bid documents will not be released prior to CPUC approval.

*Monitoring Action* — Ensure that appropriate language is included in bid specifications and that the contractor(s) comply with these requirements.

*Responsibility* — CPUC and LGS

*Timing* — During development of bid specifications and during project construction.

### *Mitigation Measure 3.7-3b: Avoid and protect sensitive vegetation and wetland resources near designated construction work area*

To minimize impacts on sensitive vegetation and wetland resources immediately next to designated construction areas, construction contractors will post signs identifying areas containing sensitive vegetation and wetland resources as "Restricted Areas" and protect these areas with temporary barriers. The construction contractor will be required to keep construction equipment and personnel out of designated restricted areas.

*Monitoring Action* — Ensure that appropriate language is included in bid specifications and that the contractor(s) comply with these requirements.

*Responsibility* — CPUC and LGS

*Timing* — During development of bid specifications and during project construction.

### *Mitigation Measure 3.7-3c: Reestablish preconstruction site conditions to allow natural colonization of plant species and, if necessary, reseed*

In non-agricultural and developed areas, the construction contractor will be required to restore the construction zone to preconstruction site conditions. To ensure that impacts on native plant species and other natural communities are not long term, native topsoil will be immediately replaced and the natural site topography reestablished. Preconstruction conditions will be reestablished to allow natural colonization of plant species.

Site restoration will focus on reestablishing preconstruction conditions to allow natural reestablishment of local plant species. In areas that require immediate stabilization, nonvegetative techniques that allow natives to reestablish should be used, including use of weed- and disease-free mulch, erosion blankets, or rolled organic fiber material.

Erosion control seed mixes may be necessary on selected small sites. If sites need to be stabilized through seeding, the seed mix will include native or sterile seed varieties that are appropriate for stabilizing local site conditions. Special attention will be given to erosion control near wetland areas such as vernal pools.

Site-specific erosion control measures (nonvegetative or mechanical techniques) will be determined on a site-specific basis by a vegetation specialist and project engineer familiar with erosion control measures.

*Monitoring Action* — Ensure that appropriate language is included in bid specifications and that the contractor(s) comply with these requirements.

*Responsibility* — CPUC and LGS

*Timing* — During development of bid specifications and during project construction.

## Impact 3.7-5: Potential Disturbance of Agricultural, Pasture, and Ruderal and Developed Lands

Implementation of the proposed project could result in the loss or disturbance of agricultural, pasture, and ruderal and developed lands. Impacts may result from ground-disturbing activities related to the proposed project. This impact is not considered a significant impact on biological resources because these habitats are locally and regionally common. No mitigation is required.

### *Mitigation Measures*

None required.

## Impact 3.7-6: Potential Disturbance to Landmark Trees or Groves

The proposed project area may contain trees that would qualify for protection under tree ordinances in the Sacramento and San Joaquin County General Plans (County of Sacramento, 1993; San Joaquin County, 1992). The proposed project could potentially result in significant impacts to native trees, native oak trees, and landmark trees in the proposed project area in Sacramento County, and to native oak trees, heritage oak trees, or historical trees in the proposed project area in San Joaquin County. These impacts could result in the direct mortality or damage to trees that would qualify for protection under the ordinances. Therefore, this impact is considered significant. Implementation of Mitigation Measure 3.7-4 would reduce adverse effects on landmark trees or groves to a less-than-significant level.

### *Mitigation Measure 3.7-4: Conduct preconstruction surveys and create buffer zones to minimize impacts to heritage and landmark trees*

Surveys will be conducted by a qualified botanist retained by CPUC to identify the locations of native trees, native oak trees, and landmark trees in the proposed project area in Sacramento County and of native oak trees, heritage oak trees, or historical trees in the proposed project area in San Joaquin County. A plan shall be developed by the project proponent for treatment of all heritage and landmark trees. This plan shall be incorporated into bid specifications. The plan shall be provided by LGS to CPUC for approval prior to issuance of project bid specifications. All native trees, native oak trees, landmark trees, and groves to be avoided will be marked in the field and fenced, and all construction activities will be prohibited in these

designated areas, following the guidelines in Mitigation Measures 3.7-3a and 3.7-3b. If trees cannot be avoided, compensatory actions will be determined in coordination with the Sacramento and San Joaquin County Planning Departments and the guidelines in the county tree ordinances. The following definitions apply:

**Sacramento County:**

- Native trees include all non-oak native trees except cottonwoods.

- Native oak trees are defined as those measuring 6 inches or greater in diameter at 4.5 feet above ground except in areas zoned exclusively for agriculture. Native oak groves are to be protected, in addition to individual trees.

- Landmark trees are defined as non-native oaks having a diameter at breast height (dbh) of 19 inches or more.

**San Joaquin County:**

- Native oak trees include valley oak (*Quercus lobata*) trees with a trunk diameter of 6 inches to 32 inches for a single trunk tree, or a combined trunk diameter of 8 inches or greater for a multitrunk tree, measured 4.5 feet above the ground; interior live oak (*Quercus wislizenii*) trees, California live oak (*Quercus agrifolia*) trees, or blue oak (*Quercus douglasii*) trees with a trunk diameter of 4 inches to 32 inches for a single trunk tree or a combined trunk diameter of 6 inches or greater for a multitrunk tree, measured 4.5 feet above the ground.

- Heritage oak trees are defined as native oak trees that have a single trunk diameter of 32 inches or greater measured at 4.5 feet above the ground.

- Historical trees include any tree or group of trees designated by the Planning Commission because of size, age, location, or history.

*Monitoring Action* — CPUC will ensure that appropriate surveys are conducted by a qualified botanist. CPUC will review the survey results and approve the proposed treatment prior to project construction.

*Responsibility* — CPUC and LGS

*Timing* — During development of project bid specifications and during project construction.

## *IMPACTS ON WILDLIFE RESOURCES*

### Impact 3.7-7: Potential Impacts on Aquatic Invertebrates, California Tiger Salamander, and Western Spadefoot Toad and Their Habitat

The project could potentially result in incidental impacts on aquatic invertebrates (e.g., vernal pool fairy shrimp, Conservancy fairy shrimp, vernal pool tadpole shrimp); California tiger salamander; and western spadefoot toad in and along the margins of vernal pools, freshwater marsh, and ponds. Impacts could result from construction activities associated with installation of pipelines and well pads. These impacts could result in the direct mortality of individuals and degradation of habitat by altering hydrological processes associated with their habitat. This impact is considered significant. This impact, however, can be reduced to a less-than-significant level by implementation of Mitigation Measures 3.7-3a, 3.7-3b, and 3.7-3c.

#### *Mitigation Measure 3.7-3a: Confine construction activities and equipment to the designated construction work area*

#### *Mitigation Measure 3.7-3b: Avoid and protect sensitive vegetation and wetland resources near designated construction work area*

#### *Mitigation Measure 3.7-3c: Reestablish preconstruction site conditions to allow natural colonization of plant species and, if necessary, reseed*

These mitigation measures are described above.

### Impact 3.7-8: Potential Impact on the Valley Elderberry Longhorn Beetle

Implementation of the proposed project may have significant impacts on the valley elderberry longhorn beetle if construction activities cause the mortality or lowered reproduction of elderberry shrubs. Although the project has been designed to avoid elderberry shrubs in the project area, minor changes in the final alignment may occur and the pipeline may affect shrubs in areas not yet surveyed. This impact is considered significant. Implementation of Mitigation Measure 3.7-5 would reduce this impact to a less-than-significant level.

#### *Mitigation Measure 3.7-5: Conduct preconstruction valley elderberry longhorn beetle surveys and avoid or compensate for loss of habitat*

Before initiating construction, a qualified biologist will survey the final alignment corridor and document the extent of habitat, if any, for the valley elderberry longhorn beetle. The information gathered will include the number of emergence holes and stems greater than 1 inch in diameter for each elderberry shrub encountered. The project proponent will provide this information to CPUC.

If any habitat for the valley elderberry longhorn beetle is found, the project proponent will implement USFWS's mitigation guidelines for the valley elderberry longhorn beetle by avoiding construction activities

within 20 feet of any elderberry shrub. Where avoidance is not feasible, a compensation plan will be prepared and implemented to compensate for the loss of habitat.

Under the federal Endangered Species Act, USFWS requires preparation of a compensation and monitoring plan that reduces potential impacts and describes measures to ensure that continued existence of the valley elderberry longhorn beetle is not jeopardized. The CPUC will require the project proponent to prepare the compensation plan consistent with USFWS's mitigation guidelines (USFWS, 1996).

USFWS's guidelines call for avoidance of habitat wherever possible. When avoidance is not possible, the guidelines direct that all elderberry plants in an affected area be transplanted, when feasible, and replacement planting will be conducted for all elderberry stems 1 inch or greater in diameter. The replacement ratio depends on the percentage of elderberry shrubs in the affected area that have beetle-emergence holes. The guidelines require the project proponent to monitor the transplanted shrubs and replacement plants for 10 years from the date of transplanting to ensure the success of mitigation efforts.

*Monitoring Action* — CPUC will review the information provided by the project proponent and require appropriate action depending on its findings.

*Responsibility* — LGS and CPUC

*Timing* — Prior to and during project construction.

## Impact 3.7-9: Potential Disturbance and Direct Mortality of Giant Garter Snakes

Although habitat throughout the project area is marginal for giant garter snakes, the project proponent has incorporated substantial and appropriate mitigation measures into the project description to address potential effects on this species. Implementation of the proposed project could potentially disturb the giant garter snake and/or cause the direct mortality of garter snakes. This potential impact is considered significant because construction activities, such as trenching activities in areas and during times when the snakes are unable to avoid them, could cause direct mortality to garter snakes. Construction activities could also directly affect snakes by removing vegetative cover and basking sites, filling or crushing burrows or crevices, dewatering aquatic habitat, and silting, filling, or spilling oil or other chemicals on or downstream of the project area.

To reduce these potential impacts to a less-than-significant level, the project proponent has incorporated mitigation measures into the project design (see Section 2.4.13, "Mitigation Measures Proposed by the Applicant") that include conducting surveys, avoiding construction in giant garter snake habitat, and minimizing habitat impacts. No additional mitigation is necessary.

### *Mitigation Measures*

None required.

## Impact 3.7-10: Potential Impact on Western Pond Turtles

The project will result in less-than-significant impacts on the western pond turtle. Pond turtles may be directly disturbed when construction crews approach wetland areas. However, these disturbances will be temporary and pond turtles will likely return to basking locations after crews leave the area. Additionally, a slight potential exists for pipeline construction to directly affect pond turtle nests. This potential impact is unlikely because pond turtles typically nest in uncultivated habitats and most of the pipeline construction is in cultivated agriculture fields. The amount of habitat affected by pipeline construction is very small compared to the amount of potential habitat within the project area. Therefore, if any nests are destroyed by construction activities, the number will likely be small and will not affect a significant portion of the local population. This impact is considered less than significant.

### *Mitigation Measures*

None required.

## Impact 3.7-11: Potential Disturbance on the Greater Sandhill Crane

The proposed project could potentially affect the greater sandhill crane because construction activities could disturb sandhill cranes in essential wintering areas (Staten Island, Canal Ranch, and Brack Tract). Construction activities could cause the cranes to avoid or flush from important feeding areas for prolonged periods of time, resulting in disrupted feeding patterns and potentially affecting reproductive potential. This impact is significant because a significant portion of the local population of sandhill cranes could be affected. Implementation of Mitigation Measure 3.7-6 would reduce this impact to a less-than-significant level.

### *Mitigation Measure 3.7-6: Conduct preconstruction surveys for sandhill cranes and avoid key foraging and roosting areas*

If construction is to occur during the time period when cranes winter in the Delta (September through mid-March), a qualified wildlife biologist will survey the proposed pipeline alignment for sandhill cranes to identify feeding and roosting areas before construction begins. Survey results will be provided to CPUC before construction begins near potential feeding and roosting areas. Roosting and feeding areas shall be avoided while they are occupied. Generally, birds will disperse off roost sites in the morning and return during the late afternoon. Timing restrictions for all project activities will be implemented as follows:

- No project activities will occur within 1,000 feet of sandhill crane roosts before 8 a.m. or after 4 p.m.

- No project activities will occur within 1,000 feet of sandhill crane feeding areas between 8 a.m. and 4 p.m.

These timing restrictions may be modified based on the findings of the initial monitoring. If monitoring by CPUC shows that roosting or feeding areas are occupied by sandhill cranes for longer periods during the day, these areas shall be avoided.

*Monitoring Action* — Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.

*Responsibility* — CPUC and LGS

*Timing* — Prior to and during project construction.

## Impact 3.7-12: Potential Disturbance of Active Raptor and Owl Nests and Tricolored Blackbird Nests

The project could potentially result in significant impacts on the tricolored blackbird and on raptors such as the northern harrier, white-tailed kite, burrowing owl, and short-eared owl if project construction would cause abandonment of several nests, nesting colonies, or the destruction of active nest sites. California Fish and Game Code Section 3503.5 prohibits the take of raptor nests, and tricolored blackbirds are considered special-status species in this EIR. The number of nesting tricolored blackbirds, northern harriers, white-tailed kites, burrowing owls, and short-eared owls is unknown in the project area. Because most of the project area is agricultural habitat, it is unlikely that many raptors nest in the area. However, tricolored blackbirds typically nest in large colonies (e.g., 50,000-100,000), and construction disturbance could potentially cause reproductive failure of a major proportion of a nesting colony, if a nesting colony is located near construction sites. This impact is significant. Implementation of Mitigation Measure 3.7-7 would reduce this impact to a less-than-significant level.

### *Mitigation Measure 3.7-7: Conduct preconstruction surveys for nesting raptors, owls, and tricolored blackbirds and establish an appropriate buffer distance around nest sites*

Preconstruction surveys will be conducted for tricolored blackbird, northern harrier, white-tailed kite, burrowing owl, and short-eared owl in the project area prior to proposed construction activities that occur between March 1 and August 31. A qualified biologist will survey suitable habitat for the presence of these nesting species along the proposed pipeline and the well pad sites. Survey results will be provided to CPUC before construction begins in potential nest site areas.

If no nesting tricolored blackbirds, northern harriers, white-tailed kites, burrowing owls, or short-eared owls are found, construction activities may proceed and no further mitigation measures will be required. Where nest sites are identified or suspected to occur during preconstruction surveys, the qualified biologist will establish buffer zones around the nest to avoid significant impacts on these species. A 200-foot buffer zone will be established around active tricolored blackbird, northern harrier, white-tailed kite, and short-eared owl nests. No construction activities will occur within this buffer until the young have fledged or the species are no longer attempting to nest. Construction activities will be allowed outside a 200-foot buffer from known or

suspected nests. No further mitigation is required once the young have fledged or after August 1. Specifications for reducing direct effects on active burrowing owl nesting and roosting are discussed in Mitigation Measure 3.7-8.

*Monitoring Action* — Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.

*Responsibility* — CPUC and LGS

*Timing* — Prior to and during project construction.

## Impact 3.7-13: Loss of or Disturbance to Nesting Western Burrowing Owls

Disturbance of nesting western burrowing owls during construction could cause nest abandonment or force nestlings to fledge early, which could result in mortality. Because the burrowing owl is a state species of special concern and a federal species of concern, this impact is significant. Implementation of Mitigation Measures 3.7-7 and 3.7-8 would reduce this impact to a less-than-significant level.

### *Mitigation Measure 3.7-8: Consult with CDFG and follow CDFG's burrowing owl mitigation guidelines*

If an active burrowing owl burrow (nesting or winter roosting) is found or reported to exist within 500 feet of the pipeline construction corridor during the raptor surveys (see Mitigation Measure 3.7-7), LGS will consult with CDFG. The 1995 CDFG burrowing owl mitigation guidelines recommend a no disturbance area (buffer area) within 160 feet of occupied burrows during the nonbreeding season (September 1 to January 31) and within 250 feet during the breeding season (February 1 to August 31).

If an active burrowing owl burrow cannot be avoided during construction, the project proponent will consult with CDFG regarding the appropriate mitigation measures. CDFG's mitigation guidelines recommend providing artificial burrows (boxes) at a 2:1 ratio (i.e., two boxes constructed and placed near the existing burrows for each burrow destroyed). The owls can be moved away from the affected area approximately 2 weeks before construction to the artificial burrows by passive relocation, as described in the CDFG mitigation guidelines. LGS will provide results of any required consultation with CDFG to CPUC before construction activities are initiated in the project area.

*Monitoring Action* — Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.

*Responsibility* — CPUC and LGS

*Timing* — Prior to and during project construction.

## Impact 3.7-14: Project Construction Activities May Cause the Reproductive Failure of Nesting Swainson's Hawks

Construction activities near an active Swainson's hawks nest could directly cause reproductive failure by removing the nest tree, causing adults to abandon the nest, or forcing young to leave the nest prematurely. This impact is considered significant. Implementation of Mitigation Measure 3.7-9 would reduce this impact to a less-than-significant level.

### *Mitigation Measure 3.7-9: Conduct preconstruction surveys for nesting Swainson's hawks and follow CDFG's mitigation guidelines for Swainson's hawks*

Before construction activities are conducted between March 15 and September 15, preconstruction surveys for nesting Swainson's haws will be conducted within 0.5 mile of the project area. Survey results will be provided to CPUC. If nesting Swainson's hawks are found, the project proponent will consult with the CDFG to determine if construction activities could cause reproductive failure. CDFG may require that no construction activities be allowed within 0.5 mile from the nest site until young have fledged or the adults are no longer nesting. However, construction may be allowed within 0.5 mile of the nest if a biologist monitors the nest to determine whether the adults may abandon the nest. If the nest is abandoned due to construction activities and the nestlings are still alive, mitigation may further include the recovery and hacking (controlled release of captive-reared young) of the nestlings.

*Monitoring Action* — Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.

*Responsibility* — CPUC and LGS

*Timing* — Prior to and during project construction.

## Impact 3.7-15: Disturbance of Wintering Waterfowl and Shorebirds

Project construction could disturb wintering waterfowl and shorebirds using seasonally flooded agriculture fields and other wetlands on or near the project area by periodically forcing them off feeding areas. Potential disturbance to these species groups is considered less than significant because these species typically feed in aquatic habitats or managed wetlands that are avoided by project activities, and waterfowl and shorebirds are highly mobile, opportunistic, and are tolerant of human distrubances, especially after hunting season is over (generally in mid-January).

### *Mitigation Measures*

None required.

## Impact 3.7-16: Construction Activities May Cause the Reproductive Failure of Nesting Swallows and Herons

The proposed project could potentially result in significant impacts on nesting swallows occurring under bridge structures and nesting herons in tall, mature trees. Because swallows are migratory and protected under the Migratory Bird Treaty Act, and heron rookeries are considered a special-status resource by CDFG, construction-related disturbances that cause nesting failure would be considered a significant impact. Implementation of Mitigation Measure 3.7-10 would reduce the impact on nesting swallows and herons to a less-than-significant level.

### *Mitigation Measure 3.7-10: Conduct preconstruction surveys for nesting swallows and herons and establish appropriate buffer zones around nests*

Preconstruction surveys will be conducted for nesting swallows and herons in the project area prior to construction activities when construction is proposed between March 15 and August 31. A qualified biologist will survey suitable nesting habitat for the presence of these nesting species along the proposed pipeline and well pad sites. Surveys for the nesting swallows will primarily be conducted underneath bridges and near building structures. Surveys for nesting herons will be conducted primarily on the western portion of the pipeline in mature tree groves (e.g., *Eucalyptus* spp.). The biologist will be required to drive or walk along the proposed pipeline and well pad sites in and near suitable habitat types in the project area and inspect the habitats for nesting swallows and herons. Survey results will be provided to CPUC before construction begins in potential nesting habitat for these species.

Where nest sites are identified during preconstruction surveys, the qualified biologist will establish buffer zones around the nest sites and no project construction activities will occur within these buffer zones. Construction crews will receive training on the importance of respecting the buffer zones.

**Swallow Nests:** To avoid impacts on these species, a 100-foot buffer zone will be established around known or suspected swallow nests. No construction activities will occur within this buffer until the young have fledged or the species are no longer attempting to nest. Construction activities will be allowed outside this buffer zone. No further mitigation is required once the young have fledged or after August 1.

**Heron Rookeries:** To avoid and minimize impacts on nesting herons, a 400-foot buffer zone will be established around active heron nests where no construction activities will occur. The buffer area can be removed before August 31 if a qualified biologist determines that juveniles from the heron nests are foraging independently and are capable of independent survival. No further mitigation is required once young have fledged or after August 31.

*Monitoring Action* — Ensure that appropriate surveys are conducted, survey results received, and mitigation actions taken.

*Responsibility* — CPUC and LGS

*Timing* — Prior to and during project construction.

## 3.7.5 IMPACTS OF THE PUBLIC RIGHT-OF-WAY ROUTE ALTERNATIVE AND MITIGATION MEASURES

### *IMPACTS*

The biological resource impacts of this alternative are essentially identical to those of the proposed project. Few sensitive resources are known to be present in the likely construction easement and the route is almost completely along developed and agricultural lands. As under the proposed project, all major water crossings and associated wetland and riparian habitat will be avoided by directionally drilling under the waterways. However, because effects to biological resources could occur, the impacts of this alternative are considered significant.

The primary differences in potential biological resource effects between this alternative and the proposed project are that this alternative passes just north of the Woodbridge Ecological Reserve, which support relatively large populations of sandhill cranes during the winter. This alternative also passes through Brannan Island State Recreation Area, where a population of Antioch Dunes Evening Primrose, a federally listed species, is know to occur. This alternative would not directly affect either of these resources and the mitigation measures described under the proposed project would reduce any potential impacts to less-than-significant levels.

### *Mitigation Measures*

Implementation of Mitigation Measures 3.7-1 through 3.7-10 would reduce significant biological resource impacts of the Public Right-of-Way Route Alternative to less-than-significant levels.

## 3.7.6 IMPACTS OF THE EXISTING PIPELINE CORRIDOR ALTERNATIVE AND MITIGATION MEASURES

### *IMPACTS*

The biological resource impacts of this alternative are also essentially identical to those of the proposed project. Few sensitive resources are known to be present in the likely construction easement and the route is almost completely along developed and agricultural lands. As under the proposed project, all major water crossings and associated wetland and riparian habitat will be avoided by directionally drilling under the waterways. However, because effects to biological resources could occur, the impacts of this alternative are considered significant.

As with the Public Right-of-Way Route Alternative, the primary differences in biological resource effects between this alternative and the proposed project are that this alternative passes just north of the Woodbridge Ecological Reserve, which support relatively large populations of sandhill cranes during the winter. This alternative also passes through Brannan Island State Recreation Area, where a population of Antioch Dunes Evening Primrose, a federally listed species, is know to occur. This alternative would not directly affect either of these resources and the mitigation measures described under the proposed project would reduce any potential impacts to less-than-significant levels.

### *Mitigation Measures*

Implementation of Mitigation Measures 3.7-1 through 3.7-10 would reduce significant biological resource impacts of the Existing Pipeline Corridor Alternative to less-than-significant levels.

## 3.7.7 IMPACTS OF THE COMPOSITE ROUTE ALTERNATIVE AND MITIGATION MEASURES

### *IMPACTS*

The biological resource impacts of this alternative are also essentially identical to those of the proposed project. Few sensitive resources are known to be present in the likely construction easement, and the route is almost completely along developed and agricultural lands. As under the proposed project, all major water crossings and associated wetland and riparian habitat will be avoided by directionally drilling under the waterways. However, because effects to biological resources could occur, the impacts of this alternative are considered significant.

As with the Public Right-of-Way Route and Existing Pipeline Corridor Alternatives, the primary differences in biological resource effects between this alternative and the proposed project are that this alternative passes just north of the Woodbridge Ecological Reserve, which supports relatively large populations of sandhill cranes during the winter. This alternative also passes through Brannan Island State Recreation Area, where a population of Antioch Dunes Evening Primrose, a federally listed species, is known to occur. This alternative would not directly affect either of these resources, and the mitigation measures described under the proposed project would reduce any potential impacts to less-than-significant levels.

### *Mitigation Measures*

Implementation of Mitigation Measures 3.7-1 through 3.7-10 would reduce significant biological resource impacts of the Composite Route Alternative to less-than-significant levels.

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