



## **3.4 Biological Resources**

This section of the Draft EIR identifies existing biological resources located within the proposed City of Merced Specific Urban Development Plan (SUDP)/Sphere of Influence (SOI) boundary and analyzes potential impacts on these resources that would result from the proposed expansion of the City into currently undeveloped SUDP/SOI areas. The environmental setting, including an overview of local vegetation, flora, sensitive plant communities, wetlands, wildlife, and special-status species, is presented. This section provides discussion of the regulatory setting including applicable laws, ordinances, regulations, and standards and addresses the impacts that construction, and subsequent operation, of developments within the City of Merced SUDP/SOI may have on special-status plants, animals, and sensitive habitats.

### **3.4.1 SETTING**

#### ***Environmental Setting***

The plan area is located in the Central California Valley ecoregion (Omernik 1987). This ecoregion is characterized by flat, intensively farmed plains with long, hot dry summers and cool, wet winters (14-20 inches of precipitation per year). The Central California Valley ecoregion includes the Sacramento Valley to the north and the San Joaquin Valley to the south and it ranges between the Sierra Nevada foothills to the east to the Coastal Range foothills to the west. Nearly half of the region is actively farmed, and about three fourths of that farmed land is irrigated.

#### **EXISTING CONDITIONS**

##### ***Biological Communities/Habitat Types***

The plan area is located along the valley floor, which is composed of a limited number of natural plant communities due to the long history of agricultural disturbance in this area. The plan area is currently a mosaic of land uses, including agricultural production, urban usage, and barren land.

A site visit was performed by Quad Knopf biologists in February 2008. During that visit, 13 land use types and biological communities/habitats were identified in the plan area, including: developed lands (commercial, urban, and rural residential); irrigation waters (canals and detention ponds); seasonal wetlands (including vernal pools); riparian; open water; agriculture (vineyards, orchards, irrigated row crops, rice, and dairy); and annual grassland. Descriptions of these land use types and biological communities are:

**Developed Lands.** There are three significantly different types of developed lands within the study area: urban, commercial, and rural residential.

- **Urban.** Urban areas consist of lawns, street strips, ornamental trees, and shrubs associated with homes and other structures, cemeteries, and subdivision green belts. Human

disturbance within urban areas limits wildlife habitat; however, the overall mosaic may be valuable to cosmopolitan wildlife.

- **Commercial.** The development in the plan area consists of large buildings on large parcels of land. Ground surface is almost entirely paved to allow for the movement of large trucks and equipment. With the high level of disturbance, there is virtually no habitat value on commercial properties within the plan area.
- **Rural Residential.** Rural Residential properties are scattered throughout the plan area. These areas consist of homes on several acres of land. Because the density of development is usually low in these areas, the quality of habitat is the highest of the developed lands. Although not ideal, there is more potential for nesting birds and movement of wildlife in these areas.

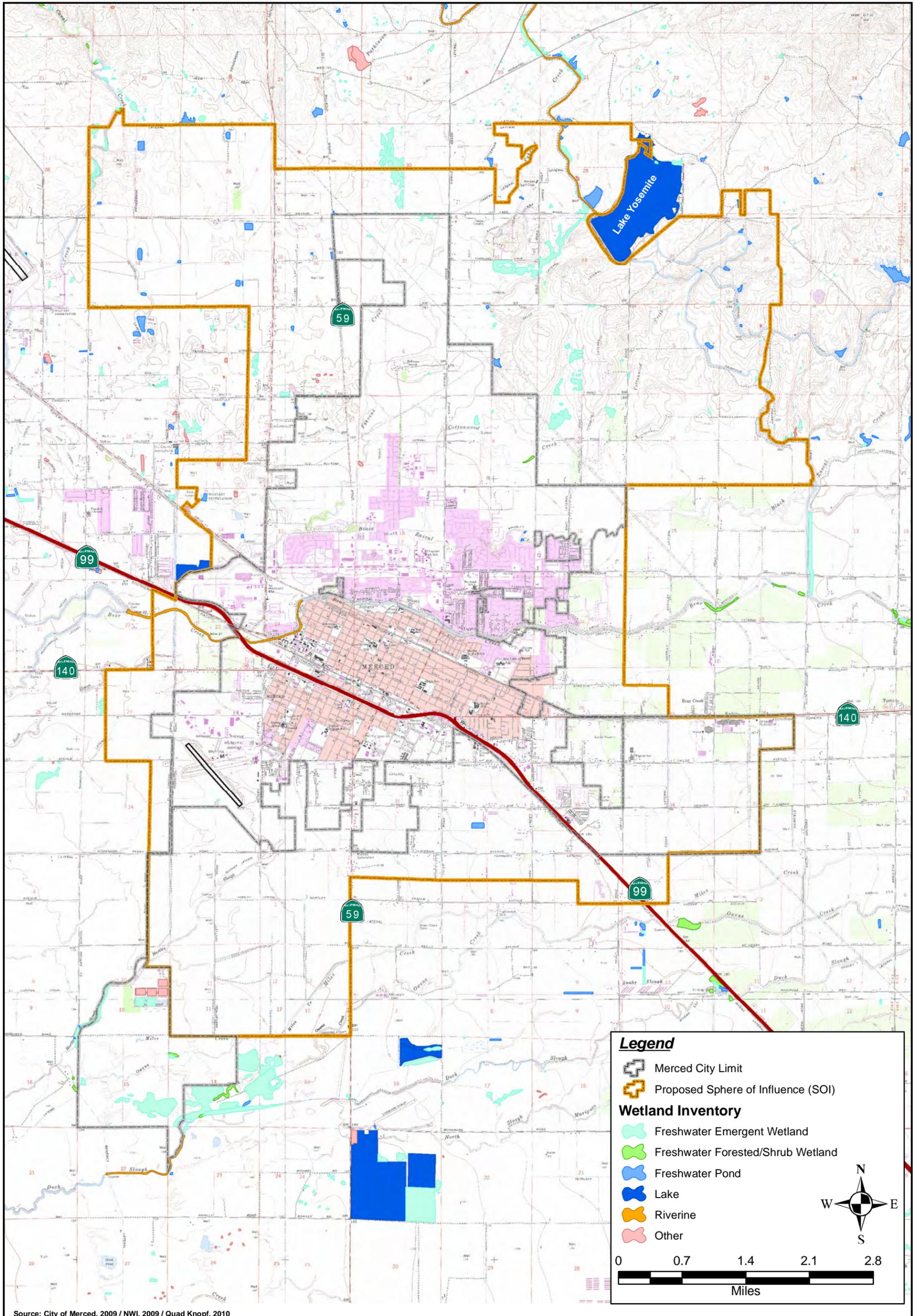
**Irrigation Waters.** There are numerous ditches, canals, and detention ponds scattered throughout the plan area that are used for delivering and storing irrigation water. Most of these features are devoid of vegetation with either a muddy or concrete substrate. Water level and flow is dependent on seasonal conditions and is not constant. Because of the intermittent usage, irrigation waters are not available as wildlife habitat year round; however, when in use they may be important for migrating and breeding wildlife.

**Seasonal Wetlands (including vernal pools).** Seasonal wetlands, including vernal pools, are scattered throughout the plan area with a high concentration in the northeast portion of the area (see Figure 3.4-1). Seasonal wetlands once dominated the landscape in the Central Valley, but now are largely segmented because of large scale agricultural activities and residential development. Seasonal wetlands are depressions in the land that fill with rain water in the rainy season and due to an impermeable substrate, hold water until it evaporates. Many plants and animals have evolved to specialize in this ecosystem and are therefore considered to be endangered because of declining populations resulting from habitat loss.

**Riparian.** Bear, Black Rascal, Cottonwood, Miles, and Owens Creeks form the main drainage systems flowing through the plan area. Stream-side vegetation varies depending on the location.

Willows (*Salix* spp.) and cattails (*Typha latifolia*) are the dominant plants in this habitat. Other plants occurring in this habitat include Fremont's cottonwood (*Populus fremontii*) and Himalayan blackberry (*Rubus discolor*). As is typical of this habitat type, the riparian areas on site are dense, shrub dominated plant communities highly associated with moist conditions and running water. Blue elderberry (*Sambucus mexicana*) shrubs, the host plant of the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), were observed along Bear Creek during the field survey.

Riparian areas are typically highly productive zones and provide excellent habitat for a wide variety of plants and animals. In addition to food and water, riparian habitats provide migration and dispersal corridors, roosting and thermal cover, and reproductive substrate.



Bird species commonly associated with riparian habitat include northern flicker (*Colaptes auratus*), white-crowned sparrow (*Zonotrichia leucophrys*), song sparrow (*Melospiza melodia*), black phoebe (*Sayornis nigricans*), yellow-rumped warbler (*Dendroica coronata*), spotted towhee (*Pipilo erythrophthamnus*), and American goldfinch (*Carduelis tristis*). Common mammal species expected to occur in this habitat type include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*).

**Open Water.** Open water such as Yosemite Lake is located just outside of the plan area. Open water areas are important for migrating water fowl, as well as an important food source for wintering raptors.

**Agriculture.** There are five types of agriculture found within the SUDP/SOI. They are:

- **Vineyards.** There are several vineyards in the plan area.
- **Orchards.** Deciduous orchards in California are typically fruit tree monocultures of almonds, apricots, cherries, nectarines, peaches, pears, pecans, pistachios, plums, or walnuts. Depending on the tree type and pruning methods, they are usually low, bushy trees with an open understory to facilitate harvest. Trees range in height at maturity for many species from 15 to 30 feet. The understory is usually maintained and is composed of low-growing grasses, legumes, and other herbaceous plants. Herbaceous plants commonly growing in the understory consist of perennial grasses such as Bermuda grass (*Cynodon dactylon*) or johnsongrass (*Sorghum halepense*) and annual grasses such as soft brome (*Bromus hordeaceus*), red brome (*Bromus madritensis* ssp. *rebens*), and wild oat (*Avena fatua*).
- **Irrigated Row Crops.** Irrigated row crops consist of annual or perennial plants, usually planted in spring and harvested during summer or fall. Typical row crops of the area include cotton, milo, tomatoes, sugar beets, and leafy vegetables (lettuce and table greens). Unwanted vegetation growing between rows is reduced by tillage or the use of herbicides.
- **Rice.** Rice fields typically consist of large plots of land which are inundated with irrigation water during the growing season and left fallow after harvesting. Rice fields can be important foraging habitat for migrating waterfowl.
- **Dairy/Cattle Feedlot.** The plan area contains several dairies and/or cattle feedlots. These areas are composed mostly of bare ground and void of vegetation due to intensive use by cattle. In their operating state, dairies and cattle feedlots are not a highly valuable habitat to native plants and animals.

**Annual Grassland.** Non-native annual grassland habitat is scattered throughout the plan area in the following areas: Non-native annual grassland is dominated by non-native grasses. Annual and perennial herbaceous species, and some native grasses may occur. Common introduced grass species found in this community include wild oat (*Avena barbata*), Bermuda grass (*Cynodon dactylon*), rip-gut brome (*Bromus diandrus*), and Mediterranean barley (*Hordeum murinum* ssp. *Leporinum*). Native grasses that could occur in the study area include annual hairgrass (*Deschampsia danthonioides*), and oldfield three-awn (*Aristida oligantha*). Common

annual and perennial, non-native herbaceous species that occur in the SUDP/SOI area include filaree (*Erodium cicutarium*), bur clover (*Medicago polymorpha*), and smooth cat's-ear (*Hypochaeris glabrata*).

## **SPECIAL-STATUS SPECIES**

Special-status species are: those plants and animals listed, proposed for listing, or candidates for listing as threatened or endangered by the U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA); those species listed or proposed for listing as rare, threatened, or endangered by the California Department of Fish and Game (CDFG) under the California Endangered Species Act (CESA); animals designated as “Species of Special Concern” (CSC) by the CDFG; animals designated “fully protected” by the California Fish and Game Code; migratory birds, including their nests, eggs, and young protected by the federal Migratory Bird Treaty Act (MBTA); those plant taxa cataloged in the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Vascular Plants of California*; and species may be considered and listed as “species of local concern” by local agencies (typically cities or counties) because of local or regional scarcity as determined by that agency (per Section 15380 of the California Environmental Quality Act (CEQA) Guidelines).

Plant taxa (or groups) considered for this document include species enumerated in the CNPS Lists 1, 2, 3, and 4. Even though many of these plants species may not have legal protections under federal and state regulations, they meet the criteria for listing as described in Section 15380 of the CEQA Guidelines. The CNPS code definitions are: List 1A species include those presumed extinct in California; List 1B species include those that are rare, threatened, or endangered in California and elsewhere; List 2 species include those that are rare, threatened, or endangered in California, but more common elsewhere; List 3 species is a review list for which necessary information is lacking; and List 4 species are of limited distribution or of infrequent distribution throughout their range and their vulnerability to threat appears low at this time.

Quad Knopf biologists developed a review list of special-status plant and animal species that could potentially occur on the proposed plan area. The entire review list is presented in [Tables 3.4-1 and 3.4-2](#) below. The information in the table regarding special-status species was obtained from:

- The California Natural Diversity Database (CNDDDB) (CDFG 2008a). Data query for the Atwater, El Nido, Haystack Mountain, Merced, Plainsburg, Planada, Sandy Mush, Winton, and Yosemite Lake USGS 7.5-minute quadrangles ([Appendix D](#)).
- Special Animals list (CDFG 2008b).
- Special Vascular Plants, Bryophytes, and Lichens List (CDFG 2008c).
- The USFWS (2008) list of Endangered and Threatened Species for the Atwater, El Nido, Haystack Mountain, Merced, Plainsburg, Planada, Sandy Mush, Winton, and Yosemite Lake USGS 7.5-minute quadrangles ([Appendix E](#)).

- The CNPS Online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2008). Data query for the Atwater, El Nido, Haystack Mountain, Merced, Plainsburg, Planada, Sandy Mush, Winton, and Yosemite Lake USGS 7.5-minute quadrangles ([Appendix F](#)).

The review list includes 59 species (26 plant and 33 animal species). The potential for occurrence of special status plant and animal species is ranked on the following criteria:

- **Absent:** Species have no potential to occur in the plan area because the species is restricted to habitats that do not occur on or adjacent to the plan boundaries; the plan area is located outside of the species’ known distributional range; and/or the plan area is located out of the species’ known elevational range.
- **Low:** Species with a low potential for occurrence are those for which the proposed plan area is on the boundary of the known distributional range; or those for which there are no known recorded occurrences of the species within 10 miles of the plan area and/or the habitat(s) needed to support the species are of poor or marginal quality.
- **Moderate:** Species with a moderate potential for occurrence are those for which the proposed plan area is within the known distributional range and for which there are known recorded occurrences of the species within 10 miles of the plan area, and the habitat(s) needed to support the species are present on site.
- **High:** Species with a high potential for occurrence are those for which the proposed plan area is within the known distributional range and for which there are known recorded occurrences of the species within five miles of the plan area, and habitats strongly associated with that species occur on the plan area.

Figures 3.4-2 and 3.4-3 depict the location of documented CNDDDB occurrences on and around the plan area.

**Special-Status Plant Species with Potential to Occur Within the Proposed Plan Area**

**Table 3.4-1  
Special-Status Plant Species Reviewed for the Plan Area**

Species*	Habitat Associations	Elevation	Status	Potential for Occurrence
Henderson’s bent grass ( <i>Agrostis hendersonii</i> )	Valley and foothill grassland (mesic); vernal pools	70-305 meters	List 3.2	<b>High.</b> Occurrence has been recorded within the proposed plan area.
Alkali milk-vetch ( <i>Astragalus tener</i> var. <i>tener</i> )	Playas; valley and foothill grassland on adobe clay soil; vernal pools habitats. Grows on alkaline soil.	1-60 meters	List 1B.2	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.

Species*	Habitat Associations	Elevation	Status	Potential for Occurrence
Heartscale ( <i>Atriplex cordulata</i> )	Chenopod scrub; meadows and seeps; valley and foothill grassland (sandy). Saline or alkaline soil.	1-375 meters	List 1B.2	<b>Absent.</b> No longer exist in plan area.
Brittlescale ( <i>Atriplex depressa</i> )	Chenopod scrub; meadows and seeps; playas; valley and foothill grassland; vernal pools. Alkaline, clay soil.	1-320 meters	List 1B.2	<b>Absent.</b> No longer exist in plan area.
San Joaquin spearscale ( <i>Atriplex joaquiniana</i> )	Chenopod scrub; meadows and seeps; playas; valley and foothill grassland. Alkaline soil	1-835 meters	List 1B.2	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.
Lesser saltscale ( <i>Atriplex minuscula</i> )	Chenopod scrub; meadows and seeps; playas; valley and foothill grassland; vernal pools. Alkaline, sandy soil.	15-200 meters	List 1B.1	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.
Vernal pool smallscale ( <i>Atriplex persistens</i> )	Vernal pools. Alkaline soil.	10-115 meters	List 1B.2	<b>High.</b> Occurrence has been recorded within the proposed plan area.
Subtle orache ( <i>Atriplex subtilis</i> )	Valley and foothill grassland.	40-100 meters	List 1B.2	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.
Hoover's calycadenia ( <i>Calycadenia hooveri</i> )	Cismontane woodland; valley and foothill grassland. Rocky soil.	40-100 meters	List 1B.3	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.
Succulent owl's-clover ( <i>Castilleja campestris</i> ssp. <i>succulenta</i> )	Vernal pools. Often acidic soil.	50-750 meters	List 1B.3 FE, CE	<b>High.</b> Occurrence has been recorded within the proposed plan area.
Beaked clarkia ( <i>Clarkia rostrata</i> )	Cismontane woodland; valley and foothill grassland.	60-500 meters	List 1B.3	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.
Recurved larkspur ( <i>Delphinium recurvatum</i> )	Chenopod scrub, cismontane woodland, valley and foothill grasslands. Alkaline soil.	3-750 meters	List 1B.2	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.

Species*	Habitat Associations	Elevation	Status	Potential for Occurrence
Dwarf downingia ( <i>Downingia pusilla</i> )	Valley and foothill grasslands (mesic); vernal pools. Alkaline soil.	1-445 meters	List 2.2	<b>High.</b> Occurrence has been recorded within the proposed plan area.
Delta button-celery ( <i>Eryngium racemosum</i> )	Riparian scrub (vernally mesic clay depressions)	3-30 meters	List 1B.1	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.
Spiny-sepaled button-celery ( <i>Eryngium spinosepalum</i> )	Valley and foothill grasslands; vernal pools	80-255 meters	List 1B.2	<b>High.</b> Occurrence has been recorded within one mile of the proposed plan area.
Boggs Lake hedge-hyssop ( <i>Gratiola heterosepala</i> )	Marshes and swamps (lake margins); vernal pools. Clay soil.	10-2,375 meters	CE, List 1B.2	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.
Pincushion navarretia ( <i>Navarretia myersii</i> ssp. <i>myersii</i> )	Vernal pools. Often acidic soil	20-330 meters	List 1B.1	<b>Low.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles. Known from less than 20 occurrences.
Shining navarretia ( <i>Navarretia nigelliformis</i> ssp. <i>radians</i> )	Cismontane woodlands; valley and foothill grasslands; vernal pools	90-1,000 meters	List 1B.2	<b>High.</b> Occurrence has been recorded within the proposed plan area
Prostrate navarretia ( <i>Navarretia prostrata</i> )	Coastal scrub; meadows and seeps; valley and foothill grassland; and vernal pools	15-700 meters	List 1B.1	<b>Moderate.</b> Moderate. Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.
Colusa grass ( <i>Neostapfia colusana</i> )	Vernal pools. Large pools with adobe soil.	5-200 meters	List 1B.2	<b>High.</b> Occurrence has been recorded within the proposed plan area.
San Joaquin Valley Orcutt grass ( <i>Orcuttia inaequalis</i> )	Vernal pools	10-755 meters	List 1B.1	<b>High.</b> Occurrence has been recorded within 5 miles of the proposed plan area.
Hairy Orcutt grass ( <i>Orcuttia pilosa</i> )	Vernal pools	55-200 meters	List 1B.1	<b>High.</b> Occurrence has been recorded within the proposed plan area

Species*	Habitat Associations	Elevation	Status	Potential for Occurrence
Merced phacelia ( <i>Phacelia ciliate</i> var. <i>opaca</i> )	Valley and foothill grassland. Clay soil, sometimes alkaline.	60-150 meters	List 1B.2	<b>High.</b> Occurrence has been recorded within the proposed plan area
Sanford's arrowhead ( <i>Sagittaria sanfordii</i> )	Marshes and swamps (assorted shallow freshwater)	0-650 meters	List 1B.2	<b>High.</b> Occurrence has been recorded within the proposed plan area
Keck's checkerbloom ( <i>Sidalcea keckii</i> )	Cismontane woodlands; valley and foothill grasslands. Serpentine, clay soil.	120-425 meters	List 1B.1	<b>High.</b> Occurrence has been recorded within the proposed plan area
Greene's tuctoria ( <i>Tuctoria greenei</i> )	Vernal pools	30-1,070 meters	List 1B.1	<b>Moderate.</b> Potential habitat within the plan area. Nearest recorded occurrence within 10 miles.

Abbreviations:

**Federal**

FE Federal Endangered Species

FT Federal Threatened Species

**State**

CE California Endangered Species

CR California Rare Species

CT California Threatened Species

**CNPS**

List 1B Species-Plants Categorized as Rare, Threatened, or Endangered in California and Elsewhere

List 2 Plants Rare, Threatened or Endangered in California, but more common Elsewhere

List 3 Plants about which we need more information – Review List

- 0.1 - Seriously threatened in California (high degree/immediacy of threat)
- 0.2 - Fairly threatened in California (moderate degree/immediacy of threat)
- 0.3 - Not very threatened in California (low degree/immediacy of threats or no current threats known)

Source: CNDDB (2008), USFWS Endangered & Threatened Species List (2008), CNPS Inventory of Rare and Endangered Plants (2008)

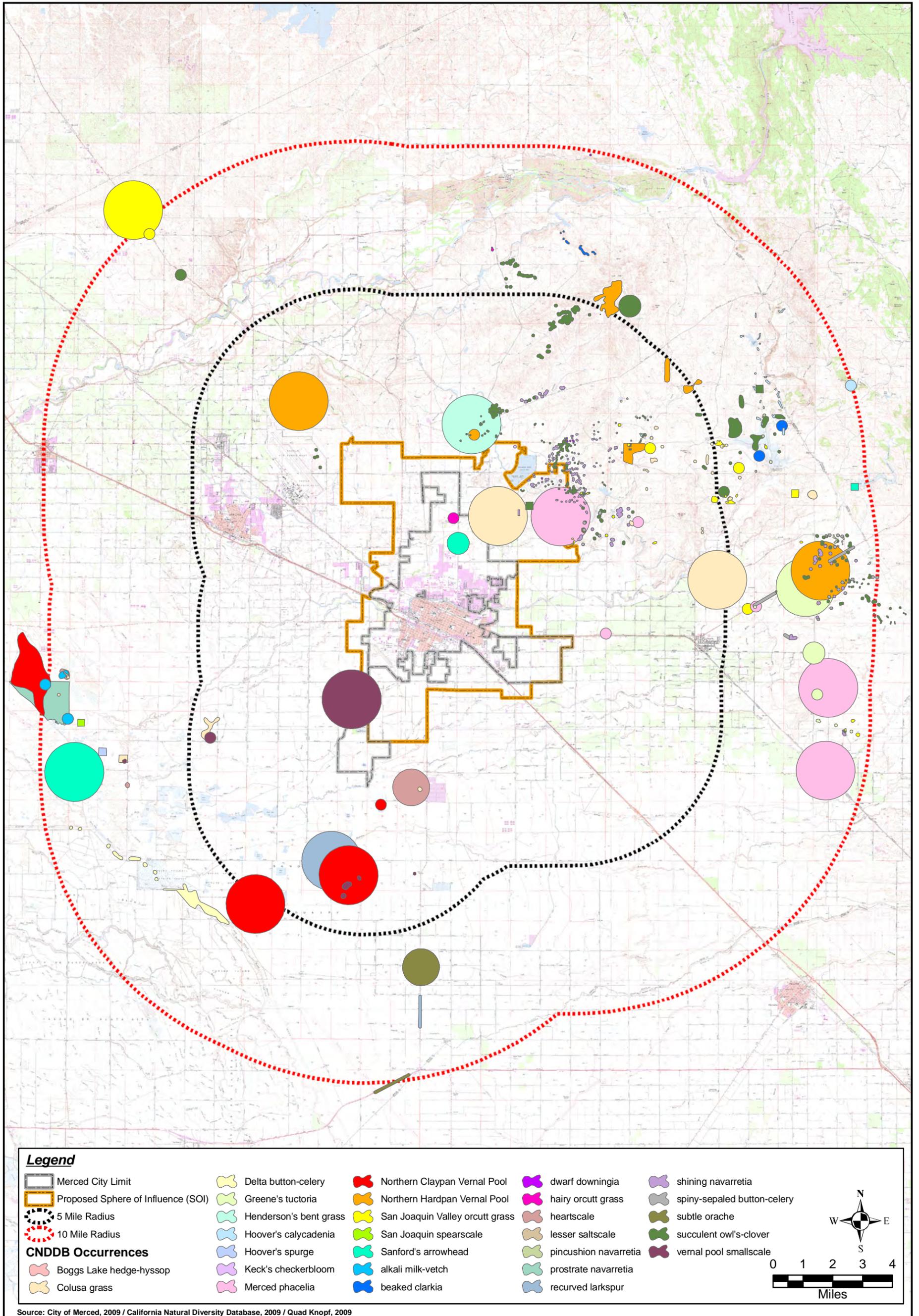
\* Nomenclature follows Hickman (1993)

### **Plant Species Accounts**

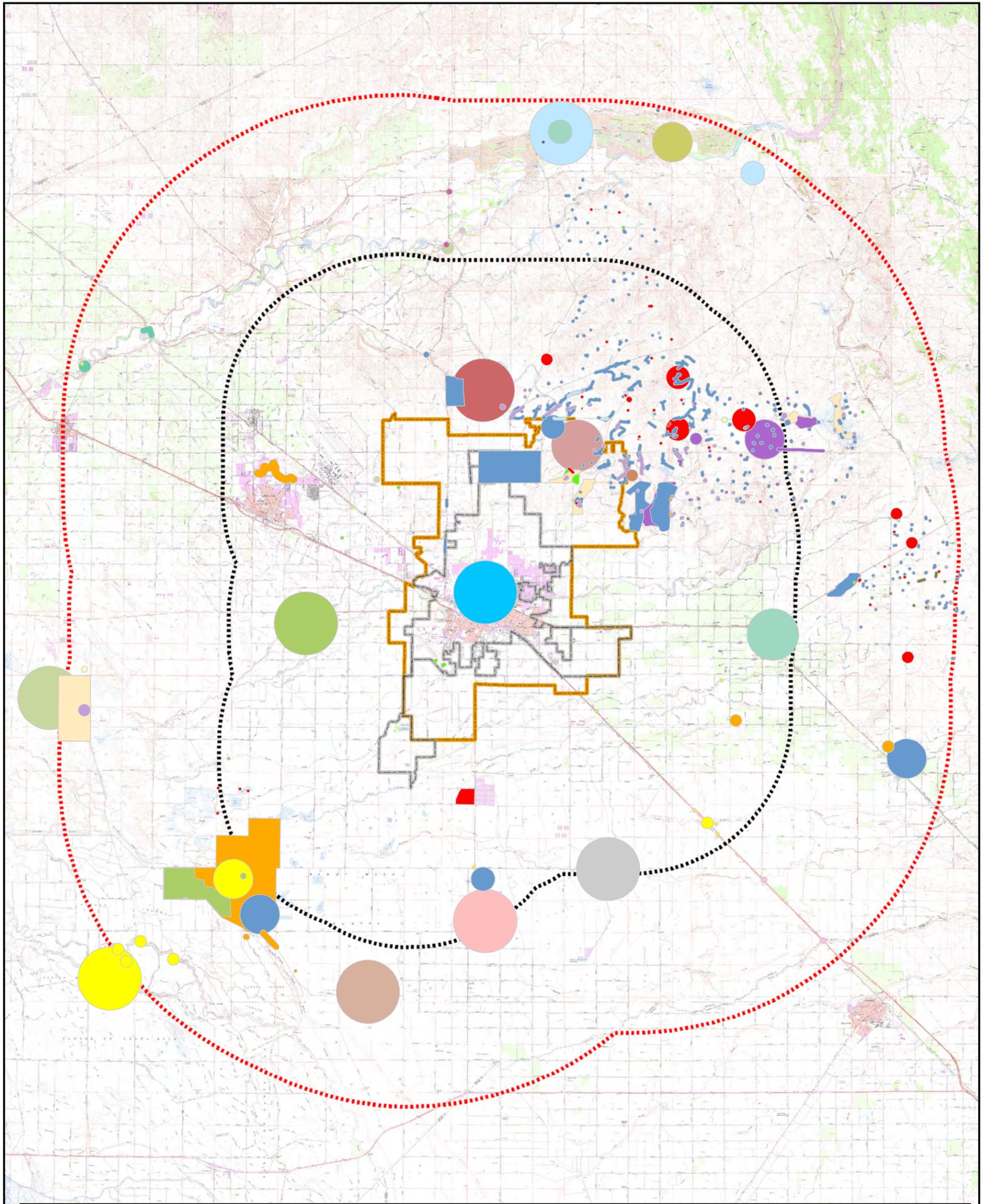
Below are species accounts for all the plant species considered to have at least a low potential or higher for occurrence within the plan area. Species reviewed and removed from further consideration do not have a corresponding account below.

**Henderson's bent grass (*Agrostis hendersonii*)** is an annual herb occurring in mesic valley and foothill grasslands and vernal pool habitats. Its status is shown on List 3.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 70 to 305 meters. The blooming period is from April to May. Occurrence has been recorded within the plan area near Yosemite Lake.

**Alkali milk-vetch (*Astragalus tener* var. *tener*)** is an annual herb occurring in playas, valley and foothill grassland on adobe clay soil, and vernal pools habitats. Its status is shown on List 1B.2

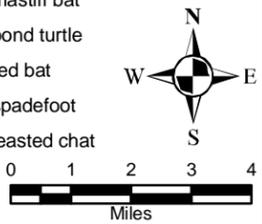


**MERCED VISION 2030 GENERAL PLAN EIR**  
**CNDDB OCCURRENCES - PLANTS** Figure 3.4-2



**Legend**

- |                                    |                                  |                            |                                   |                            |
|------------------------------------|----------------------------------|----------------------------|-----------------------------------|----------------------------|
| Merced City Limit                  | Coast (California) horned lizard | Yuma myotis                | merlin                            | vernal pool fairy shrimp   |
| Proposed Sphere of Influence (SOI) | Conservancy fairy shrimp         | bald eagle                 | midvalley fairy shrimp            | vernal pool tadpole shrimp |
| 5 Mile Radius                      | Kern brook lamprey               | blunt-nosed leopard lizard | molestan blister beetle           | western mastiff bat        |
| 10 Mile Radius                     | Merced kangaroo rat              | burrowing owl              | mountain plover                   | western pond turtle        |
| <b>CNDDDB Occurrences</b>          | San Joaquin kit fox              | ferruginous hawk           | osprey                            | western red bat            |
| American badger                    | San Joaquin pocket mouse         | giant garter snake         | pallid bat                        | western spadefoot          |
| California linderiella             | Swainson's hawk                  | hardhead                   | tricolored blackbird              | yellow-breasted chat       |
| California tiger salamander        | Wright's trichocoronis           | hoary bat                  | valley elderberry longhorn beetle |                            |



Source: City of Merced, 2009 / California Natural Diversity Database, 2009 / Quad Knopf, 2009



**MERCED VISION 2030 GENERAL PLAN EIR  
CNDDDB OCCURRENCES - WILDLIFE**

**Figure 3.4-3**

of the CNPS Inventory of Rare and Endangered Plants. It typically grows on alkaline soil. The elevation range is from 1 to 60 meters. The blooming period is from March to June. Alkali milk-vetch has been recorded within 10 miles of the plan area.

**San Joaquin spearscale (*Atriplex joaquiniana*)** is an annual herb occurring in Chenopod scrub, meadows and seeps, playas, and valley and foothill grassland habitats. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. It typically grows on alkaline soil. The elevation range is from 1 to 835 meters. The blooming period is from April to October. San Joaquin spearscale has been recorded within 10 miles of the plan area.

**Lesser saltscale (*Atriplex miniscula*)** is an annual herb occurring in Chenopod scrub, playas, and valley and foothill grassland habitats. Its status is shown on List 1B.1 of the CNPS Inventory of Rare and Endangered Plants. It typically grows in alkaline, sandy soil. The elevation range is from 15 to 200 meters. The blooming period is from May to October. Lesser saltscale has been recorded within 10 miles of the plan area.

**Vernal pool smallscale (*Atriplex persistens*)** is an annual herb occurring in vernal pool habitats with alkaline soil. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 10 to 115 meters. The blooming period is from June to October. Vernal pool smallscale has been recorded within the plan area.

**Subtle orache (*Atriplex subtilis*)** is an annual herb occurring in valley and foothill grassland habitats. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 40 to 100 meters. The blooming period is from June to August, sometimes extending into October. Subtle orache has been recorded within 10 miles of the plan area.

**Hoover's calycadenia (*Calycadenia hooveri*)** is an annual herb occurring in Cismontane woodland and valley and foothill grassland habitats. Its status is shown on List 1B.3 of the CNPS Inventory of Rare and Endangered Plants. It typically grows in rocky soil. The elevation range is from 65 to 300 meters. The blooming period is from July to September. Hoover's calycadenia has been recorded within 10 miles of the plan area.

**Succulent owl's-clover (*Castilleja campestris* ssp. *succulenta*)** is an annual herb occurring in vernal pool habitats. Its status is shown on List 1B.3 of the CNPS Inventory of Rare and Endangered Plants. It is also both a Federal and California Endangered Species. The elevation range is from 50 to 750 meters. The blooming period is from April to May. Succulent owl's-clover has been recorded within the plan area.

**Beaked clarkia (*Clarkia rostrata*)** is an annual herb occurring in cismontane woodland and valley and foothill grassland habitats. Its status is shown on List 1B.3 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 60 to 500 meters. The blooming period is from April to May. Beaked clarkia has been recorded within 10 miles of the plan area.

**Recurved larkspur (*Delphinium recurvatum*)** is an annual herb occurring in chenopod scrub, cismontane woodland, and valley and foothill grassland habitats. Its status is shown on List 1B.2

of the CNPS Inventory of Rare and Endangered Plants. It typically grows on alkaline soil. The elevation range is from 3 to 750 meters. The blooming period is from June to August, sometimes extending into October. Recurved larkspur has been recorded within five miles of the project area.

**Dwarf downingia (*Downingia pusilla*)** is an annual herb occurring in valley and foothill grassland and vernal pool habitats. Its status is shown on List 2.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 1 to 445 meters. The blooming period is from March to May. Dwarf downingia has been recorded within the plan area.

**Delta button-celery (*Eryngium racemosum*)** is an annual/perennial herb occurring in riparian scrub habitats with vernal mesic clay depressions. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 3 to 30 meters. The blooming period is from June to September. Delta button-celery has been recorded within 10-miles of the plan area.

**Spiny-sepaled button-celery (*Eryngium spinosepalum*)** is an annual/perennial herb occurring in valley and foothill grassland and vernal pool habitats. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range: 80 to 255 meters. The blooming period is from April to May. Spiny-sepaled button-celery has been recorded within five miles of the plan area. Species is known from approximately 20 occurrences.

**Boggs Lake hedge-hyssop (*Gratiola heterosepala*)** is an annual herb occurring in along the margins of marshes and swamps and vernal pool habitats. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. It is also a California Endangered Species. It typically grows on clay soil. The elevation range is from 10 to 2,375 meters. The blooming period is from April to August. Boggs Lake hedge-hyssop has been recorded within ten miles of the plan area.

**Pincushion navarretia (*Navarretia myersii* ssp. *myersii*)** is an annual herb occurring in vernal pool habitats that often have acidic soil. Its status is shown on List 1B.1 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 20 to 330 meters. The blooming period is in May. Pincushion navarretia has been recorded within 10-miles of the plan area. Species is known from fewer than twenty occurrences.

**Shining navarretia (*Navarretia nigelliformis* ssp. *radians*)** is an annual herb occurring in cismontane woodland, valley and foothill grassland, and vernal pool habitats. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 90 to 1,000 meters. The blooming period is from May to July. Shining navarretia has been recorded within the plan area.

**Prostrate navarretia (*Navarretia prostrata*)** is an annual herb occurring in coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pool habitats. Its status is shown on List 1B.1 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 15 to 700 meters. The blooming period is from April to July. Prostrate navarretia has been recorded within 10 miles of the plan area.

**Colusa grass (*Neostapfia colusana*)** is an annual herb occurring in large vernal pool habitats that often have adobe soil. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 5 to 200 meters. The blooming period is from May to August. Colusa grass has been recorded within the plan area. Species is known from fewer than twenty occurrences.

**San Joaquin Valley orcutt grass (*Orcuttia inaequalis*)** is an annual herb occurring in vernal pool habitats. Its status is shown on List 1B.1 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 10 to 755 meters. The blooming period is from April to September. San Joaquin Valley orcutt grass has been recorded within five miles of the plan area (see [Figure 3.4-4](#)).

**Hairy orcutt grass (*Orcuttia pilosa*)** is an annual herb occurring in coastal scrub, meadows and seeps, valley and foothill grassland, and vernal pool habitats. Its status is shown on List 1B.1 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 15 to 700 meters. The blooming period is from April to July. Hairy orcutt grass has been recorded within ten miles of the plan area (see [Figure 3.4-5](#)).

**Merced phacelia (*Phacelia ciliate* var. *opaca*)** is an annual herb occurring in valley and foothill grassland habitats, sometimes on alkaline soil. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 60 to 150 meters. The blooming period is from February to May. Merced phacelia has been recorded within the plan area.

**Sanford's arrowhead (*Sagittaria sanfordii*)** is an annual herb occurring in assorted shallow freshwater marshes and swamp habitats. Its status is shown on List 1B.2 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 0 to 650 meters. The blooming period is from May to October. Sanford's arrowhead has been recorded within the plan area.

**Keck's checkerbloom (*Sidalcea keckii*)** is an annual herb occurring in cismontane woodland, valley and foothill grassland habitats. Its status is shown on List 1B.1 of the CNPS Inventory of Rare and Endangered Plants. It typically grows on serpentinite or clay soil. The elevation range is from 120 to 425 meters. The blooming period is from April to May. Keck's checkerbloom has been recorded within the plan area. Species is known from only three occurrences.

**Greene's tuctoria (*Tuctoria greenei*)** is an annual herb occurring in vernal pool habitats. Its status is shown on List 1B.1 of the CNPS Inventory of Rare and Endangered Plants. The elevation range is from 30 to 1,070 meters. The blooming period is from May to July, sometimes extending into September. Green's tuctoria has been recorded within 10 miles of the plan area (see [Figure 3.4-6](#)).

**Special-Status Wildlife Species with Potential to Occur Within the Proposed Plan Area**

**Table 3.4-2  
Special-Status Wildlife Species Reviewed for the Plan Area**

<b>Species*</b>	<b>Habitat Association</b>	<b>Status</b>	<b>Potential for Occurrence</b>
<b>Invertebrates</b>			
Conservancy fairy shrimp ( <i>Branchinecta conservatio</i> )	Seasonal pools and ponds	FE	<b>Moderate</b> —Suitable habitat on site. Occurs in the area.
Vernal pool fairy shrimp ( <i>Branchinecta lynchi</i> )	Seasonal pools and ponds	FT	<b>High.</b> Occurrence has been recorded in the proposed plan area.
Midvalley fairy shrimp ( <i>Branchinecta mesovallensis</i> )	Seasonal pools and ponds	none	<b>High.</b> Occurrence has been recorded in the proposed plan area.
Valley elderberry longhorn beetle ( <i>Desmocerus californicus dimorphus</i> )	Elderberry shrubs	FT	<b>Moderate.</b> Elderberry shrubs within the plan area. Nearest recorded occurrence within 10 miles.
Vernal pool tadpole shrimp ( <i>Lepidurus packardi</i> )	Seasonal pools and ponds	FE	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 5 miles.
California linderiella ( <i>Linderiella occidentalis</i> )	Seasonal pools and ponds	None	<b>High.</b> Occurrence has been recorded in the proposed plan area.
Molestan blister beetle ( <i>Lytta molesta</i> )	The Molestan blister beetle occurs in vegetation surrounding vernal pools.	None	<b>High.</b> Occurrence has been recorded in the proposed plan area.
<b>Fish</b>			
Hardhead ( <i>Mylopharodon conocephalus</i> )	Sacramento and San Joaquin river drainages.	CSC	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 10 miles.
<b>Amphibians</b>			
California tiger salamander ( <i>Ambystoma californiense</i> )	Seasonal pools and ponds	FE, CSC	<b>High.</b> Occurrence has been recorded in the proposed plan area.
Western spadefoot toad ( <i>Spea hammondi</i> )	Seasonal pools and ponds	CSC	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 5 miles.
<b>Reptiles</b>			
Western pond turtle ( <i>Actinemys marmorata</i> )	Riverine environments, seasonal pools, and ponds	CSC	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 5 miles.
Blunt-nosed leopard lizard ( <i>Gambelia sila</i> )	Sparsely vegetated alkali and desert scrub habitats	FE, CE	<b>Absent.</b> No longer exist in plan area

Species*	Habitat Association	Status	Potential for Occurrence
Coast horned lizard ( <i>Phrynosoma coronatum</i> )	Grasslands, scrublands, and woodlands. Highly associated with sandy soil and ant colonies.	CSC	<b>Absent.</b> No longer exist in plan area
Giant garter snake ( <i>Thamnophis gigas</i> )	Streams, marshes, and irrigation ditches with open basking sites	FT, CT	<b>Low.</b> Occurrence has been recorded in the proposed plan area.
<b>Birds</b>			
Tricolored blackbird ( <i>Agelaius tricolor</i> )	Freshwater marshes and grasslands	CSC, MBTA	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 5 miles.
Burrowing owl ( <i>Athene cunicularia</i> )	Open, dry grasslands	CSC, MBTA	<b>High.</b> Occurrence has been recorded in the proposed plan area.
Ferruginous hawk ( <i>Buteo regalis</i> )	Wintering range	WL, MBTA	<b>Low.</b> Suitable wintering foraging habitat on site. Nearest recorded occurrence within 5 miles.
Swainson's hawk ( <i>Buteo swainsoni</i> )	Grasslands and riparian areas	CE, MBTA	<b>High.</b> Occurrence has been recorded in the proposed plan area.
Mountain plover ( <i>Charadrius montanus</i> )	Wintering range	CSC, MBTA	<b>High.</b> Occurrence has been recorded in the proposed plan area.
Northern harrier ( <i>Circus cyaneus</i> )	Grasslands, open country, and marshes	CSC, MBTA	<b>High.</b> Observed on site during field surveys.
White-tailed kite ( <i>Elanus leucurus</i> )	Open grasslands, marshes, and riparian areas	FP	<b>High.</b> Observed on site during field surveys.
Merlin ( <i>Falco columbarius</i> )	Winter range.	WL, MBTA	<b>Low.</b> Uncommon winter visitor to the area.
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	Riverine and lake habitats	CE, MBTA	<b>High.</b> Within wintering range. Species observed during field survey.
Loggerhead shrike ( <i>Lanius ludovicianus</i> )	Open grasslands	CSC, MBTA	<b>High.</b> Species observed on site during survey.
Osprey ( <i>Pandion haliaetus</i> )	Wintering range	CSC, MBTA	<b>High.</b> Occurrence has been recorded in the proposed plan area.
<b>Mammals</b>			
Merced kangaroo rat ( <i>Dipodomys heermanni dixonii</i> )	Grasslands and oak savannah habitats.	None	<b>High.</b> Occurrence has been recorded in the proposed plan area.
Western mastiff bat ( <i>Eumops perotis californicus</i> )	Associated with riparian woodlands and rocky chaparral. Roosts on cliffs.	CSC	<b>High.</b> Occurrence has been recorded in the plan area.

Species*	Habitat Association	Status	Potential for Occurrence
Western red bat ( <i>Lasiurus blossevillii</i> )	Highly associated with deciduous woodlands and riparian zones. Forages over open areas and along forest edges. Solitary roosting bat. Roosts mainly in trees.	CSC	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 10 miles.
Hoary bat ( <i>Lasiurus cinereus</i> )	Highly associated with both deciduous and coniferous forests. Forages over aquatic features such as streams and ponds. Roosts in caves, trees, and buildings.	None	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 5 miles.
Yuma myotis ( <i>Myotis yumanensis</i> )	Primarily an inhabitant of desert regions where it is most commonly encountered in lowland habitats near open water, where it prefers to forage. It roosts in caves, abandoned mine tunnels, and buildings	None	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 10 miles.
San Joaquin pocket mouse ( <i>Perognathus inornatus inornatus</i> )	Dry grasslands and desert scrub, usually in sandy soils.	None	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 10 miles.
American badger ( <i>Taxidea taxus</i> )	Dry, open grasslands and the edges of pastures and farmlands.	CSC	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 10 miles.
San Joaquin kit fox ( <i>Vulpes macrotis mutica</i> )	The San Joaquin kit fox occurs in open, dry, grassland, shrub, and open forest habitats on the floor of the San Joaquin Valley and surrounding foothills	FE, CT	<b>Moderate.</b> Suitable habitat on site. Nearest recorded occurrence within 10 miles.

Abbreviations:

**Federal**

FE Federal Endangered Species

FT Federal Threatened Species

MBTA Species Protected under the auspices of the Migratory Bird Treaty Act

**State**

CE California Endangered Species

CT California Threatened Species

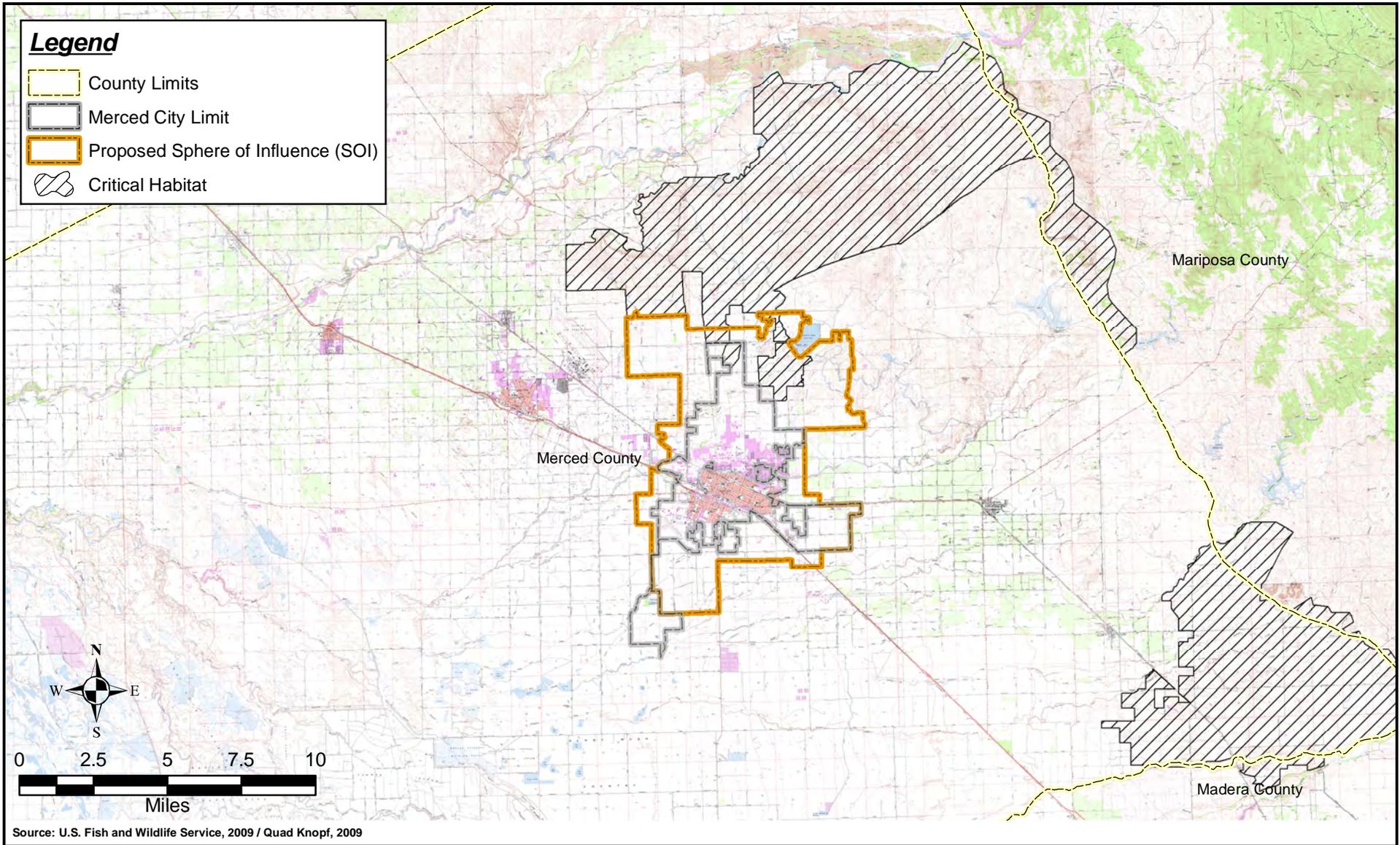
CSC California Department of Fish and Game Species of Special Concern

WL California Department of Fish and Game Watch List

FP California Department of Fish and Game Fully Protected Species

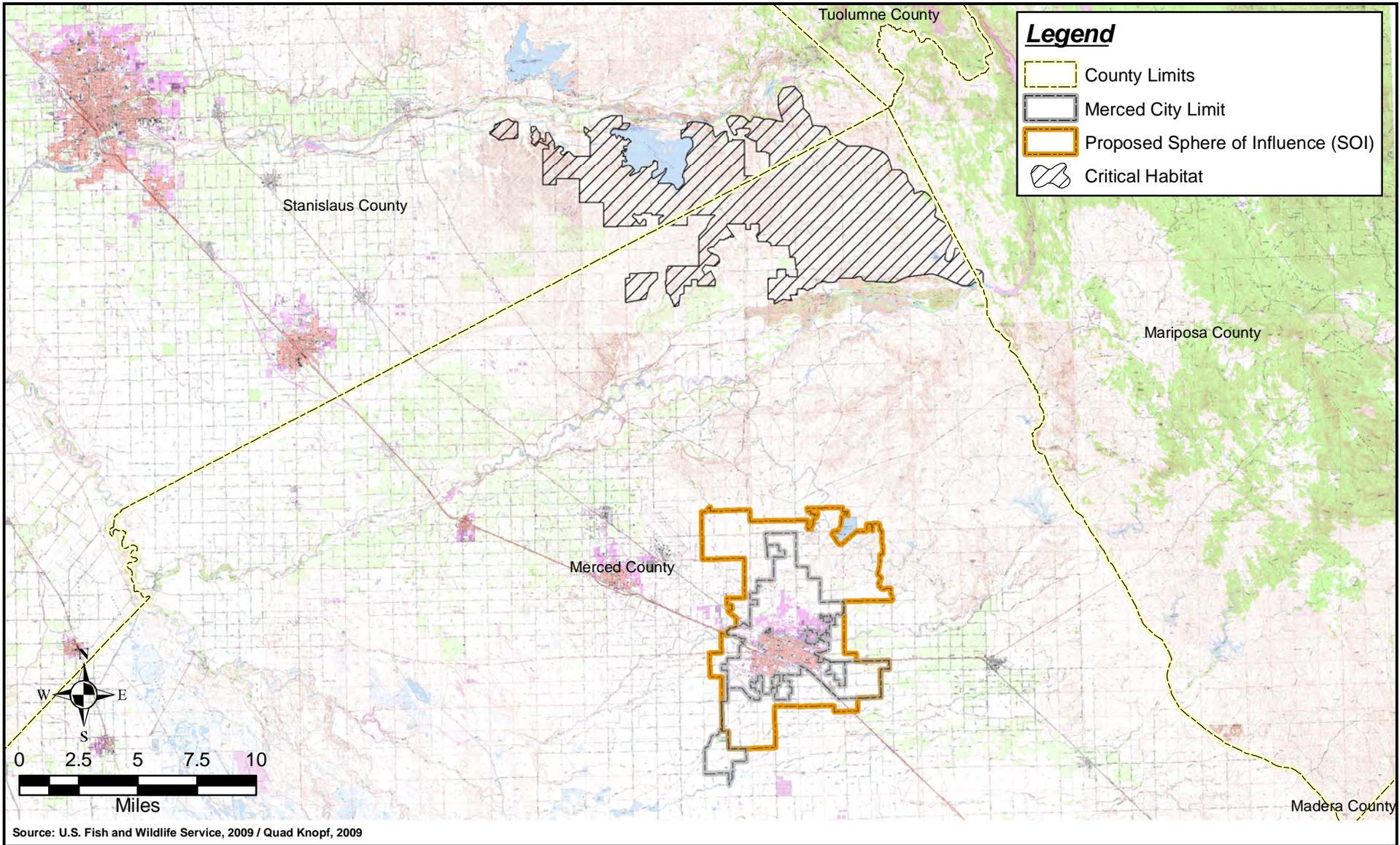
Source: CNDDDB (2008) and USFWS Endangered and Threatened Species List (2008)

\* Nomenclature follows A.O.U. (1998), Baker et al. (2003), Crother (2001, 2003), and Nelson et al. (2004)



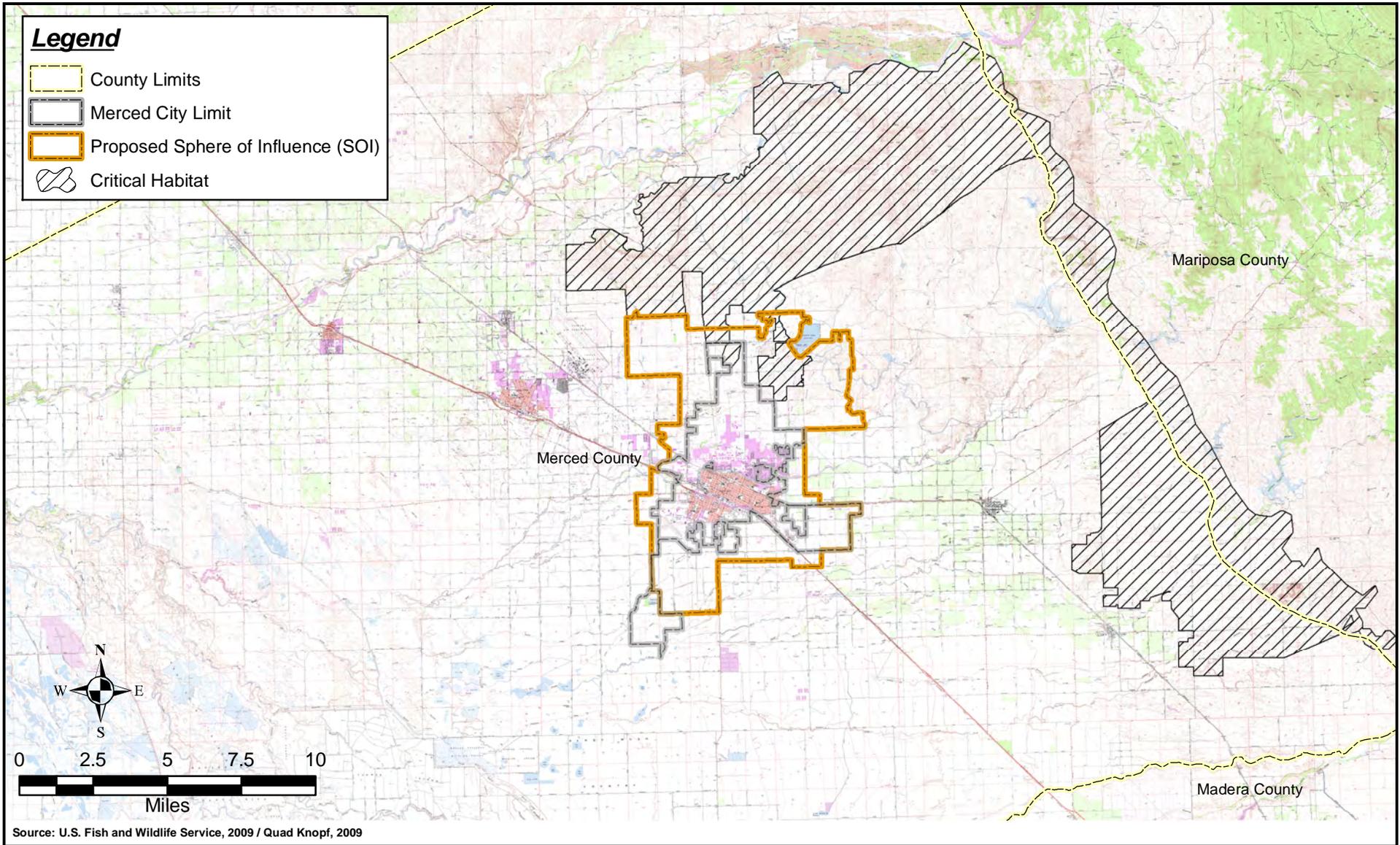
MERCED VISION 2030 GENERAL PLAN EIR  
SAN JOAQUIN VALLEY ORCUTT GRASS CRITICAL HABITAT MAP

Figure 3.4-4



MERCED VISION 2030 GENERAL PLAN EIR  
 HAIRY ORCUTT GRASS CRITICAL HABITAT MAP

Figure 3.4-5



## **Wildlife Species Accounts**

Below are species accounts for all the wildlife species considered to have at least a low potential or higher for occurrence within the plan area. Species accounts are not provided for those species that were determined to be absent from the plan area.

**Conservancy fairy shrimp (*Branchinecta conservatio*).** Conservancy fairy shrimp was designated as an endangered species on September 19, 1994 (Federal Register 59:48136). Critical habitat for this species was originally designated on August 6, 2003 and revised on August 11, 2005. Species by unit designations were published on February 10, 2006 (Federal Register 71:7117). Critical habitat for this species occurs within the boundaries of the plan area (see [Figure 3.4-7](#)).

The Conservancy fairy shrimp is currently known from six disjunct populations: Vina Plains in Tehama County; south of Chico in Tehama County; Jepson Prairie in Solano County; Sacramento National Wildlife Refuge in Glenn County; near Haystack Mountain northeast of Merced in Merced County; and the Lockwood Valley of northern Ventura County. This species inhabits large pools (such as the 36 hectare Olcott Lake at Jepson Prairie). Occurrences have been recorded within 10 miles of the plan area.

There are vernal pools in the plan area that potentially support this species; however, given the range of the species, its unique habitat requirements, and the failure of other surveys in the vicinity of the project site to locate this species in nearby areas, it is unlikely that this species occurs on the project site. Nonetheless, any pools occurring within the plan area that exhibit seasonal hydrology and which could support listed shrimp species should undergo formal presence/absence surveys.

**Vernal pool fairy shrimp (*Branchinecta lynchi*).** Vernal pool fairy shrimp was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was designated on August 6, 2003 (Federal Register 68:46683-46867).

The vernal pool fairy shrimp is a small aquatic crustacean that ranges in size from ½ to one inch long. Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus. 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. It tends to occur in smaller pools (less than 0.05-acre) that are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. It has also been collected in large vernal pools (e.g. 25 acres). Vernal pool fairy shrimp have been collected from early December to early May (USFWS 1994).

The female drops eggs to the pool bottom or the eggs remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs (known as cysts when dry). They remain in the dry pool bed until rains and other environmental stimuli hatch them. Cysts can withstand heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time

to maturity is only forty-one days. In warmer pools, it can be as little as eighteen (Eriksen and Belk 1999).

The vernal pool fairy shrimp is widespread but not abundant. Known populations extend from Shasta County through most of the length of the Central Valley to Tulare County. Along the central coast, they range from northern Solano County to Pinnacles National Monument in San Benito County. Four additional, disjunct populations exist in Southern California. The ephemeral wetlands that support this network of populations are remnants of what was formerly a pristine vernal pool ecosystem, which has been converted to primarily agricultural and urban uses. Occurrences have been recorded within ten miles of the plan area (see Figure 3.4-8).

There are vernal pools in the plan area that potentially support this species. Pools occurring within the plan area that exhibit seasonal hydrology and which could support listed shrimp species should undergo formal presence/absence surveys.

**Midvalley fairy shrimp (*Branchinecta mesovallensis*).** The midvalley fairy shrimp currently has no federal protection, but does meet the requirements in CEQA as a rare, threatened or endangered species.

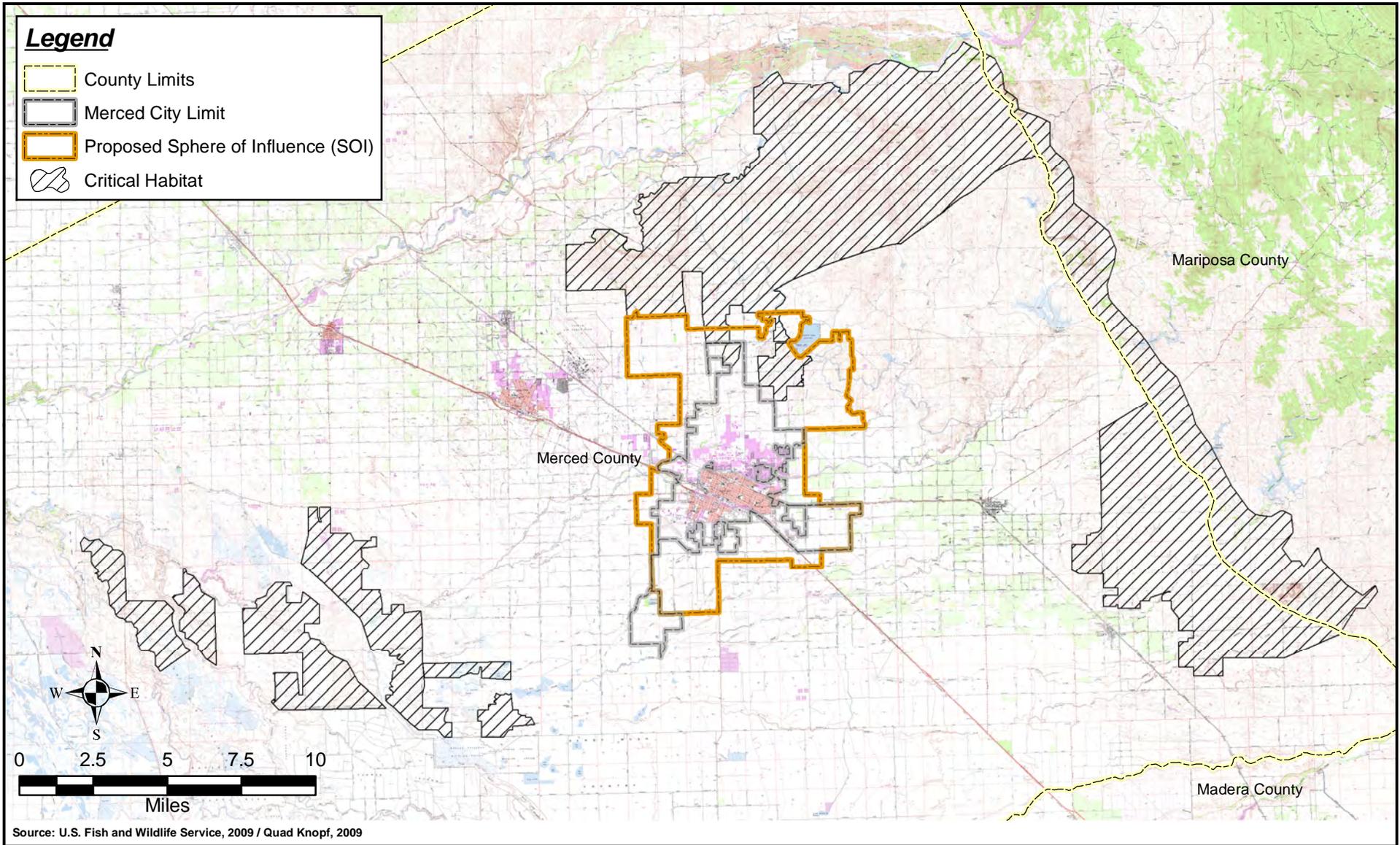
The midvalley fairy shrimp is closely related to three other federally listed species—vernal pool fairy shrimp, Conservancy fairy shrimp, and longhorn fairy shrimp. It is a recent discovery and was not described to science until 2000 (Belk and Fugate 2000).

Midvalley fairy shrimp are endemic to California Central Valley grassland vernal pools. Known occurrences are scattered in the Central Valley from Sacramento County south to Fresno County. Typical habitat for this species includes small, shallow, ephemeral vernal pools and swales. They are adapted to habitats that are inundated for short periods and appear to be able to complete a life cycle (cyst to adult with fertilized eggs) in as little as four days.

Midvalley fairy shrimp are threatened by the same activities that threaten other vernal pool invertebrates, namely, the conversion of vernal pool habitat to agriculture and development. Because of their limited and disjunct distribution, midvalley fairy shrimp are especially vulnerable to reductions in vernal pool habitat. Occurrences have been recorded within ten miles of the plan area.

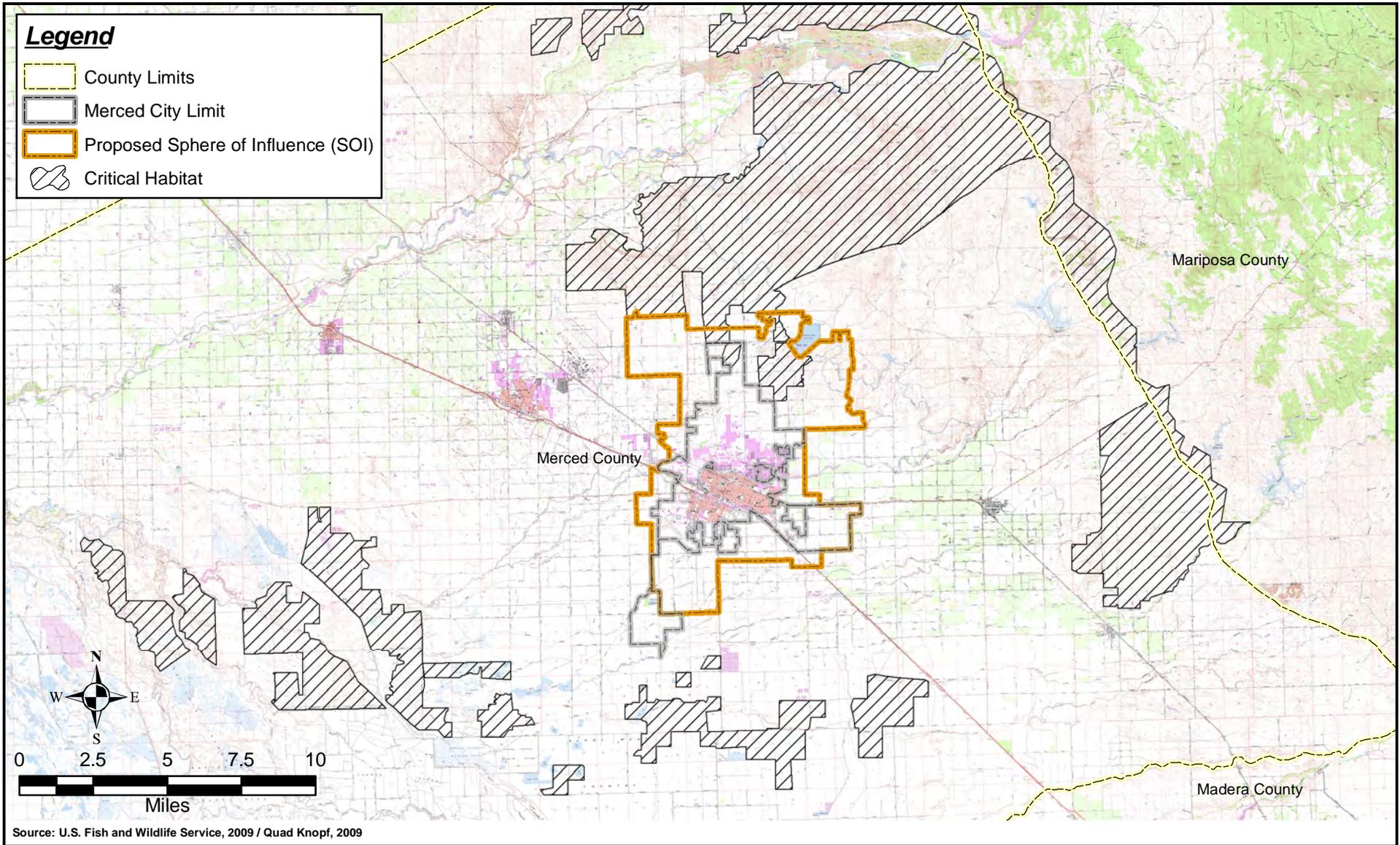
There are vernal pools in the plan area that potentially support this species. Pools occurring within the plan area that exhibit seasonal hydrology and which could support listed shrimp species should undergo formal presence/absence surveys.

**Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).** Elderberry shrubs are present along South Slough, Black Rascal Creek, and Bear Creek and there is the potential for the valley elderberry longhorn beetle (VELB) to occur within the plan area. VELB is federally listed as threatened and is known to occur in association with its host plant, blue elderberry shrubs. Elderberry shrubs are a common component of riparian forests and adjacent upland habitats throughout the Central Valley and surrounding foothills (USFWS 1999). The use of the elderberry plant by VELB, a wood borer, is rarely apparent. Often, the only evidence of the



MERCED VISION 2030 GENERAL PLAN EIR  
 CONSERVANCY FAIRY SHRIMP CRITICAL HABITAT MAP

Figure 3.4-7




**MERCED VISION 2030 GENERAL PLAN EIR**  
**VERNAL POOL FAIRY SHRIMP CRITICAL HABITAT MAP**
Figure 3.4-8

elderberry's use is an exit hole created by the larva just prior to the pupal stage. There are four stages in the VELB's life: egg, larva, pupa, and adult. The VELB spends most of its life in the larval stage, living within the stems of an elderberry plant (USFWS 1999). Females lay their eggs in May on the bark of elderberry plants. After hatching, approximately 10 days later, the larvae burrow into the stems where they will feed on the interior wood for one to two years. The larvae then enter the pupal stage and transform into the adult stage, which is short-lived. Adults are active from March through early June.

A protocol-level survey for VELB has not been conducted; therefore, it is unknown if the elderberry shrubs show indications of potential presence of VELB.

Occurrences of VELB have been recorded within ten miles of the plan area. Site-specific surveys should be conducted for this species prior to disturbance of potentially suitable habitat.

**Vernal pool tadpole shrimp (*Lepidurus packardii*).** Vernal pool tadpole shrimp was designated as threatened in its entire range on September 19, 1994 (Federal Register 59:48136-48153). Critical habitat for this species was designated on August 6, 2003 (Federal Register 68: 46683-46867).

The vernal pool tadpole shrimp is a small crustacean whose adults reach approximately two inches in length. Vernal pool tadpole shrimp require seasonally aquatic habitats that are wet for at least seven weeks and dry in summer. They occur in a variety of natural and artificial seasonally inundated habitats including vernal pools, seasonal wetlands, alkaline pools, clay flats, vernal swales, stockponds, railroad right-of-way pools, roadside ditches, and road rut pools resulting from vehicular activity. Occupied pools and wetlands typically have highly turbid waters or aquatic vegetation that may provide shelter from predators. They also have been observed in clear waters. Tadpole shrimp climb or scramble over objects, as well as plowing along or within bottom sediments. Their diet consists of organic debris and living organisms, such as fairy shrimp and other invertebrates.

The life history of the vernal pool tadpole shrimp is linked to the seasonal cycle of the vernal pool. After winter rainwater fills the pool, the population is reestablished from cysts that lie dormant in the dry pool sediments. Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. Some cysts hatch immediately and the others remain dormant in the soil to hatch during later rainy seasons.

The vernal pool tadpole shrimp is known from 19 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, from a small population near the Napa County airport, and from a single vernal pool complex on the San Francisco Bay National Wildlife Refuge in the City of Fremont, Alameda County. The ephemeral wetlands that support this network of populations are remnants of what was formerly a pristine vernal pool ecosystem, but which has been converted to mainly agricultural and urban uses. This highly disturbed remnant habitat is imperiled by a variety of human-caused activities, primarily urban development, water supply and flood control projects, and agriculture. Rapid urbanization of the Central Valley of California currently poses the most

severe threat to the continued existence of the listed vernal pool crustaceans. Occurrences have been recorded within ten miles of the plan area (see Figure 3.4-9).

There are vernal pools in the plan area that potentially support this species. Pools occurring within the plan area that exhibit seasonal hydrology and which could support listed shrimp species should undergo formal presence/absence surveys.

**California linderiella (*Linderiella occidentalis*).** The California fairy shrimp, also known as the California linderiella, is a small crustacean in the Linderiellidae family. The California fairy shrimp is the most common fairy shrimp in the Central Valley. It has been documented on most land forms, geologic formations and soil types supporting vernal pools in California, at altitudes as high as 3,800 feet above sea level.

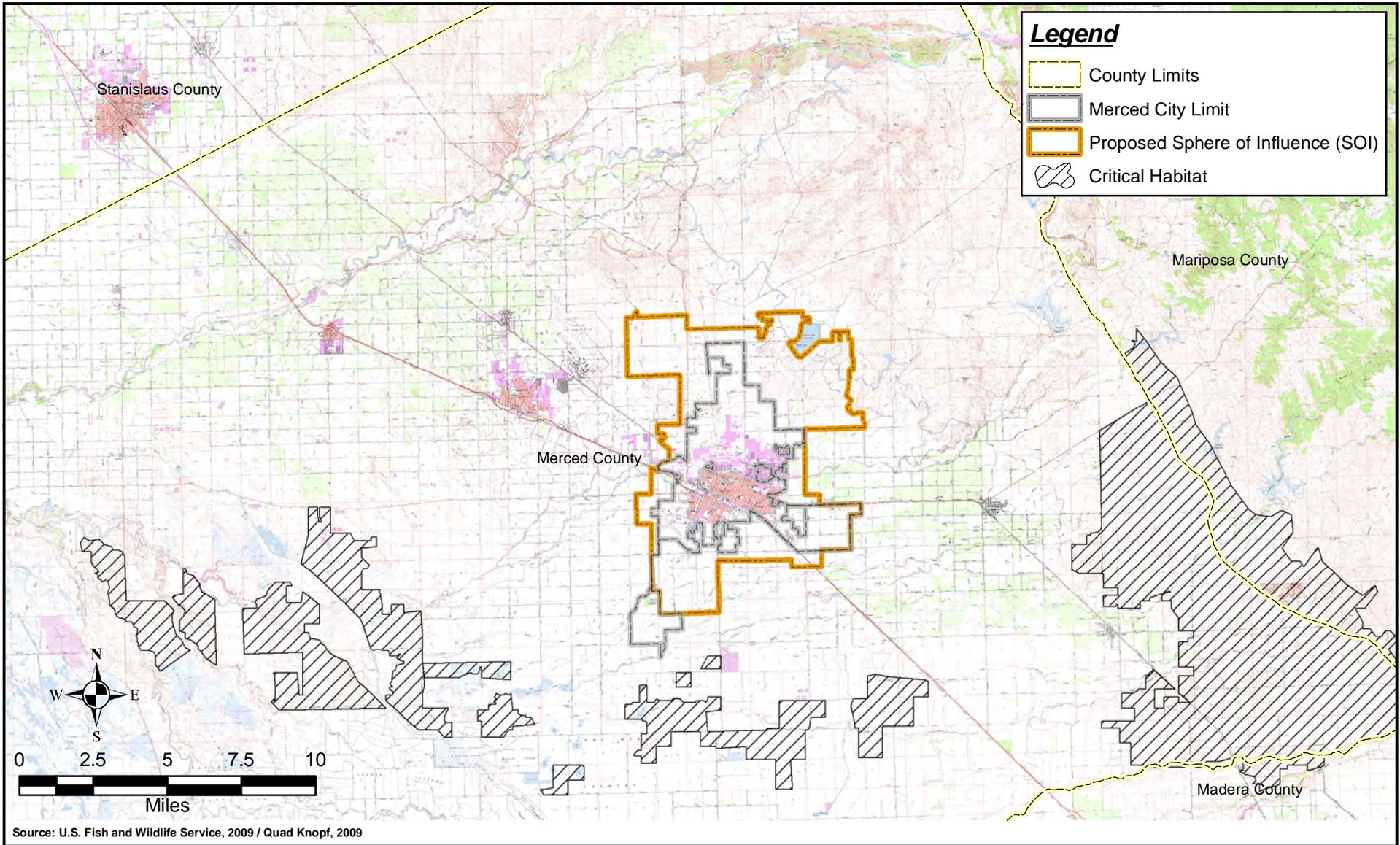
Fairy shrimp are aquatic species in the order Anostraca. They have delicate, elongated bodies, large stalked compound eyes, no carapaces and eleven pairs of swimming legs. They glide gracefully upside down, swimming by beating their legs in a complex, wavelike movement that passes from front to back. Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus.

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. They are tolerant of water temperatures from 41° to 85° F, making them the most heat tolerant fairy shrimp in California.

Female fairy shrimp carry their eggs in a ventral brood sac. The eggs are either dropped to the pool bottom or remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs. They remain in the dry pool bed until rains and other environmental stimuli hatch them. Resting fairy shrimp eggs are known as cysts. They are capable of withstanding heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time to maturity is about forty-five days. Thirty-one seems to be the minimum time required, which is the longest minimum for any Central Valley fairy shrimp. (Eriksen and Belk 1999). Adults have been collected from late December to early May. Occurrences have been recorded within ten miles of the plan area.

There are vernal pools in the plan area that potentially support this species. Pools occurring within the plan area that exhibit seasonal hydrology and which could support listed shrimp species should undergo formal presence/absence surveys.

**Molestan blister beetle (*Lytta molesta*).** The natural history of the molestan blister beetle is largely unknown. It is one of about 15 species in the blister beetle genus *Lytta* that occur in the Central Valley of California, primarily in the San Joaquin Valley. Adult beetles feed on the petals and pollen of various food plants that typically grow in valley grassland and vernal pool habitats. These same plants are also visited by *Anthophora* bees, which serve as hosts for developing larvae of blister beetles.



Historical occurrences have been recorded within ten miles of the plan area.

**Hardhead (*Mylopharodon conocephalus*).** The hardhead is a California Species of Special Concern. The hardhead is a large, robust minnow (Cypriniformes: Cyprinidae) reaching lengths of nearly one meter in size. They are widely distributed in the Sacramento-San Joaquin River drainages, the Russian River drainages, and the Napa River drainages.

Hardhead are bottom-feeders that forage for benthic invertebrates and aquatic plants. They prefer rock or sandy-bottomed pools in streams and rivers. Although their reproductive behavior is not well documented, they appear to spawn in the spring in the foothill streams of the Sacramento-San Joaquin River system. Juveniles feed primarily on mayfly and caddisfly larvae. They tend to be absent when centrarchids (sunfish and bass) are present.

Occurrences have been recorded within ten miles of the plan area.

**California tiger salamander (*Ambystoma californiense*).** The California tiger salamander is endemic to California. Historically, the California tiger salamander probably occurred in grassland habitats throughout much of the state. Habitat conversion has reduced the species' range and decreased breeding populations (Stebbins 1985).

Currently, the California tiger salamander occurs in the Central Valley and Sierra Nevada foothills from Yolo County or Colusa County south to Tulare County, and in the coastal valleys and foothills from Sonoma County south to Santa Barbara County (Zeiner et al. 1988). Isolated populations are found at the Gray Lodge Wildlife Area in Butte County (Jennings et al. 1994) and at Grass Lake in Siskiyou County (Zeiner et al. 1988). Most populations occur at elevations below 1,500 feet, but tiger salamanders have been recorded at elevations up to 4,500 feet. Although populations have declined, the species continues to breed at a relatively large number of locations in its range (59 FR 18353-18354, April 18, 1994).

The California tiger salamander is terrestrial as an adult and spends most of its time underground in small-mammal burrows, emerging only for brief periods to breed. Adults are predators, eating earthworms, snails, insects, fish and small mammals. California tiger salamanders can overwinter in burrows as much as 0.75 mile from their breeding site (Jennings and Hayes 1994). Breeding occurs in both seasonal pools and permanent bodies of water. Adults migrate en masse to breeding sites during warm rains, primarily between November and March; California tiger salamanders may not reproduce during years of low rainfall (Jennings et al. 1994). Juveniles disperse from aquatic breeding sites to grassland habitats after metamorphosis.

California tiger salamanders inhabit valley and foothill grasslands and open woodlands, usually within one mile of water (Jennings and Hayes 1994). Tiger salamanders breed in reservoirs, ponds, vernal pools, small lakes and slow-flowing streams that do not support predatory fish or bullfrogs (Zeiner et al. 1988). Adult salamanders migrate from grassland habitats to aquatic breeding sites during the first major rainfall events of fall and early winter and return to grassland habitats after breeding. This species requires small-mammal (e.g., California ground squirrel) burrows for cover during the nonbreeding season and during migration to and from

aquatic breeding sites (Zeiner et al. 1988). California tiger salamanders also use logs, piles of lumber and shrink-swell cracks in the ground for cover.

California tiger salamander populations have declined primarily because of the widespread conversion of valley and foothill grassland and oak woodland habitats to agricultural and urban uses (Stebbins 2003). Residential development in the California tiger salamander's range has fragmented vernal pool complexes and reduced habitat suitability for the species. The introduction of the bullfrog and nonnative fishes has also contributed to declines in tiger salamander populations because bullfrogs and nonnative fishes prey on tiger salamander larvae and may eliminate larval populations from breeding sites (Jennings and Hayes 1994).

Occurrences have been recorded within five miles of the plan area (see [Figure 3.4-10](#)).

**Western spadefoot toad (*Spea hammondi*).** The western spadefoot toad is a California Species of Special Concern. The western spadefoot toad is a medium-sized toad (up to 2.5 inches long, not including legs) and one of five spadefoot toads occurring in the western United States. It is greenish gray on its dorsal side and has small, but distinctive, spade-shaped protuberances on each hind foot, which is used for digging burrows. They are highly associated with grassland ecosystems, but also occur in open chaparral, pine-oak woodlands, and even in vineyards and orchards.

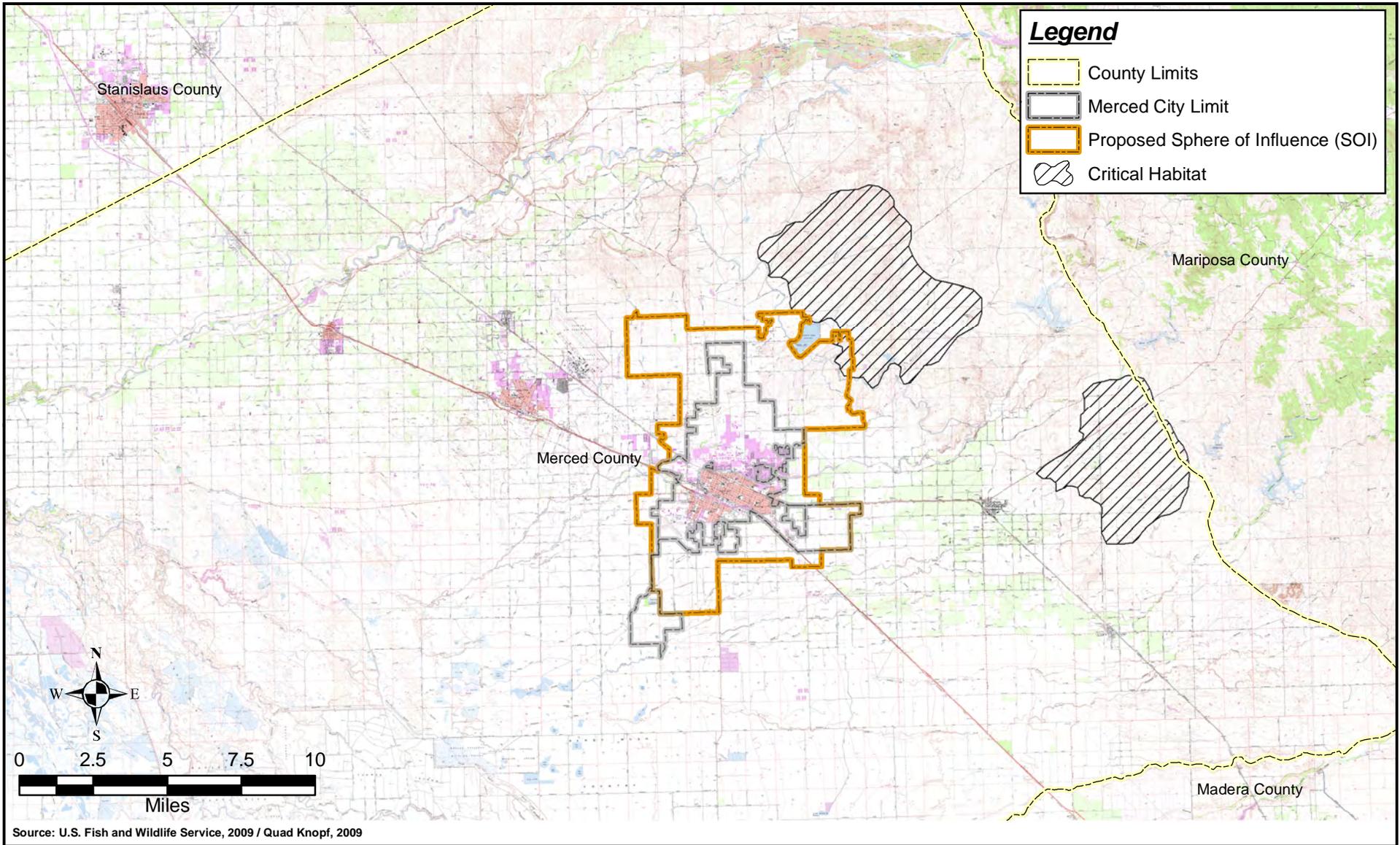
Adult spadefoots spend the majority of their lives underground in burrows they construct themselves, coming out to forage at night after rains or a period of high humidity. Spadefoots feed primarily on worms and insects, especially Lepidoptera (butterflies and moths) and Coleoptera (beetles).

Breeding season typically occurs from late winter to the end of March, but breeding activities can occur earlier in mild conditions. They breed in season wetlands, vernal pools and stock ponds. Eggs hatch in less than a week and usually reach metamorphosis and disperse within four weeks of hatching (Zeiner et al. 1988, Stebbins 2003).

Western spadefoots occur from the Sacramento Valley south through the San Joaquin Valley and the adjacent foothills of the Sierra Nevada and South Coast Ranges. South of the Coast Range it is found along the South Coast and Peninsular Ranges. They are uncommon in the south and uncommon to locally common in the northern portion of its range.

Occurrences have been recorded within five miles of the plan area.

**Western pond turtle (*Actinemys marmorata*).** Northwestern pond turtles are medium-sized (up to 8.5 inches long) aquatic turtles with an olive brown or blackish brown carapace (dorsal shell). Plastron (belly) markings range from no markings to dark brown blotches. Being a thoroughly aquatic turtle, they are highly associated with permanent ponds, lakes, reservoirs, canals, and low-gradient streams. While adults are habitat generalists, hatchlings and first year young require shallow, warm-water habitats with emergent vegetation. They occur in a wide variety of terrestrial habitats below 6,000 feet in elevation as long as there is a permanent water source.



Northwestern pond turtles require upland sites in the vicinity of aquatic habitats for oviposition (process of laying eggs). Nest sites include sandy banks, but typically are dug (~ 4 inches deep) in dry soils with a high clay or silt content and are usually within 200 meters of water. Eggs are laid from March to August depending on local conditions and clutch size varies from three to twelve eggs. Incubation takes from about 70 to 90 days. In warmer areas of central and southern California, hatchlings may emerge in the fall, but most hatchlings overwinter and emerge in the spring.

In California, northwestern pond turtles occur west of the Cascade-Sierra crest to the coast and from between the northern border of the state south through the Transverse and Peninsular Ranges of southern California. They are common to uncommon in the northern parts of their range and are rare or locally common in the southern portion of their distribution.

Occurrences have been recorded within five miles of the plan area.

**Giant garter snake (*Thamnophis gigas*).** The giant garter snake is a California and federally threatened species. The giant garter snake inhabits agricultural wetlands and other waterways such as irrigation and drainage canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. Habitat requirements consist of an adequate water source during the snake's active season (early-spring through mid-fall) to provide food and cover, emergent, herbaceous wetland vegetation, such as cattails and bulrushes for escape cover and foraging habitat during the active season, grassy banks and openings in waterside vegetation for basking and higher elevation uplands for cover and refuge from flood waters during the snake's dormant season in the winter. Giant garter snake is a fully aquatic species of snake and dependent upon a permanent water source. Upland habitat used by the snake includes adjacent areas located up to 200-feet from the aquatic habitat. Although snakes typically move little from day to day, some have been documented as moving up to five (5) miles over the period of a few days.

One occurrence has been documented within the plan area. The occurrence was documented within the City of Merced; however, the exact location in the City is unknown and the record is from 1908. Although this is an old record, potential habitat exists within the plan area. Site-specific surveys should be conducted for this species prior to disturbance of potentially suitable habitat.

**Tricolored Blackbird (*Agelaius tricolor*).** The tricolored blackbird is a California Species of Special Concern." A gregarious species, the tricolored blackbird is typically found near freshwater, particularly near marsh habitat. Loss of wetland habitats is regarded as the principal factor responsible for this species population decline.

Nesting colonies are typically found in stands of cattail (*Typha* spp.) and bulrush (*Scirpus* spp.), although they are also known to utilize blackberry patches (*Rubus* sp.) and thistle clumps (*Cirsium* spp. and *Cynara* spp.) adjacent to water. Flooded lands, margins of ponds, and grassy fields in summer and winter provide typical foraging habitat for this species.

Occurrences have been recorded within five miles of the plan area.

**Burrowing owl (*Athene cunicularia*).** The burrowing owl is a California Species of Special Concern. Burrowing owls are small, ground-dwelling raptors that nest and forage in open grasslands, prairies, and farmlands. They are distinguished by their long legs and are approximately 9 to 10 inches in length. Adults are boldly spotted and barred with females being darker in coloration than the males. They nest in small mammal burrows, most frequently in the burrows of California ground squirrels (*Spermophilus beecheyi*).

Burrowing owls are primarily crepuscular in their foraging habits, but will hunt for insects and small vertebrates during both day and night.

Breeding season begins in March and April and extends through August. Average clutch size is 5 or 6 eggs and they rarely produce a second brood. Where site conditions are optimal, burrowing owls sometimes form loose colonies, which is unusual for avian predators (Haug et al. 1993).

Burrowing owls are summer residents in the western half of the United States and year-round residents in the southwestern portion of the U.S. and northern and central Mexico. In California, they inhabit the lowlands of the Central Valley and the desert environments of southeastern part of the state. Although burrowing owls still exist in most portions of their historic range, their population densities have declined due to habitat loss, degradation, and fragmentation.

Occurrences have been recorded within ten miles of the plan area.

**Ferruginous hawk (*Buteo regalis*).** The ferruginous hawk is a California Species of Special Concern. It is the largest buteo (soaring hawk) in North America. They are a broad-winged hawk with a large head, wide gape, and robust chest (24 inches in length and 56 inch wingspan). They are polymorphic in plumage, with light-morph individuals being much more common than dark-morphs. Ferruginous hawks are birds of the arid southwest and favor very open and dry country such as dry grasslands, rangelands, saltbush flats, sagebrush plains, and desert areas.

Ferruginous hawks exhibit a higher degree of stenophagy (utilizing a small variety of prey species) than other buteos. Diet consists almost entirely of rabbits (*Lepus* and *Sylvilagus* spp.) west of the Rocky Mountains and prairie dogs (*Cynomys* spp.) and ground squirrels (*Spermophilus* spp.) east of the continental divide. Population levels are related to prey density.

Breeding season typically runs from March though August. Breeding pairs usually produce a single brood per season with clutch size averaging three eggs (Bechard and Schmutz 1995, Clark and Wheeler 2001).

Ferruginous hawks are distributed generally in western North America from the Great Plains of southern Canada to northern Mexico. They are summer residents and permanent residents in the Great Basin, Colorado Plateau, and the steppes of the northern Great Plains. Winters in the southwestern United States and northern Mexico. They winter in low densities in the Modoc Plateau, the Central Valley, and the desert areas of southern California. Ferruginous hawks are uncommon and populations have declined throughout much of the 20<sup>th</sup> century, but current demographic trends appear stable.

Occurrences have been recorded within five miles of the plan area.

**Swainson's hawk (*Buteo swainsoni*).** The Swainson's hawk is a California threatened species. The Swainson's hawk is a large, slender Buteo (soaring hawk) of the open plains, prairies, and ranchlands. Sexes are similar in size and average 19 inches in total length with an average wingspread of 51 inches. This species occurs in three different color morphs—light, dark, and rufous colored morphs. They are long-distance migrants—nearly the entire summer breeding population moves from central North America to winter grounds in the pampas of South America, primarily Argentina.

Swainson's hawks forage in open plains and grassland ecosystems. They also forage in agricultural areas containing crops of hay, grain, and certain low growing row crops. During the summer breeding season, and while they are feeding young, Swainson's hawks prey mostly on small vertebrates, but the diet shifts to large arthropods (especially grasshoppers and dragonflies) during much of the rest of the year.

Swainson's hawks typically nest in solitary, mature trees such as oaks, cottonwoods, willows, and eucalyptus. Nests are often near or in riparian corridors and are usually constructed near foraging areas. Swainson's hawks exhibit high nest fidelity, returning to the same nest year after year. The breeding season begins in late March and lasts through August. Clutch size averages two to four eggs and they produce only one brood per season (England et al. 1997).

Swainson's hawks are summer residents of the plains and prairies of the western half of the United States and in the southern prairies of Canada. Summer distribution in California is mainly confined to the Sacramento Valley, the northern half of the San Joaquin Valley, and Northeastern Plateau of Lassen and Modoc Counties.

The California Swainson's Hawk Inventory: 2005-2006 is a collaborative research project directed by CDFG and the UC Davis Wildlife Health Center to inventory the current population levels of Swainson's hawk statewide. The goal of the study is to provide a robust estimate of the number of breeding pairs in California, which in turn will provide state and federal agencies with information necessary to make informed decisions regarding development and growth (see *California Swainson's Hawk Inventory: 2005-2006, Final Report, May 31, 2007*). Results of the inventory revealed that Merced County contains an estimated 174 pairs of Swainson's.

Occurrence of Swainson's hawk has been recorded within the plan area.

**Mountain plover (*Charadrius montanus*).** The mountain plover is a California Species of Special Concern. It is a medium-sized shore bird highly associated with shortgrass prairies and open plains with scattered vegetation. They breed in the high plains east of the Rocky Mountains and winter in the southwestern United States. Over 60% of the entire mountain plover population winters in the California Central Valley each year (Shuford and Gardali 2008, Knopf 1996).

The mountain plover is primarily an insectivorous bird. Beetles, grasshoppers, and crickets make up the majority of their diet. They forage (often in flocks) in open habitats often with little or no vegetation.

Winter occurrences have been recorded within the plan area.

**Northern harrier (*Circus cyaneus*).** The northern harrier is a California Species of Special Concern. This raptor is also protected under California Fish and Game Code Section 3503.5, which protects nesting raptors and their eggs/young. The Northern Harrier (formerly called the marsh hawk) is a white-rumped, medium-sized (17 to 23 inches in length), and low-flying raptor of open grasslands and freshwater marshes. It is the only member in North America of the cosmopolitan genus *Circus*, and breeds throughout North America and Eurasia. It is the most northerly breeding and most broadly distributed of all harriers and is a long-distance migrant throughout much of its range. They are strongly sexually dimorphic, with the smaller male being gray above with a light colored breast and the females brownish above with a streaked breast.

They feed mostly on small mammals, but will also take other small vertebrates and arthropods as well. Foraging takes place over meadows, open grasslands, and emergent wetlands—especially marshes.

Harriers nest and roost almost exclusively on the ground. They build stick and grass nests near the edges of marshes and other wetland, but will occasionally nest in dense grasslands. They often nest in diffuse, loose colonies. Breeding season begins in April and lasts until September. Clutch size averages four to five eggs and they produce only one brood per season (MacWhirter and Bildstein 1996, Clark and Wheeler 2001).

Northern harriers are breeding residents throughout the northern two-thirds of the United States and much of Canada. They are long distance migrants and winter as far south as southern Central America. Northern harriers are widely but locally distributed in California. They are year round residents in the Central Valley and winter along the coast, east of the Sierra Nevada, and in southern California. Densities fluctuate from season to season as they tend to be somewhat nomadic in character, but can be locally abundant where appropriate habitat is relatively undisturbed.

This species was observed within the boundaries of the plan area.

**White-tailed kite (*Elanus leucurus*).** The white-tailed kite is fully protected pursuant to the California Fish and Game Code. Fully protected birds may not be “taken” or possessed (i.e., kept in captivity) at any time (Section 3511). The white-tailed kite is a light colored, falcon-like raptor of a wide variety of open habitats. They are found primarily in open grasslands, agricultural areas, wide river valleys, open oak savannas, and desert grasslands. This medium-sized raptor averages 15 inches in total length with a nearly 40 inch wingspan. Conspicuous are the large, black scapulars and marginal coverts on an otherwise gray back, and black under wing coverts near the bend in the wing. Adults white underneath and grayish on back from crown to upper tail coverts.

They feed almost exclusively on small mammals, especially voles and are often seen hovering over foraging habitat much like kestrels. Occasionally form communal night roosts of a few individuals to several dozen kites in the fall and winter.

White-tailed kites build stick and straw nests near the top of dense stands of oaks (*Quercus* sp.), willows (*Salix* sp.), cottonwoods (*Populus* sp.), and other tree species. Breeding season lasts from February through September. Clutch size averages four eggs and they will occasionally produce a second brood (Dunk 1995).

White-tailed kites are fairly common yearlong residents west of the Sierra Nevada, in the western portions of the Mojave Desert, and in south Texas. Their populations declined noticeably in the early part of the 20<sup>th</sup> Century, but have been increasing since the late 1970s and have expanded their breeding range into southern Oregon and southern Arizona. They are not regular migrants, but wander widely throughout their range and are considered a migratory species under MBTA.

This species was observed within the boundaries of the plan area.

**Merlin (*Falco columbarius*).** The merlin is on the CDFG's Watch List and is also protected under the Migratory Bird Treaty Act (MBTA). The merlin is a small, compact falcon that is a common breeder across the forests of North America and Eurasia. Merlins are sexually dimorphic with the male being on average approximately 25% smaller in body mass than the females. They are typically associated with open and semi-open terrain in forests, woodlands, and prairie groves.

Merlins feed mainly on small to medium-sized birds (usually under 50 grams in weight). They typically nest in an old raptor or corvid nest and make few, in any, modifications. Nest trees are usually located in riparian zones or in conifer stands near open prairie or grassland habitat. The breeding season begins in late March and lasts through August. Clutch size is usually 4 or 5 eggs and they typically produce one brood per year (Kaufman 1996).

Merlins are breeding residents throughout most of Canada and in the northern Rocky Mountains states (Idaho, Montana, and Wyoming). They migrate south during the fall and winter in the Great Plains, southern Rocky Mountains, and in California west of the Sierra Nevada range.

Occurrences have been recorded within ten miles of the plan area.

**Bald eagle (*Haliaeetus leucocephalus*).** The USFWS published five recovery plans for various regions of the United States. The Pacific Bald Eagle Recovery Plan covered the western states including California (USFWS 1986). The Final Rule to delist the bald eagle was published by the USFWS in the Federal Register on July 29, 2007 (Vol 72, No. 130).

The bald eagle, our national symbol, is the second largest bird of prey in North America; only the California condor is larger. Early explorers reported bald eagles as widely abundant throughout their range, but their population numbers decreased dramatically in the first part of the 20<sup>th</sup> century. Shooting and the paying of bounties was a major contributor to their decline as was DDT poisoning. After legal protections were put into place, their numbers increased and they were recently delisted by the United States Fish and Wildlife Service.

Bald eagles are best described as opportunistic foragers and their food habits vary according to local conditions and prey availability. Bald eagles do prefer fish over other vertebrates, but they

also preys on mammals and birds. Given their opportunistic feeding behavior, bald eagles scavenge on carrion to a greater degree than most other raptors and they will pilfer food from other raptors. Carrion is an important source of food during the winter or when fish are scarce.

Bald eagles typically nest in large, mature trees in close proximity to rivers, lakes, and reservoirs. Breeding season begins in February and continues through July. Clutch size averages two and they produce only one brood per season.

Bald eagles winter throughout the lower 48 states and in southern Canada and Alaska. The breeding range in California is primarily confined to the northern half of the state, particularly from the central Sierra Nevada north to the southern Cascades and Coast Ranges. Population levels have increased over the last 20 years to the degree that the USFWS has delisted this species.

Occurrence of bald eagle has been recorded within the plan area.

**Loggerhead shrike (*Lanius ludovicianus*).** The loggerhead shrike is a California Species of Special Concern. The loggerhead shrike is a common breeding resident and winter visitor in the open, lowlands and the Sierra Nevada and Coast Range foothills. They are highly associated with open landscapes and are usually observed perching on a fence line along rural roadways. Nesting habitat is usually in densely foliated shrubs and trees. Nest locations based more on the degree of cover afforded than by shrub or tree species.

This species, like other shrikes, is a small avian predator that hunts from perches and impales its prey (arthropods and small vertebrates) on sharp objects such as thorns and barbed-wire fences (Yosef 1996, Zeiner et al. 1990).

Breeding season begins in March and April and extends through August. Average clutch size is six eggs and they occasionally produce a second brood. Both parents attend the young, which fledge about three weeks and hatching.

The loggerhead shrike is a common resident species throughout the southern half of the United States, with the breeding range extending north into the Great Plains of the northern US and Canada. This species appears to be declining in the eastern portion of its range.

This species was observed within the boundaries of the plan area.

**Osprey (*Pandion haliaetus*).** The osprey is a California Species of Special Concern. This raptor is a large (approximately 23 inches in length), long-winged (wingspan averages 63 inches) raptor with dark brown back and upper wing-coverts, mostly white breast (some speckling) and belly, white crown and forehead, and dark line through eye. They are exclusively associated with lakes, reservoirs, large river systems, and coastal marshes and estuaries. They are rarely away from water except during migration movements. Over 99% of its diet is composed of live fish species captured in their talons after spectacular feet-first dives into the water.

Breeding season begins in March and lasts until the fledging disperse in late August or early September. Breeding pairs usually produce a single brood of one to four eggs (usually three eggs) per reproductive season. Stick nests usually constructed at feeding grounds in large living trees, snags, cliff faces, and artificial locations such as power poles, channel markers, and duck blinds. DDT seriously depleted osprey populations in the mid-20<sup>th</sup> century, but they have made a good comeback over much of their range (Poole et al. 2002, Clark and Wheeler 2001).

The osprey breeds from Alaska south to the northern quarter of California and across Canada from British Columbia to the Atlantic Maritime Provinces. They are more common in northern California and are considered uncommon or localized in the southern half of California. Site-specific surveys should be conducted for this species prior to disturbance of potentially suitable habitat. Species was observed during the November 2007 survey of the plan area.

Occurrences have been recorded within five miles of the plan area.

**Merced kangaroo rat (*Dipodomys heermanni dixonii*).** The Merced kangaroo rat is a species of special concern. It is one of nine subspecies of the Heermann's kangaroo rat, which is endemic to central California (Hall 1981). It is the smallest of all the subspecies of *D. heermanni*. It occurs in annual grassland and oak savanna habitats (Williams 1986). Little is known of the specific life history traits of the species. Heermann's kangaroo rat feed on the seeds of grasses, annuals and forbs. Kangaroo rats dig burrows in which they sleep, rear young, and store food. They will also use burrows constructed by California ground squirrels.

Occurrence has been recorded within the plan area.

**Western mastiff bat (*Eumops perotis californicus*).** The western mastiff bat is a California Species of Special Concern. The mastiff bat roosts in crevices in cliff faces, high buildings, trees and tunnels. This bat needs a vertical face with a drop of approximately three meters when roosting in rock crevices, in order to take flight. Accordingly, roosts are generally high above the ground. In California, the mastiff bat is most commonly encountered in broad open areas, but occurs in many semi-arid to arid habitats, including dry desert washes, flood plains, conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, montane meadows, palm oases, chaparral, desert scrub, urban, and agricultural areas (Pierson 2005). The mastiff bat is an uncommon resident that ranges from the southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California, and from the coast eastward to the Colorado desert.

Occurrences have been recorded within five miles of the plan area.

**Western red bat (*Lasiurus blossevillii*).** The western red bat is a California Species of Special Concern. This species is widespread, occurring in the southwestern United States and Central and South America. In California, western red bats occur throughout the Central Valley and along the coastal ranges from Mendocino County south to the Mexican border. They are often associated with riparian habitat dominated by mature cottonwoods and sycamores.

Western red bats are open-air foragers and feed primarily on moths. This non-colonial species typically roosts in mature trees that are generally hidden from view in all directions except below (Reid 2006 and Ziener et al. 1990b).

Occurrences have been recorded within ten miles of the plan area.

**Hoary bat (*Lasiurus cinereus*).** The hoary bat is a California Species of Special Concern. This species is found throughout most of California and is the most widespread of all the North American bats. Occurs from dry lowlands to deciduous and coniferous forests of the high mountains (to 9,000 feet MSL). They are solitary bats, roost primarily in trees, and migrate during the fall. They are aerial insectivores, but appear to take moths in large numbers. Foraging usually occurs over bodies of water—lakes, ponds, and streams.

Hoary bats mate during the fall and early winter. Females store the sperm and delay fertilization until after they cease hibernating in the early spring. Young are generally born from May to early July.

The project site contains suitable foraging habitat (ponds) and suitable roosting habitat in trees. There are no recorded CNDDDB occurrences within five miles of the plan area.

**Yuma myotis bat (*Myotis yumanensis*).** Yuma myotis bats occur in a variety of habitats including riparian, scrublands and deserts, and forests. Mating typically occurs in the fall. Females give birth to one young from mid-spring to mid-summer in maternity colonies that may range in size to several thousand; males tend to roost singly in the summer. The species roosts in bridges, buildings, cliff crevices, caves, mines, and trees. Individuals become active and forage just after sunset, feeding primarily on aquatic emergent insects. Their diet is known to include caddis flies, midges, small moths and small beetles. After feeding, they periodically rest at night roosts where the food is digested.

Occurrences have been recorded within ten miles of the plan area.

**San Joaquin pocket mouse (*Perognathus inornatus inornatus*).** The San Joaquin pocket mouse is a sensitive species listed by the U.S. Bureau of Land Management. It inhabits annual grassland, saltbush scrub and oak savanna habitats, generally on friable soils (Williams 1986). It feeds primarily on the seeds of annuals, shrubs and forbs, but will also consume insects when seeds are less available.

Occurrences have been recorded within ten miles of the plan area.

**American badger (*Taxidea taxus*).** Adult badgers measure 30 to 35 inches in length, including a short furry tail averaging 5.5 inches. Their bodies are wide and give a flat-backed appearance. Colors are mostly gray, with a grizzled effect due to long guard hairs that have a black band ending in a white tip. Their "underfur" is either a light tan, or a creamy white. A white stripe from the nose leads between the eyes and back over the head of the badger, ending between the shoulders. Ears are set low along the sides of the head. Lower legs and feet are black in color. Badgers walk on their toes (digitigrade) with a characteristic, rolling gait.

Their front paws are rotated laterally and their long claws facilitate rapid digging, which they frequently use to capture prey. They can tunnel after ground dwelling rodents with amazing speed (Zeiner et al. 1990b). Badgers primarily prey on pocket gophers, ground squirrels, moles, marmots, prairie dogs, woodrats, kangaroo rats, deer mice, and voles. They also prey on ground nesting birds, such as bank swallows and burrowing owls. They also eat lizards, amphibians, carrion, fish, hibernating skunks, insects, including bees and honeycomb, and some plant foods, such as corn and sunflower seeds.

Mating occurs in late summer or early autumn but embryos are arrested early in development. Implantation is delayed until December or as late as February. After this period, embryos implant into the uterine wall and resume development. Although a female is technically pregnant for seven months, gestation is a mere six weeks. Litters of one to five offspring, with an average of three, are born in early spring. Females are able to mate when they are four months old, but males do not mate until the autumn of their second year. Most females mate after their first year.

Occurrences have been recorded within ten miles of the plan area.

**San Joaquin kit fox (*Vulpes macrotis nutica*).** The San Joaquin kit fox is federally listed as endangered and state listed as threatened. They are found in grasslands and scrublands, many of which have been extensively modified. Types of modified habitats include those with oil exploration and extraction equipment and wind turbines, and agricultural mosaics of row crops, irrigated pastures, orchards, vineyards, and grazed annual grasslands. Oak woodland, alkali sink scrubland, and vernal pool and alkali meadow communities also provide habitat for kit foxes. This species requires underground dens to raise pups and to avoid predators, and to avoid adverse environmental conditions. An individual's home range is typically less than six square miles. However, some pups have been known to travel 60 miles or more when dispersing from the den.

Historically, the San Joaquin kit fox occurred extensively throughout California's Central Valley and parts of the Salinas and Santa Clara Valleys. The San Joaquin kit fox currently inhabits some areas of suitable habitat on the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges, Sierra Nevada, and Tehachapi Mountains, from southern Kern County north to Contra Costa, Alameda, and San Joaquin Counties on the west, and near La Grange, Stanislaus County on the east side of the Valley and some of the larger scattered islands of natural land on the Valley floor in Kern, Tulare, Kings, Fresno, Madera, and Merced Counties.

Potential foraging habitat exists within the project area for this species. Prey species such as rabbits and other small mammals utilize the site.

Occurrences of San Joaquin Kit Fox have been recorded within 10 miles of the plan area.

#### **SENSITIVE NATURAL COMMUNITIES**

Sensitive natural communities are those habitats that are of special concern to resource agencies, or that are afforded specific consideration through CEQA, by California Fish and Game Code,

and through conditions of a Section 404 permit under the Clean Water Act. All riparian habitats are subject to regulation under Section 1600 et seq. of the California Fish and Game. Habitats considered sensitive by CDFG are those identified as “rare and worthy of consideration” and are tracked in the CNDDDB. Sensitive natural communities occurring in the plan area include:

- Northern Hardpan Vernal Pool
- Northern Claypan Vernal Pool

Either one of these two sensitive natural communities could occur within the boundaries of the proposed plan area.

## **RAPTORS**

Nesting raptors (birds of prey) and raptor nests are protected under the Migratory Bird Treaty Act (MBTA) and by California Fish and Game Code. All six families of raptors occurring in North America are protected:

- Accipitridae (kites, hawks, and eagles)
- Cathartidae (New World vultures)
- Falconidae (falcons and caracaras)
- Pandionidae (ospreys)
- Strigidae (typical owls)
- Tytonidae (barn owls)

Protection includes not only the birds themselves but also extends to their nests, young, and eggs. Relative to many other animal taxa, raptors naturally exist at low population levels and are widely dispersed within their habitats. Disturbances related to construction activities causing nest abandonment and/or loss of reproductive effort may be considered a “take” and is potentially punishable by fines and/or imprisonment.

## **WILDLIFE MOVEMENT CORRIDORS**

Movements of wildlife generally fall into three basic categories: a) movements along corridors or habitat linkages associated with home range activities such as foraging, territory defense, and breeding; b) dispersal movements – typically one-way movements (e.g., juvenile animals leaving their natal areas or individuals colonizing new areas), and; c) temporal migration movements – these movements are essentially dispersal actions which involve a return to the place of origin (e.g., deer moving from winter grounds to summer ranges and fawning areas).

The perennial drainage systems scattered throughout the area provide movement corridors for wildlife within the plan area boundaries. There are no designated movement corridors located within the borders of the plan area.

## **Regulatory Setting**

### **FEDERAL**

#### ***Federal Endangered Species Act***

The Federal Endangered Species Act (FESA) defines an endangered species as any species or subspecies that is in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species or subspecies that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Once a species is listed it is fully protected from a “take” unless a take permit is issued by the US Fish and Wildlife Service (USFWS). A take is defined as the killing, capturing, or harassing of a species. Proposed endangered or threatened species are those species for which a proposed regulation, but not final rule, has been published in the Federal Register.

#### ***Migratory Bird Treaty Act***

The Migratory Bird Treaty Act (MBTA) is an international treaty among the United States, Canada, Mexico, Japan, and Russia for the conservation and management of bird species that may migrate through more than one country. The MBTA (50 C.F.R. Section 10) is enforced in the United States by the USFWS and covers 972 bird species. According to the provisions of the MBTA, it is unlawful to pursue, hunt, take, capture, or kill, or attempt to do the same to any species covered by the Act, including their nests, eggs, or young. Any disturbance that causes nest abandonment or loss of reproductive effort is considered a take and is potentially punishable by fines or imprisonment. Birds covered under the Act include all waterfowl, shorebirds, gulls, wading birds, raptors, owls, hummingbirds, warblers, flycatchers, and most perching bird species. To kill, possess, or trade a migratory bird, bird part, nest, or egg is a violation of the Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., Section 703, Supp. I, 1989), unless it is in accordance with the regulations that have been set forth by the Secretary of the Interior.

#### ***Clean Water Act – Section 404***

Section 404 of the Clean Water Act (CWA) regulates all discharges of dredged or fill material into water of the United States. These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as “Waters of the US”, tributaries of waters otherwise defined as “Waters of the US”, the territorial seas, and wetlands adjacent to “Waters of the US” (33 CFR, Part 328, Section 328.3).

Areas not considered to be jurisdictional waters include non-tidal drainage and irrigation ditches excavated on dry land, artificially-irrigated areas, artificial lakes or ponds used for irrigation or stock watering, small artificial water bodies such as swimming pools and water-filled depressions (33 CFR, Part 328).

The United States Army Corps of Engineers (USACE) is the agency responsible for administering the permit process for activities that affect “Waters of the US.” Executive Order 11990 is a federal implementation policy, which is intended to result in no net loss of wetlands.

#### ***Clean Water Act – Section 401***

Section 401 of the Clean Water Act (CWA) requires an applicant who is seeking a 404 permit to first obtain a water quality certification from the Regional Water Quality Control Board. To obtain the water quality certification the Regional Water Quality Control Board must indicate that the proposed fill would be consistent with the standards set forth by the state.

#### **STATE**

#### ***Fish and Game Code Sections 2050-2097 - California Endangered Species Act***

The California Endangered Species Act (CESA) protects certain plant and animal species when they are of special ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the state. CESA established that it is state policy to conserve, protect, restore, and enhance endangered species and their habitats.

The CESA expanded upon the original Native Plant Protection Act and enhanced legal protection for plants. To be consistent with Federal regulations, CESA created the categories of “threatened” and “endangered” species. It converted all “rare” animals into the Act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Under State law, plant and animal species may be formally designated by official listing by the California Fish and Game Commission.

#### ***Fish and Game Code Sections 1900-1913 - California Native Plant Protection Act***

In 1977 the State Legislature passed the Native Plant Protection Act (NPPA) in recognition of rare and endangered plants of the state. The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare, and to require permits for collecting, transporting, or selling such plants.

#### ***Public Resources Code Section 21000 - California Environmental Quality Act***

The California Environmental Quality Act (CEQA) identifies that a species that is not listed on the federal or state endangered species list may be considered rare or endangered if the species meets certain criteria. Under CEQA public agencies must determine if a project would adversely affect a species that is not protected by FESA or CESA. Species that are not listed under FESA or CESA, but are otherwise eligible for listing (i.e. candidate, or proposed) may be protected by the local government until the opportunity to list the species arises for the responsible agency (i.e. USFWS or CDFG).

### ***Fish and Game Code Sections 3503, 3503.5, 3800 - Predatory Birds***

Under the California Fish and Game Code, all predatory birds in California, generally called “raptors,” are protected. The law indicates that it is unlawful to take, possess, or destroy the nest or eggs of any such bird unless it is in accordance with the code. Any activity that would cause a nest to be abandoned or cause a reduction or loss in a reproductive effort is considered a take. This generally includes construction activities.

### ***Fish and Game Code Sections 1601-1603 – Streambed Alteration***

Under the California Fish and Game Code, the Department of Fish and Game (CDFG) has jurisdiction over any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any lake or stream. Private landowners or project developers must obtain a “Streambed Alteration Agreement” from the CDFG prior to any alteration of a lake bed, stream channel, or their banks. Through this agreement, the CDFG may impose conditions to limit and fully mitigate impacts on fish and wildlife resources.

### ***Public Resources Code Section 21083.4 - Oak Woodlands Conservation***

In 2004, the California legislature enacted Senate Bill 1334 (SB 1334), which added oak woodland conservation regulations to the Public Resources Code. This new law requires a County to determine whether a project within its jurisdiction may result in a conversion of oak woodlands that will have a significant effect on the environment. If a County determines that there may be a significant effect to oak woodlands, the County must require oak woodlands mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands. Such mitigation alternatives include: conservation through the use of conservation easements; planting and maintaining an appropriate number of replacement of trees; contribution of funds to the Oak Woodlands Conservation Fund for the purpose of purchasing oak woodlands conservation easements; and/or other mitigation measures developed by the County.

## **LOCAL**

### ***General Plan Consistency***

The *Merced Vision 2030 General Plan* contains a number of policies that apply to Biological Resource impacts in conjunction with ultimate build-out of the City in accordance with the General Plan. The specific policies listed below contained in the Urban Expansion and Parks, Open Space, and Conservation Elements of the General Plan are designed to ensure that biological resource impacts are minimized as development occurs in accordance with the *Merced Vision 2030 General Plan*.

### **Urban Expansion Policies:**

- UE-1.1** Designate areas for new urban development that recognize the physical characteristics and environmental constraints of the planning area.

## **Parks, Open Space, and Conservation Policies:**

**OS-1.1** Identify and mitigate impacts to wildlife habitats which support rare, endangered, or threatened species.

**Implementing Action 1.1.b** Urban development should occur away from identified sensitive species critical habitats areas unless specific provisions to ensure adequate protection and monitoring exist.

**Implementing Action 1.1.g** Implement the Memorandum of Understanding (MOU) between the City of Merced and the U.S. Fish and Wildlife Service (USFWS), dated June 16, 2008, regarding the processing of development applications to ensure compliance with the Federal Endangered Species Act relating to Projects to be Served by the Wastewater Treatment Plant Water Quality Upgrade and Expansion Project.

**OS-1.2** Preserve and enhance creeks in their natural state throughout the planning area.

**OS-1.4** Improve and expand the City's urban forest.

**OS-1.5** Preserve and enhance water quality.

### **3.4.2 THRESHOLDS OF SIGNIFICANCE**

Consistent with Appendix G of the CEQA Guidelines, the proposed project will have a significant impact on the environment if it will:

- 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, or by the CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident 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, or other approved local, regional, or state habitat conservation plan.

### 3.4.3 IMPACTS AND MITIGATION MEASURES

#### ***Impact #3.4-1: Result in substantial adverse impacts on candidate, special-status, or sensitive species.***

**Discussion/Conclusion:** The California Natural Diversity Database (CNDDDB) search identified many documented special-status species within the study area. A reconnaissance level survey conducted by Quad Knopf biologists during February of 2008 confirmed that suitable habitat exists within the proposed SUDP/SOI area to support the species identified by the CNDDDB search. The biotic habitat of the study area, like most of the remaining lands in the region, has been drastically altered from its original form. Human-caused disturbances such as agricultural activities and land conversion to urban uses within the plan area may result in loss of foraging and breeding habitat for many of these species. Land conversion within the plan area is a ***potentially significant*** impact on special-status species.

To protect special-status species and their habitats, the City shall ensure that appropriate biological surveys will be performed.

#### ***Mitigation Measures***

The following survey methods, timing of surveys, and avoidance and protection measures will be implemented where appropriate habitat exists within the boundaries of proposed projects:

#### ***Mitigation Measure #3.4-1a: Vernal Pools and Vernal Pool Associates***

*To protect vernal pools and species associated with vernal pools including vernal pool smallscale, succulent owl's-clover, pincushion navarretia, Colusa grass, hairy Orcutt grass, spiny-sepaled button celery, San Joaquin Orcutt grass, Greene's tuctoria, Conservancy fairy shrimp, vernal pool fairy shrimp, Midvalley fairy shrimp, vernal pool tadpole shrimp, California linderiella, and Molestan blister beetle, surveys shall be conducted to determine the presence of vernal pools prior to or concurrent with application for annexation in areas identified as having potential habitat.*

*Surveys to detect vernal pools are most easily accomplished during the rainy season or during early spring when pools contain water. If vernal pools are found to occur on a project site, the pools and a 100 foot-wide buffer around each pool or group of pools will be observed. If the vernal pools and buffer areas cannot be avoided, then the project proponent must consult with and obtain authorizations from, but not limited to, the California Department of Fish and Game, the United States Fish and Wildlife Service, the Army Corps of Engineers, and the State Water Resources Quality Control Board.*

*Consultation and authorizations may require that additional surveys for special-status species be completed. Because there is a federal policy of no net loss of wetlands, mitigation to reduce losses and compensation to offset losses to vernal pools and associated special-status species will be required.*

**Effectiveness of Mitigation Measure:**

The identification of vernal pools on a project specific basis and, when present on a project site, the consultation with regulatory agencies and implementation of mitigation and compensation will ensure that impacts to vernal pools and special-status species associated with vernal pools will be *less than significant*.

**Mitigation Measure #3.4-1b: Special-Status Plants**

*To protect special-status plants, the City shall ensure that a botanical survey be conducted for projects containing habitat suitable for special-status plant species. Surveys shall be conducted by a qualified biologist or botanist during the appropriate flowering season for the plants and shall be conducted prior to issuance of a grading or building permit for the project. If special-status plants are found to occur on the project site, the population of plants shall be avoided and protected. If avoidance and protection is not possible, then a qualified biologist will prepare a mitigation and monitoring plan for the affected species. The plan shall be submitted to the CDFG and/or the USFWS for review and comment. Details of the mitigation and monitoring plan shall include, but not be limited to:*

- *Removing and stockpiling topsoil with intact roots and seed bank in the disturbance area, and either replacing the soil in the same location after construction is complete or in a different location with suitable habitat; or*
- *Collect plants, seeds, and other propagules from the affected area prior to disturbance. After construction is complete, then the restored habitat will be replanted with propagules or cultivated nursery stock; or*
- *These and other mitigations will only be considered successful if the populations of the affected species are sustained for a minimum of three years and are of a similar size and quality as the original population.*

**Effectiveness of Mitigation Measure:**

Implementation of Mitigation Measure #3.4-1b will ensure that impacts to special-status plants (Table 3.4-1) are reduced to a *less than significant* level.

**Mitigation Measure #3.4-1c: Valley Elderberry Longhorn Beetle**

*To protect the Valley elderberry longhorn beetle (VELB), the project proponent shall ensure that a survey for elderberry bushes be conducted by a qualified biologist at each project site containing habitat suitable for VELB prior to the issuance of a grading*

*permit or building permit. If elderberry bushes are found, the project proponent shall implement the measures recommended by the biologist, which shall contain the standardized measures adopted by the USFWS.*

**Effectiveness of Mitigation Measure:**

The implementation of this measure will prevent the loss of habitat (elderberry bushes) and prevent the incidental take of VELB. Implementation of these measures will ensure that impacts to elderberry shrubs and elderberry longhorn beetles will be *less than significant*.

**Mitigation Measure #3.4-1d: Burrowing Owls**

*To protect burrowing owls on proposed projects where suitable habitat exists, the following shall be implemented:*

- *To protect burrowing owls, preconstruction surveys shall be conducted by a qualified biologist at all project sites that contain grasslands, fallowed agricultural fields, or fallow fields along roadsides, railroad corridors, and other locations prior to grading. If, during a pre-construction survey, burrowing owls are found to be present, the project proponent shall implement the measures recommended by the biologist and include the standardized avoidance measures of CDFG.*

**Effectiveness of Mitigation Measure:**

The mitigation measure listed above is a standardized survey protocol and avoidance measure that has been adopted by the CDFG. Implementation of this mitigation measure will prevent disrupting nesting behaviors and ensure nesting success of burrowing owls which may nest in and adjacent to project sites. This will result in impacts from the project being *less than significant*.

**Mitigation Measure #3.4-1e: Special-Status Birds**

*To protect raptors and other special-status birds on proposed projects where suitable habitat exists, the following measures shall be implemented:*

- *Trees scheduled to be removed because project implementation shall be removed during the non-breeding season (late September to the end of February).*
- *Prior to construction, but not more than 14 days before grading, demolition, or site preparation activities, a qualified biologist shall conduct a preconstruction nesting survey to determine the presence of nesting raptors. Activities taking place outside the breeding season (typically February 15 through August 31) do not require a survey. If active raptor nests are present in the construction zone or within 250-feet of the construction zone, temporary exclusion fencing shall be erected at a distance of 250-feet around the nest site. Clearing and construction operations within this area shall be postponed until juveniles have fledged and there is no evidence of a second nesting attempt determined by the biologist.*

- *If nesting Swainson's hawks are observed during field surveys, then consultation with the CDFG regarding Swainson's hawk mitigation guidelines shall be required. The guidelines include, but are not limited to, buffers of up to one quarter mile, monitoring of the nest by a qualified biologist, and mitigation for the loss of foraging habitat.*
- *To avoid impacts to common and special-status migratory birds pursuant to the Migratory Bird Treaty Act and CDFG codes, a nesting survey shall be conducted prior to construction activities if the work is scheduled between March 15 and August 31. If migratory birds are identified nesting within the construction zone, a 100-foot buffer around the nest site must be designated. No construction activity may occur within this buffer until a qualified biologist has determined that the young have fledged. A qualified biologist may modify the size of the buffer based on site conditions and the bird's apparent acclimation to human activities. If the buffer is modified, the biologist would be required to monitor stress levels of the nesting birds for at least one week after construction commences to ensure that project activities would not cause nest site abandonment or loss of eggs or young. At any time the biologist shall have the right to implement the full 100-foot buffer if stress levels are elevated to the extent that could cause nest abandonment and/or loss of eggs or young.*

***Effectiveness of Mitigation Measure:***

The mitigation measure listed above is a standardized survey protocol and avoidance measure that has been adopted by the CDFG. Implementation of this mitigation measure will prevent disrupting nesting behaviors and ensure nesting success of raptors and migratory birds which may nest in and adjacent to project sites. This will result in impacts from the project being *less than significant*.

***Mitigation Measure #3.4-1f: Special-Status Amphibians***

*To protect California tiger salamander and western spadefoot on proposed projects where suitable habitat exists, the following shall be implemented:*

- *To protect special-status amphibians, preconstruction surveys shall be conducted by a qualified biologist at all project sites that contain appropriate habitat. If, during a pre-construction survey, special-status amphibians are found to be present, the project proponent shall implement the measures recommended by the biologist and standardized measures adopted by the USFWS or the CDFG.*

***Effectiveness of Mitigation Measure:***

Implementation of this Mitigation Measure and Mitigation Measure #3.4-1a will ensure that impacts to special-status amphibians are reduced to a *less than significant* level.

### **Mitigation Measure #3.4-1g: Special-Status Reptiles**

*To protect western pond turtle and giant garter snake on proposed projects where suitable habitat exists, the following shall be implemented:*

- *To protect special-status reptiles, preconstruction surveys shall be conducted by a qualified biologist at all project sites that contain appropriate habitat. If, during a pre-construction survey, special-status reptiles are found to be present, the project proponent shall implement the measures recommended by the biologist and standardized measures adopted by the USFWS or the CDFG.*

#### **Effectiveness of Mitigation Measure:**

Implementation Mitigation Measure #3.4-1g will ensure that impacts to special-status reptiles are reduced to a *less than significant* level.

### **Mitigation Measure #3.4-1h: Special-Status Fish**

*To protect special-status fish, including hardhead on proposed projects where suitable habitat exists, the following shall be implemented:*

- *To protect special-status fish, preconstruction surveys shall be conducted by a qualified fish biologist at all project sites that contain appropriate habitat. If, during a pre-construction survey, special status fish are found to be present, the project proponent shall implement the measures recommended by the biologist and standardized measures adopted by the USFWS, National Marine Fisheries Service (NMFS) or the CDFG.*

#### **Effectiveness of Mitigation Measure:**

Implementation of Mitigation Measure #3.4-1h will ensure that impacts to special-status fish are reduced to a *less than significant* level.

### **Mitigation Measure #3.4-1i: Special-Status Mammals**

*To protect Merced kangaroo rat, western mastiff bat, western red bat, hoary bat, Yuma myotis, San Joaquin pocket mouse, American badger, and San Joaquin kit fox on proposed projects where suitable habitat exists, the following shall be implemented:*

- *To protect special-status mammals, preconstruction surveys shall be conducted by a qualified biologist at all project sites that contain appropriate habitat. If, during a pre-construction survey, special-status mammals are found to be present, the project proponent shall implement the measures recommended by the biologist and standardized measures adopted by the USFWS or the CDFG.*

### **Effectiveness of Mitigation Measure:**

Implementation of Mitigation Measure #3.4-1i will ensure that impacts to special-status mammals are reduced to a *less than significant* level.

**Impact #3.4-2: Result in substantially adverse affect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFG or USFWS.**

**Discussion/Conclusion:** Riparian habitat and sensitive natural communities such as vernal pools occur within the boundaries of the plan area. This impact is *potentially significant*.

### **Mitigation Measures**

The following mitigation measure along with Mitigation Measure #3.4-1a and the goals, policies, and implementation actions of the General Plan will be implemented to reduce potential impacts to riparian habitat and other sensitive natural communities.

#### **Mitigation Measure #3.4-2: Streambed Alteration Agreement**

*To minimize impacts to riparian habitat and other sensitive natural communities, the following the measures shall be implemented when streambed alterations are proposed:*

- *The project proponent shall have a qualified biologist shall map all riparian habitat, or other sensitive natural communities. To the extent feasible and practicable, all planned construction activity shall be designed to avoid direct effects on these areas.*
- *In those areas where complete avoidance is not possible, then all riparian habitat, or other sensitive natural communities, shall be mitigated on a “no-net-loss” basis in accordance with either CDFG regulations and/or a Section 1602 Streambed Alteration Agreement, if required. Habitat mitigation shall be replaced at a location and with methods acceptable to the CDFG.*

### **Effectiveness of Mitigation Measure:**

Implementation of Mitigation Measure #3.4-1a and 3.4-2 will reduce impacts to *less than significant*.

**Impact #3.4-3: Result in substantially adverse affect on federally protected wetlands through direct removal, filling, hydrological interruption, or other means.**

**Discussion/Conclusion:** Federally protected wetlands and jurisdictional Waters of the U.S. occur throughout the plan area. This is a *potentially significant* impact.

## **Mitigation Measures**

The following mitigation measures will be implemented to reduce potential impacts to federally protected wetlands and Waters of the U.S.

### **Mitigation Measure #3.4-3a: Conduct a delineation of Waters of the U.S. and Wetlands (WOUS/Wetlands) and Obtain Permits.**

*In order to determine if there are wetlands or waters of the U.S. on a proposed project site which fall under the U.S. Army Corps of Engineers (Corps) jurisdictional authority under Section 404 of the CWA, a delineation of the Waters of the U.S. and wetlands shall be performed and submitted to the Corps for verification prior to annexation.*

*A Section 404 permit and a Section 401 Water Quality Certification or Waiver of Waste Discharge shall be acquired from the Corps and the Regional Water Quality Control Board (RWQCB) and a Section 1602 Streambed Alteration Agreement from DFG respectively prior to the onset of construction related activities.*

### **Mitigation Measure #3.4-3b:**

*Any jurisdictional waters that would be lost or disturbed due to implementation of any proposed project within the plan area shall be replaced or rehabilitated on a “no-net-loss” basis in accordance with the Corps’ and the RWQCB mitigation guidelines. Habitat restoration, rehabilitation, and/or replacement if required shall be at a location and by methods agreeable to the Corps, the RWQCB, and the City of Merced. The project applicant shall abide by the conditions of any executed permits.*

### **Effectiveness of Mitigation Measure:**

Implementation of Mitigation Measures #3.4-3a and #3.4-3b will reduce impacts to *less than significant*.

### **Impact #3.4-4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.**

**Discussion/Conclusion:** The project site is not within a designated wildlife corridor or linkage area for sensitive species. It is not within a local migratory corridor for other species. The entire San Joaquin Valley, including the subject site, is within the regionally significant Pacific Flyway for waterfowl. The site is not considered to be a wildlife nursery; however, construction activity on the site may disturb nesting, feeding, rearing, and foraging behaviors of migratory birds if active nests are within or near construction areas.

Construction activity will *not significantly impact* wildlife movements and will *not significantly impact* a wildlife movement corridor.

### **Mitigation Measures**

Mitigation Measure #3.4-1e above will be implemented to reduce potential impacts to breeding birds and active birds' nests.

#### **Effectiveness of Mitigation Measure:**

Implementation of Mitigation Measure #3.4-1e above will reduce impacts to breeding birds and active birds' nests to *less than significant*.

**Impact #3.4-5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

**Discussion/Conclusion:** Adoption of the City of Merced General Plan will not conflict with any other local policies or ordinances protecting biological resources. There is *no impact*.

### **Mitigation Measures**

No mitigation measures are required.

**Impact #3.4-6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.**

**Discussion/Conclusion:** There are no applicable or pertinent habitat conservation plans or natural community preservation plans affecting the study area. There is a Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1997) and there is a Draft Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon (USFWS 2005). Both of these recovery plans cover special-status species that may occur within the study area. The policies, goals, and objectives of the Merced General Plan Update do not conflict with the provisions in these plans. There is *no impact*.

### **Mitigation Measures**

No mitigation measures are required.

## **CUMULATIVE IMPACT ANALYSIS**

Implementation of the proposed General Plan in combination with other reasonably foreseeable projects as planned for in the County of Merced General Plan and General Plans of incorporated cities within the County would increase the density of development throughout the County and could cumulatively impact biological resources within the County. The degree of probability is unknown as such cumulative impacts, if any, would be difficult to measure in consideration of General Plan policies and standards and implementation of agency-mandated surveys and mitigation measures for special-status species as development occurs. Over recent decades, development in the County as well as the City of Merced has converted hundreds of acres to

urban uses. Thousands of additional acres are proposed for development by the Merced County General Plan and the General Plans of its incorporated cities in addition to the proposed City of Merced SUDP/SOI area. Such development could further threaten significant biological resources in the County. Additionally, road construction, site grading, infrastructure installation, and construction of residential, commercial, and public facilities uses could result in the direct loss of biological resource habitat. Most of the land that has been or is planned for development in Merced County is made up of property similar to the proposed undeveloped lands within the proposed City of Merced SUDP/SOI which may include biological resources.

Although individual project impacts can be mitigated, based on the standards of significance with implementation of agency-mandated surveys and mitigation measures for special-status species, the cumulative impacts of development in accordance with the proposed General Plan and other General Plans in the County are significant, and the project's incremental contribution to this impact is itself *cumulatively considerable*. This impact cannot be mitigated to a less than cumulatively considerable level and thus is *significant and unavoidable*.