4.6 BIOLOGICAL RESOURCES

This section provides information on biological resources located in the Planning Area. Impacts on biological resources from implementation of the 2030 General Plan are discussed in conjunction with mitigation measures to avoid, reduce, or compensate for significant impacts. The information contained in this analysis is primarily based upon the biological resources inventory report prepared by SCWA Environmental Consultants, Inc. (City of Live Oak 2006), unless otherwise noted. The biological resources inventory report was based on reconnaissance-level field surveys by SCWA biologists conducted in December 2005, and review of existing literature, maps, aerial photography and species lists pertaining to the biological resources in the area, with updates and additional baseline information from EDAW biologists, as appropriate.

4.6.1 REGULATORY BACKGROUND

Biological resources are subject to a variety of laws and regulations as part of the environmental review process. This section provides brief descriptions of the laws and regulations that may apply to the biological resources in the Planning Area.

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

Federal Endangered Species Act

Species listed under the federal Endangered Species Act (ESA) could be present within the Planning Area. The USFWS and the National Marine Fisheries Service have authority over projects that may result in "take" of a species listed as threatened or endangered under the ESA. Take is defined under Section 9 of ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation, take is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. In general, persons subject to ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species regardless of property ownership, and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. If a project would result in take of a federally listed species, either an incidental take permit, under Section 10(a) of ESA, or a federal interagency consultation, under Section 7 of ESA, is required before the take can occur. Such a permit typically requires various types of mitigation to compensate for or minimize the take.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, implements domestically a series of treaties between the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird…" (U.S. Code Title 16, Section 703). This prohibition includes both direct and indirect acts, although harassment and habitat modification are not included unless they result in direct loss of birds, nests, or eggs. The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds.

Section 404 of the Clean Water Act

Section 404 of the federal Clean Water Act (CWA) requires a project applicant to obtain a permit from the United States Army Corps of Engineers (USACE) before engaging in any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Fill material includes material placed in waters of the United States where the material has the effect of replacing any portion of a water of the United States with dry land or changing the bottom elevation of any portion of a water of the United States. Waters of the

United States include navigable waters of the United States; interstate waters; all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce; and relatively permanent tributaries to any of these waters. Wetlands are defined as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Potentially jurisdictional wetlands must meet three wetland delineation criteria: hydrophytic vegetation, hydric soil types, and wetland hydrology. Wetlands that meet the delineation criteria may be jurisdictional under Section 404 of CWA pending USACE and Environmental Protection Agency (EPA) review.

In 2008, the USACE and EPA issued regulations governing compensatory mitigation for activities authorized by permits issued by the USACE. These regulations establish a preference for the use of mitigation banks to reduce some of the risks and uncertainties associated with compensatory mitigation.

STATE PLANS, POLICIES, REGULATIONS, AND LAWS

California Endangered Species Act

The California Endangered Species Act (CESA) directs state agencies not to approve projects that would jeopardize the continued existence of an endangered or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of a species. Furthermore, CESA states that reasonable and prudent alternatives shall be developed by the California Department of Fish and Game (DFG), together with the project proponent and any state lead agency, consistent with conserving the species, while at the same time maintaining the project purpose to the greatest extent possible. A "take" of a species, under CESA, is defined as an activity that would directly or indirectly kill an individual of a species. The CESA definition of take does not include "harm" or "harass" as is included in the federal ESA. As a result, the threshold for a take under CESA may be higher than under the ESA because habitat modification is not necessarily considered take under CESA.

Sections 2081(b) and (c) of CESA allow DFG to issue an incidental take permit for a state-listed threatened and endangered species only if the following specific criteria are met:

(1) that take is incidental to an otherwise lawful activity;

(2) that the impacts of the authorized take have been minimized and fully mitigated;

(3) that the permit is consistent with regulations adopted pursuant to Sections 2112 and 2114;

(4) that the applicant has ensured adequate funding to implement minimization and mitigation measures and monitor these measures for compliance and effectiveness; and

(5) that issuance of the permit will not jeopardize the continued existence of a state-listed species.

Should the project applicant receive authorization to take federally listed species under the federal ESA, take authorization may also be sought as a "consistency determination" from DFG under Section 2080.1 of CESA. If DFG determines that the federal statement/permit is not consistent with CESA, the applicant must apply for a state incidental take permit under Section 2081(b) of the California Fish and Game Code.

Under CESA, DFG maintains a list of threatened and endangered species. In addition, DFG maintains lists of candidate species and species of special concern. Candidate species are those species under review for addition to either the list of threatened or endangered species. Species of special concern status applies to animals not listed under the federal ESA or CESA, but which nonetheless are declining at a rate that could result in listing, or have historically occurred in low numbers and known threats to their persistence currently exist. The designation is intended to result in special consideration for these animals during environmental review.

California Fish and Game Code

Fully Protected Species

The California Fish and Game Code strictly prohibits the incidental or deliberate take of fully protected species. DFG cannot issue a take permit for fully protected species, except under narrow conditions for scientific research or the protection of livestock; therefore, avoidance measures may be required to avoid take.

Lake and Streambed Alteration

Rivers, streams, and lakes in California are subject to regulation by DFG, pursuant to Section 1602 of the California Fish and Game Code. Activities regulated by DFG include diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake. Section 1602 states that it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by DFG, or use any material from the streambed, without first notifying DFG of such activity. DFG defines a stream as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that supports fish or other aquatic life.

Protection for Bird Nests

Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, falcons), including their nests or eggs.

Porter-Cologne Water Quality Control Act

Under Section 401 of the CWA, an applicant for a Section 404 permit must obtain a certificate from the appropriate state agency stating that the intended dredging or filling activity is consistent with the state's water quality standards and criteria. In California, the authority to grant water quality certification is delegated by the State Water Resources Control Board to the nine RWQCBs. The Planning Area is under the jurisdiction of the Central Valley Regional Water Quality Control Board.

Each of the nine RWQCBs must prepare and periodically update basin plans for water quality control in accordance with the Porter-Cologne Water Quality Control Act. Each basin plan sets forth water quality standards for surface water and groundwater and actions to control nonpoint and point sources of pollution. These actions are aimed at achieving and maintaining the basin plans standards. Basin plans offer an opportunity to protect wetlands through the establishment of water quality objectives. The RWQCB's jurisdiction includes federally protected waters as well as areas that meet the definition of "waters of the state." A water of the state is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally protected under Section 401 provided they meet the definition of a waters of the state. Mitigation requiring no net loss of wetlands functions and values of waters of the state is typically required by the RWQCB.

REGIONAL AND LOCAL PLANS, POLICIES, REGULATIONS, AND ORDINANCES

Sutter County General Plan

The Open Space, Habitat, Natural Resources, and Land Use Chapters of the 1996 Sutter County General Plan set forth several goals, policies, and implementation measures to preserve and protect open space and natural resources and reduce pollution. Following is a list of pertinent goals and policies.

The County shall encourage development projects to minimize their impacts to open space areas and wildlife habitats. (Land Use Chapter, Policy 1.G-1)

GOAL 4.B: Protect wetland and riparian areas throughout Sutter County.

- **Policy 4.B-1:** The County shall require new development to fully mitigate the loss of federally regulated wetlands to achieve a "no net loss" through any combination of avoidance, minimization, or compensation.

- **Policy 4.B-2:** The County shall discourage direct discharge of surface runoff into wetland areas. New development shall be designed in such a manner that pollutants and siltation will not significantly affect wetlands.

- **Policy 4.B-3:** The County encourages the preservation and restoration of natural wetland environments when feasible and practical as part of the development review process. Additionally, the County shall encourage and support the Resource Conservation District programs that facilitate these objectives if the programs do not significantly affect agricultural operations.

- **Policy 4.B-4:** The County will encourage the creation and use of wetland mitigation banks as long as their creation and existence will not adversely impact existing and/or planned agriculture or urban development.

- **Implementation Measure 4.1:** Where surface runoff drains directly into wetland and riparian environments, measures to reduce siltation and pollutant levels, consistent with applicable state and federal guidelines, shall be implemented.

- **Implementation Measure 4.2:** The County shall coordinate with the Resource Conservation District to support development and implementation of programs that facilitate the preservation and restoration of natural wetland environments.

GOAL 4.C: Protect and enhance habitats that support fish and wildlife species.

- **Policy 4.C-3:** The County shall support the preservation and re-establishment of fisheries in the rivers and streams within the County.

- **Policy 4.C-4:** The County should participate in the process of developing mitigation programs for threatened and endangered species to ensure that Sutter County's agricultural, economic, fiscal, and future urbanization and natural resource goals and policies are met.

- **Policy 4.C-5:** The County supports the preservation and protection of waterfowl resources and their habitat.

- **Policy 4.C-6:** The County encourages the preservation of existing wildlife corridors between natural habitat areas to maintain biodiversity and prevent the creation of biological islands. This would also include promoting the re-establishment of previous corridors where feasible.

- **Policy 4.C-7:** The County encourages the preservation of rare, threatened, or endangered animal species.

GOAL 4.D: Preserve and protect the vegetation resources of Sutter County.

- **Policy 4.D-1:** The County shall encourage the preservation of important areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.

- **Policy 4.D-:** The County encourages the preservation of rare, threatened, or endangered plant species.

- **Policy 4.D-3:** The County shall require that new development projects avoid, to the maximum extent possible, ecologically-fragile areas (e.g., areas of rare, threatened or endangered species of plants, riparian areas, vernal pools).

- **Policy 4.D-4:** The County shall strive to protect major groves of native trees located in the unincorporated areas of the County.

- **Policy 4.D-5:** The County shall encourage the use of native and drought tolerant plant materials in all public and private revegetation/landscaping projects.

- **Implementation Measure 4.3:** The County shall prepare a Preferred Plant Material List of native and drought tolerant plant materials. Public and private development projects shall incorporate plant materials from the Preferred Plant Material List within their landscape plans. (See Implementation Program 3.4) Responsibility: Community Services Department.

- **Implementation Measure 4.4:** The County shall incorporate native and drought tolerant plant materials in future County buildings, facilities, and parks.

GOAL 4.E: Conserve, protect, and enhance open space lands and natural resources in Sutter County.

4.6.2 ENVIRONMENTAL SETTING

The majority of the land within the Study Area has either been converted to agricultural use or disturbed in some way. Most of the vegetation within this area is dominated by non-native species. The remaining riparian vegetation is found in narrow patches along the west bank of the Feather River and contains most of the native plant species within the Study Area. The west bank of the Feather River is not included in the Planning Area and therefore is not designated for land use change under the 2030 General Plan. However, several native valley oaks (*Quercus lobata*) are found scattered throughout the Planning Area.

HABITATS AND LAND USE TYPES

Habitats and land use types within the Study Area (which includes the City's entire Sphere of Influence [SOI] and additional areas to the west and south of the SOI) were mapped as part of the biological resources inventory report prepared in support of the General Plan update process (City of Live Oak 2006). This map was updated by EDAW in 2009 and is included here as Exhibit 4.6-1. Descriptions of the land cover in the Planning Area (which includes only a portion of the Study Area) are provided below and the acreage and relative size of the habitats within the Planning Area are shown in Table 4.6-1.

Table 4.6-1
Habitat/Land Use in the Planning Area

Habitat Type/Land Use	Acres
Urban/Developed	1,047
Ruderal	10
Agricultural	
Orchard	2,623
Cropland	502
Pasture	107
Roads	224
Total	4,513

Note: Riparian habitat types may occur in small patches along canals and sloughs within the Planning Area.
Source: SCWA 2005 and 2006, adapted by EDAW 2009

Urban/Developed Land

Approximately 1,047 acres of the Planning Area, located mostly around the City of Live Oak, is characterized as urban/developed land with varying densities of commercial and residential developments. Vegetation in these areas consists primarily of introduced ornamental trees and shrubs and manicured lawns, as well as invasive weeds in disturbed areas. The introduced London plane tree (*Platanus x acerifolia*) has been planted along Highway 99 within the Planning Area and has become naturalized. Several native valley oaks still exist within this habitat.

Urban/developed lands are generally not of high value for wildlife. Birds and mammals that occur in these areas typically include introduced species adapted to human habitation, including rock pigeon (rock dove) (*Columba livia*), European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*), house mouse (*Mus musculus*) and Norway rat (*Rattus norvegicus*). Some native species persist in urbanized areas; western fence lizard (*Sceloporus occidentalis*), Brewer's blackbird (*Euphagus cyanocephalus*), house finch (*Carpodacus mexicanus*), western scrub-jay (*Aphelocoma californica*), yellow-billed magpie (*Pica nuttalli*), and American crow (*Corvus brachyrhynchos*).

Agricultural Land

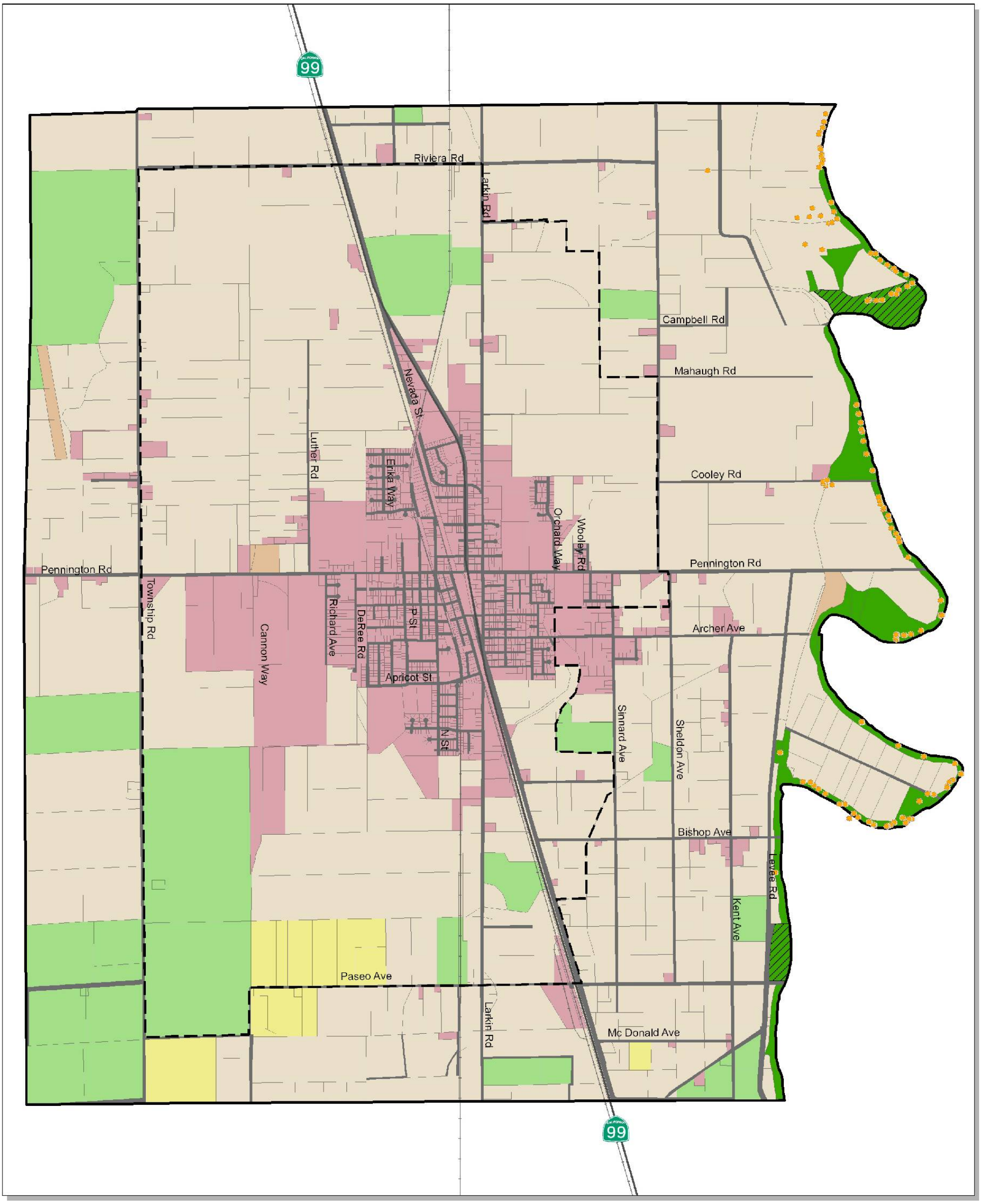
Agricultural lands in the Planning Area can be divided into four categories: orchard, cropland, pasture, and irrigation channels. Agricultural lands generally occur in areas that once supported productive and diverse biological communities. The conversion of native vegetation to agricultural lands has greatly reduced the wildlife species diversity and habitat value. However, many common wildlife species forage in these habitats, and cultivated vegetation can provide benefits such as cover, shade, and moisture for these and other species during hot summer months. The uncultivated margins of agricultural fields often support species associated with ruderal habitats. Typical species found in agricultural lands include red-tailed hawk (*Buteo jamaicensis*), barn owl (*Tyto alba*), American crow, Brewer's blackbird, house finch, California ground squirrel (*Spermophilus beecheyi*), and western harvest mouse (*Reithrodontomys megalotis*).

Orchards

In the Planning Area, orchards are the most prevalent category of agricultural lands; and are found throughout the Planning Area. Orchards in the Planning Area are planted with walnuts, peaches, and prunes. The understory is usually clean cultivated and kept clear of vegetation. The edges of the orchards, however, may be dominated by ruderal (weedy) species such as annual bluegrass (*Poa annua*), Johnson grass (*Sorghum halepense*), field mustard (*Brassica rapa*), filarees (*Erodium* spp.), chickweed (*Stellaria media*), cut-leaved geranium (*Geranium dissectum*), English plantain (*Plantago lanceolata*), prickly sow thistle (*Sonchus asper*), and little mallow (*Malva parviflora*). Some orchards in the Planning Area have some of these ruderal species in the understory.

Pasture

Pasture is dominated primarily by introduced palatable grasses and forbs for livestock grazing, such as fescues (*Festuca* spp.), orchardgrass (*Dactylis glomerata*), ryegrass (*Lolium* spp.), and clovers (*Trifolium* spp.). Pasture supports a variety of wildlife, particularly ground-nesting birds such as western meadowlark (*Sturnella neglecta*). Birds that forage in open grasslands, including raptors, horned lark (*Eremophila alpestris*), northern mockingbird (*Mimus polyglottos*), loggerhead shrike (*Lanius ludovicianus*), and black phoebe (*Sayornis nigricans*) may also use pastures. Pasture that has not historically been tilled usually supports a greater abundance of native species, potentially including vernal pool- and seasonal wetland-associated plants and wildlife.



LEGEND

- Planning Area
- Study Area
- Elderberry Shrubs

Agricultural Land

- Cropland
- Orchard
- Pasture
- Ruderal

Riparian

- Great Valley Cottonwood Riparian Forest
- Other Riparian

- Urban/Developed

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Source: Sutter County Assessor's Office, CNDDB 2009, SCWA 2005 and 2006, adapted by EDAW 2009

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City Of Live Oak
General Plan

Exhibit 4.6-1
Land Cover

Croplands

Croplands are found primarily in the western section of the Planning Area and are dominated by rice fields with some alfalfa being grown, as well. As a result of active weed control efforts, the rice fields consist of a monoculture of rice with few weedy species.

Croplands generally provide less suitable long-term habitat for wildlife than do pastures because of weed control, tilling, and insect control practices. Amphibians and reptiles may disperse across croplands on a seasonal basis, and common species, such as western toad, western fence lizard, and Pacific gopher snake (*Pituophis catenifer catenifer*), may occasionally forage within croplands, particularly those adjacent to grasslands. Numerous bird species that forage in pastures will also forage in croplands. Some birds, such as killdeer (*Charadrius vociferous*) and western meadowlark, will nest on agricultural lands when farming practices allow adequate cover and nest sites. Migratory species that may forage in agricultural fields during their migrations through the region include American pipit (*Anthus rubescens*), Say's phoebe (*Sayornis saya*), horned lark, and various shorebirds, swallows, and sparrows. Rice fields that become flooded during winter rains may provide foraging habitat for herons, egrets, white-faced ibis (*Plegadis chihi*), sandhill crane (*Grus canadensis*), and other wading birds and shorebirds.

Many small herbivorous mammals, particularly rodents and rabbits, are able to establish seasonal populations in croplands because food is abundant and cover provided by crops is adequate. Tilling, flood irrigation, and rodent control tend to reduce these populations. Small herbivores expected to occur in croplands include Botta's pocket gopher (*Thomomys bottae*), California ground squirrel, western harvest mouse, deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), Norway rat, house mouse, and black-tailed jackrabbit (*Lepus californicus*). Predators and omnivores expected to forage in croplands include Swainson's hawk (*Buteo swainsoni*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), long-tailed weasel (*Mustela frenata*), and striped skunk (*Mephitis mephitis*). Bats such as California myotis (*Myotis californicus*) and big brown bat (*Eptesicus fuscus*) also utilize croplands for foraging during late spring, summer, and early fall.

The nature of agricultural practices varies by crop. Some crops require only minor disturbance of the soil, and fields may be left fallow in some seasons. Crop lands such as these can retain characteristics of the native conditions, e.g., seasonal wetlands, and could provide habitat for more native species than other croplands.

Channels, Seasonal Wetland and Fresh Emergent Wetland

Irrigation and drainage channels are located throughout the Planning Area. They are highly modified drainage and water delivery systems that vary in species composition and persistence of water. Morrison Slough, Sutter Butte Canal, and Live Oak Slough are some examples of this habitat type. Depending on the width and slope of the channels, vegetation on the banks and within the channel is typically characterized as seasonal wetland or fresh emergent wetland. The banks are mostly typically dominated by exotic species, such as Himalayan blackberry (*Rubus discolor*), South American vervain (*Verbena bonariensis*), Johnson grass, and water-pepper (*Polygonum hydropiper*). Some areas of native vegetation include broad-leaved cattail (*Typha latifolia*), hard-stemmed bulrush (*Scirpus acutus* var. *occidentalis*), Pacific rush (*Juncus effusus* var. *pacificus*), fringed willowherb (*Epilobium ciliatum* ssp. *ciliatum*) and umbrella sedge (*Cyperus eragrostis*). Occasional black willow (*Salix gooddingii*) and valley oak are found along these channels. Open water is found in some of these channels and many areas are infested with a non-native, floating aquatic species, parrot feather (*Myriophyllum aquaticum*). This noxious non-native species can develop large colonies from rhizomes and form large floating mats that cover the channel. This can impede water flow, provide habitat for mosquitoes and displace native aquatic vegetation.

Irrigation and drainage channels located adjacent to agricultural lands provide water, cover, and foraging habitat for wildlife in adjacent habitats. Mammals include raccoon, river otter (*Lutra canadensis*), striped skunk, and muskrat (*Ondatra zibethicus*). Aquatic species include mosquito fish (*Gambusia affinis*), Centrarchid fishes, carp (Cyprinidae), and common garter snake (*Thamnophis sirtalis*). The federally listed giant garter snake (*Thamnophis gigas*) could use channels on the west side of the Planning Area. Potential nesting sites for red-

winged blackbirds (*Agelaius phoeniceus*) and tricolored blackbirds (*Agelaius tricolor*) exist along these irrigation channels where adequate stands of hard-stemmed bulrush, cattails, or Himalayan blackberry provide adequate cover. A formal delineation of the channels conducted according to USACE protocol would be required on a case by case basis to determine if they would be considered "waters of the United States" and regulated under Section 404 of the Clean Water Act.

Ruderal

Ruderal habitat occurs in disturbed areas, such as along roadsides, trails, parking lots, etc. These communities are subjected to ongoing or past disturbances (e.g., vehicle activities, mountain bikes, mowing). Ruderal habitat in these disturbed areas supports a diverse weedy flora. Vascular plant species associated with these areas typically include Johnson grass, Canadian horseweed (*Conyza canadensis*), milk thistle (*Silybum marianum*), yellow star thistle (*Centaurea solstitialis*), and field bindweed (*Convolvulus arvensis*). Fallow fields support field bindweed, turkey mullein (*Eremocarpus setigerus*), wild lettuce (*Lactuca serriola*), prickly sow thistle (*Sonchus arvensis*), and common mallow (*Malva neglecta*). Mediterranean hoary-mustard (*Hirschfeldia incana*) and curly dock (*Rumex crispus*) are also typical of this area. Ruderal habitat is often poor habitat quality for wildlife species due to the frequency of disturbance. Common wildlife species that would be found in ruderal habitats include western meadowlark, loggerhead shrike, killdeer, Brewer's blackbird, and black-tailed jackrabbit.

Riparian Woodland

There is no riparian woodland mapped within the Planning Area, but riparian woodland is found along sections of the west bank of the Feather River in the broader Study Area, and scatted areas of riparian habitat may be present along sloughs and canals within the Planning Area. Riparian vegetation consists of an overstory of riparian trees including Fremont cottonwood (*Populus fremontii*), western sycamore (*Platanus racemosa*) and valley oak, with a subcanopy of black willow, box elder (*Acer negundo*), Oregon ash (*Fraxinus latifolia*), and black walnut (*Juglans* hybrids). Understory vegetation includes blue elderberry (*Sambucus mexicana*), sandbar willow (*Salix exigua*), wild grape (*Vitis californica*), California pipevine (*Aristolochia californica*), Himalayan blackberry, tree tobacco (*Nicotiana glauca*), and poison oak (*Toxicodendron diversilobum*). The herbaceous layer is sparse and more dominant in openings. Typical plants include mugwort (*Artemisia douglasiana*), Santa Barbara sedge (*Carex barbarae*), common bedstraw (*Galium aparine*), stinging nettle (*Urtica dioica* ssp. *holosericea*), telegraph-weed (*Heterotheca grandiflora*), and various introduced annual grasses including green bristlegrass (*Setaria viridis*), Bermuda grass (*Cynodon dactylon*), wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*).

Riparian habitat is generally of high value for wildlife. Birds and mammals that occur in these areas typically include mule deer (*Odocoileus hemionus*), coyote, wild turkey (*Meleagris gallopavo*), opossum (*Didelphis virginiana*), striped skunk, beaver (*Castor canadensis*), western gray squirrel (*Sciurus griseus*), western screech-owl (*Megascops Otus kennicottii*), great horned owl (*Bubo virginianus*), red-tailed hawk, and California quail (*Callipepla californica*).

Great Valley Cottonwood Riparian Forest

Great Valley cottonwood riparian forest is dominated by cottonwoods (sometimes 100 percent of the upper canopy), which have established dominance over the early colonizing willow species. Black willow is often a significant member of this community. Additionally, many species are able to germinate under the dense canopy cover, including blackberry, wild grape, poison oak, and many tree species, which can develop into a dense understory. There is no Great Valley cottonwood riparian forest mapped in the Planning Area, but riparian forest at the confluence of the Feather River and Honcut Creek, and on the west bank of the Feather River in the southern portion of the Study Area is mapped and classified as Great Valley cottonwood riparian forest.

SPECIAL-STATUS SPECIES

Special-status plant and wildlife species are defined as species that meet one or more of the following criteria:

- Listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act;
- Listed, or proposed for listing by the State of California as rare, threatened, or endangered under the California Endangered Species Act;
- Included on List 1B or 2 of the CNPS Inventory of Rare and Endangered Plants of California (CNPS 2008);
- Designated as fully protected or species of special concern by DFG;
- Species that otherwise meet the definition of rare, threatened, or endangered, as described in the CEQA Guidelines, Section 15380.

Special-Status Plants

The biological resources inventory report (City of Live Oak 2006) identified and described five special-status plant species for which suitable habitat occurs in the Planning Area. At the time the report was written it was believed that four-angled spikerush (*Eleocharis quadrangulata*) was a native species. It has since been determined that this species is not native, and CNPS no longer considers it a rare or threatened species (CNPS 2008). The determination of potential suitable habitat was based on searches of the CNPS online inventory (CNPS 2008) and the California Natural Diversity Database (CNDDB 2008) and reconnaissance level surveys of the Planning Area (City of Live Oak 2006). Table 4.6-2 lists the remaining four special-status plant species for which potential habitat occurs within the Planning Area, as well as information about required habitat, elevation range, and blooming periods.

Table 4.6-2
Special-Status Plant Species Potentially Occurring within the Planning Area

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence
Fox sedge	*Carex vulpinoidea*	CNPS: 2	Marshes and swamps (freshwater), riparian woodland; from 30 to 3600 feet in elevation. Blooms May to June.	Could occur; suitable habitat exists along sloughs and irrigation channels within the Planning Area.
Rose-mallow	*Hibiscus lasiocarpus*	CNPS: 2	Marshes and swamps (freshwater); from 0 to 320 feet in elevation. Blooms June to September.	Could occur; suitable habitat exists along sloughs and irrigation channels within the Planning Area.
Sanford's arrowhead	*Sagittaria sanfordii*	CNPS: 1B	Marshes and swamps (assorted shallow freshwater); from 0 to 2,000 feet in elevation. Blooms May to October.	Could occur; suitable habitat exists along sloughs and irrigation channels within the Planning Area.
Columbian watermeal	*Wolffia brasiliensis*	CNPS: 2	Marshes and swamps (assorted shallow freshwater); from 90 to 300 feet in elevation. Blooms April to December.	Could occur; suitable habitat exists along sloughs and irrigation channels within the Planning Area.

Notes: CA = California; CNPS = California Native Plant Society; CNPS 1B = Rare, threatened or endangered in California and elsewhere; CNPS 2 = Rare, threatened or endangered in California, but more common elsewhere
Sources: CNDDB 2008, Data compiled by EDAW in 2008

Special-Status Wildlife

Based on the known locations of special-status species, nearby occurrences of special-status species and availability of suitable habitat, 23 special-status wildlife species have potential to occur in the Planning Area. Information on potential occurrence of special-status wildlife species in the Planning Area was derived from a CNDDB query for the Gridley USGS 7.5 minute quadrangle and surrounding quadrangles (CNDDB 2008), a list from the Sacramento Field Office of the United States Fish and Wildlife Service (USFWS) of federally listed species with potential to occur in the vicinity of the Planning Area (USFWS 2008), and the biological resources inventory report (City of Live Oak 2006).

Exhibit 4.6-2 shows the locations of known occurrences of sensitive wildlife species in the Planning Area. Table 4.6-3 lists these species along with their regulatory status, habitat requirements, and potential to occur in the Planning Area. Species accounts of those species that could at least occur in the Planning Area are provided below.

Invertebrates

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (VELB) is federally listed as threatened. It is patchily distributed throughout Central Valley riparian habitats and, less frequently, within oak woodlands and other upland habitats where elderberry shrubs exist. The species is nearly always found on or close to its host plant, elderberry (*Sambucus mexicanus*). The exit holes made by the emerging adults are distinctive one-half to one centimeter round or oval openings. Several exit holes, usually the only sign that VELB are present, were found on elderberry shrubs within in the Planning Area. Elderberry shrubs and stands of shrubs occur almost entirely on or east of the levee road along the Feather River (Exhibit 4.6-2). Additional shrubs may occur throughout the Planning Area along Live Oak Slough and Morrison Slough.

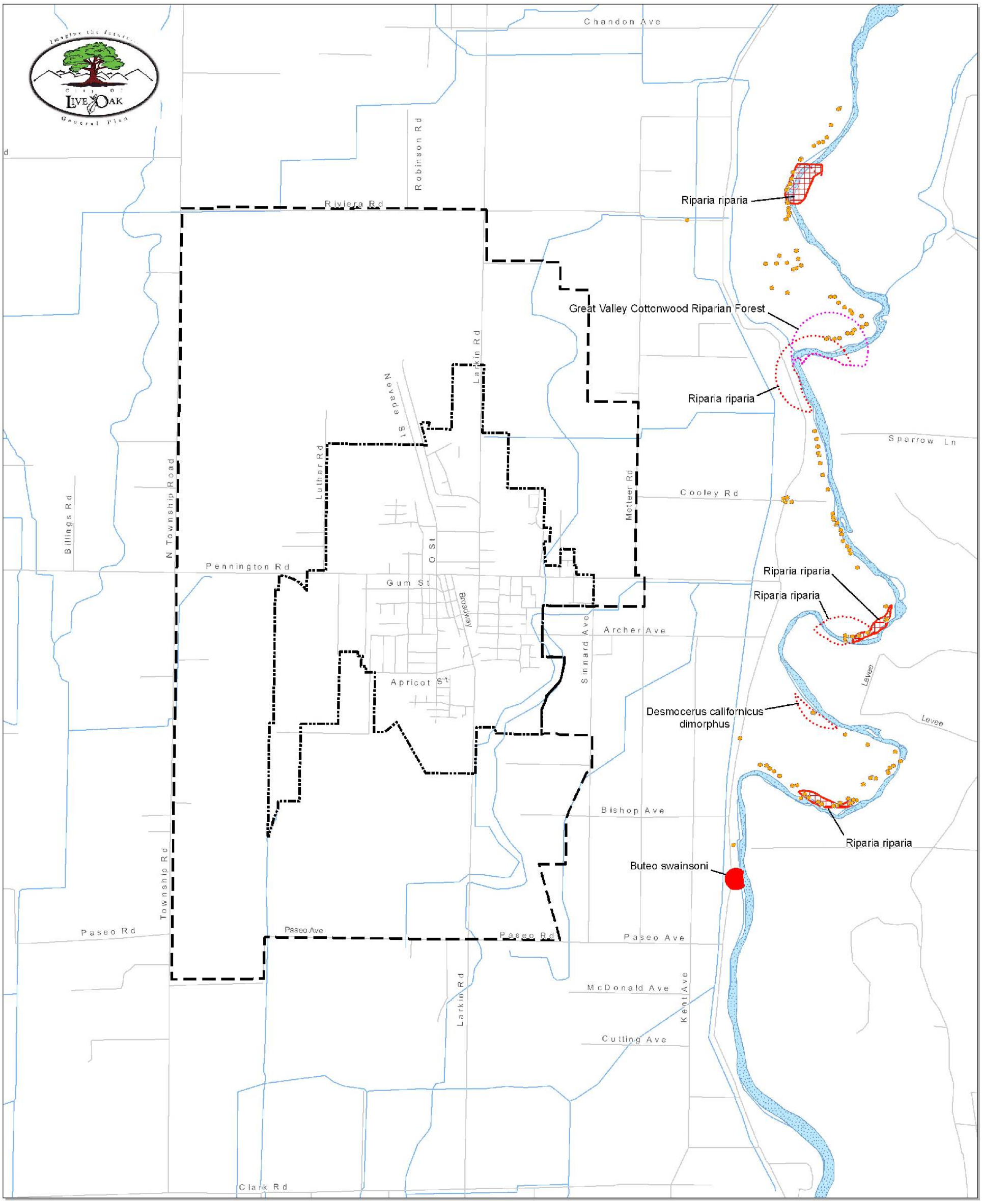
Vernal Pool Crustaceans

Vernal pool tadpole shrimp (*Lepidurus packardi*) is federally listed as endangered and vernal pool fairy shrimp (*Branchinecta lynchi*) is federally listed as threatened. These species depend on the presence of water in the winter and early spring and the absence of water during the summer. Vernal pool fairy shrimp are most frequently found in small (less than 200 square meters) shallow (average depth of 2 inches) pools. Pools must stay continuously inundated for a minimum of 18 days to support vernal pool fairy shrimp and for a minimum of 41 days to support vernal pool tadpole shrimp. Records for vernal pool fairy shrimp occur in the vicinity of the Planning Area (CNDDB 2008) and there is a moderate potential for occurrence of these species within seasonal wetlands located in the Planning Area.

Reptiles

Northwestern Pond Turtle

Northwestern pond turtle (*Actinemys marmorata marmorata*) is a California Species of Special Concern. Northwestern pond turtles are generally associated with permanent or near-permanent aquatic habitats, such as lakes, ponds, streams, freshwater marshes, and agricultural ditches. They require still or slow-moving water with instream emergent woody debris, rocks, or similar features for basking sites. Pond turtles are highly aquatic but can venture far from water for egg-laying. Nests are typically located on unshaded upland slopes in dry substrates with clay or silt soils. Pond turtles can over-winter in upland sites. Suitable aquatic habitat for pond turtle may occur along the Feather River, sloughs, and other waterways and ponds in the Planning Area.



LEGEND

- City Limits
- Planning Area
- Elderberry Shrubs
- Animal - Accuracy Class 1
- Animal - Accuracy Class 2
- Animal - Accuracy Class 4-9
- Terr. Comm. (circular)

CNDDB Accuracy Class 1: Reported occurrence is a point; location considered accurate to within the minimum mappable unit of 80 meters.

CNDDB Accuracy Class 2: Reported location is an area with defined boundaries.

CNDDB Accuracy Class 3: Reported location is a non-specific area; buffer added to represent degree of uncertainty in reported location.

CNDDB Accuracy Classes 4-9: Reported location considered accurate within the radius shown.

0 1,250 2,500
FEET

N

Base Image: Adapted from CASIL layers 2008

X 08110072.01 023 7/09 Source: CNDDB 2008, SWCA 2008

Exhibit 4.6-2
Special-Status Species and Natural Communities

Table 4.6-3
Special-Status Wildlife Species Potentially Occurring in the Planning Area

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence
Invertebrates				
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	Associated exclusively with elderberry shrubs in the Central Valley and foothills for its entire life cycle.	Could occur – Suitable habitat present; elderberry shrubs occur within the Planning Area.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Vernal pools in valley and foothill grasslands.	Could occur – Suitable habitat may be present; in the Planning Area.
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	Vernal pools in valley and foothill grasslands.	Could occur – suitable habitat may be present in the Planning Area.
Amphibians				
Western Spadefoot	*Lepidurus packardi*	CSC	Vernal pools in valley and foothill grasslands	Unlikely to occur – potentially suitable breeding habitat is limited and fragmented; upland habitat has largely been modified for agriculture in the Planning Area.
Reptiles				
Northwestern pond turtle	*Actinemys marmorata marmorata*	CSC	Permanent freshwater habitats with vegetation and basking sites.	Likely to occur – suitable habitat may be present along the Feather River and on sloughs, ditches and other permanent water bodies within the Planning Area.
Giant garter snake	*Thamnophis gigas*	FT, CT	Vegetated freshwater habitats with slow or still water.	Could occur – suitable habitat is present in irrigation channels and especially in rice fields in the western portion of the Planning Area.
Birds				
Tricolored blackbird	*Agelaius tricolor*	CSC (breeding)	Nests colonially in dense stands of cattails and bulrushes, or in upland sites with blackberries, nettles, thistles, and some crops.	Could occur – suitable nesting and foraging habitat is present within the Planning Area.
Grasshopper sparrow	*Ammodramus savannarum*	CSC (breeding)	Prefers to nest in short to middle-height, moderately open grasslands with scattered shrubs.	Low likelihood to occur – Potential suitable nesting limited to narrow field margins; not generally compatible with crops.
Short-eared owl	*Asio flammeus*	CSC (breeding)	Nests in marshes, irrigated alfalfa or grain fields, and grasslands and pastures. Requires open country that supports concentrations of small rodents and relatively high herbaceous cover.	Unlikely to occur – Limited suitable nesting and foraging habitat may be present within the Planning Area. Planning Area is outside of breeding range.
Long-eared owl	*Asio otus*	CSC (breeding)	Nest in conifer, oak, riparian, pinyon-juniper and desert woodlands that are either open or are adjacent to grasslands, meadows, or shrublands.	Could occur – suitable nesting and foraging habitat is present within the Planning Area.

Table 4.6-3
Special-Status Wildlife Species Potentially Occurring in the Planning Area

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence
Western burrowing owl	*Athene cunicularia*	CSC	Nest in grasslands and agricultural fields with low-growing vegetation and the presence of small rodent burrows.	Could occur – suitable nesting and foraging habitat is present within the Planning Area.
Loggerhead shrike	*Lanius ludovidianus*	CSC (breeding)	Shrubs and small trees for nesting, grasslands for foraging.	Could occur – suitable nesting and foraging habitat is present within the Planning Area.
Northern harrier	*Circus cyaneus*	CSC (breeding)	Forage and nest in grasslands and freshwater marsh.	Could occur – suitable nesting and foraging habitat is present within the Planning Area.
Swainson's hawk	*Buteo swainsoni*	CT	Nests on edges of riparian forest and in scattered trees; forages in grasslands and agricultural fields.	Occurs – has been documented nesting along the Feather river in the Study Area; nearby foraging habitat in Planning Area
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FC, CE	Nests in large blocks of riparian forest with dense understory.	Low likelihood to occur – riparian habitat in the Planning Area is limited to relatively small, open stands.
Lesser sandhill crane	*Grus canadensis canadensis*	CSC	Winter in the Central Valley in croplands (especially grain and irrigated crops) and wetlands.	Could occur – suitable habitat is be present within the Planning Area; winter range includes Planning Area.
Greater sandhill crane	*Grus canadensis tabida*	CT, CFP	Winter in the Central Valley in croplands (especially grain and irrigated crops) and wetlands.	Could occur – suitable habitat is be present within the Planning Area; winter range includes Planning Area.
White-tailed kite	*Elanus leucurus*	CFP	Forage in grasslands and agricultural fields; nest in isolated trees or small woodland patches.	Likely to occur – suitable nesting and foraging habitat is present within the Planning Area.
Song Sparrow, "Modesto population"	*Melospiza melodia*	CSC	Nests and forage in freshwater marshes with emergent vegetation, riparian willow thickets, and riparian oak forests with a sufficient understory.	Likely to occur – suitable nesting and foraging habitat is present within the Planning Area.
Bank swallow	*Riparia riparia*	CT	Colonial nester, nests primarily in vertical banks with fine-textured, sandy soil near rivers, streams, and lakes.	Occurs – has been documented nesting along the Feather river in the Planning Area.
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	CSC (breeding)	Nests in marshes with tall emergent vegetation, generally in open areas and edges over relatively deep water.	Unlikely to occur due to shallow depths of open water in irrigation canals/drainage channels within the Planning Area.
Mammals				
Pallid bat	*Antrozous pallidus*	CSC	Occurs in a wide variety of habitats. Roost in rock crevices, caves, under bridges, in buildings, and tree hollows.	Could occur – potential roosting habitat is present in the Planning Area.

Table 4.6-3
Special-Status Wildlife Species Potentially Occurring in the Planning Area

Common Name	Scientific Name	Status	Habitat	Potential for Occurrence
Ringtail	*Bassariscus astutus*	CFP	Mixture of forest and shrubland in close association with rocky areas or riparian habitats.	Could occur – Potentially suitable habitat is present in Feather River riparian woodland corridor.
Silver-haired bat	*Lasionycteris noctivagans*	G5 S3S4	Prefers to forested areas near water. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	Could occur – potential roosting and foraging habitat is present in the Planning Area.
Western red bat	*Lasiurus blossevillii*	CSC	Strongly associated with wide, mature riparian habitats; may use orchards as alternative habitat.	Could occur. Potentially suitable habitat is present in riparian woodland and orchards in the Planning Area.
American badger	*Taxidea taxus*	CSC	Occurs in a variety of habitats. The primary requirements are sufficient food, friable soils, and relatively open, uncultivated ground in grassland and savanna habitats.	Could occur. Unlikely in most of the Planning Area due to extensive conversion to agriculture and regular disturbance, but may occur in drier riparian woodland along the Feather River.
Fish				
Spring-run Chinook salmon	*Oncorhynchus tshawytscha*	FT, CT	Requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Occurs – the Feather River adjacent to the Planning Area is critical habitat for this species; principal spawning areas in Feather river are upstream of Honcut Creek.
Steelhead	*Oncorhynchus mykiss*	FT, CT	Requires cold, freshwater streams with suitable gravel for spawning; rears in seasonally inundated floodplains, rivers, and tributaries, and in the Delta.	Occurs – the Feather River adjacent to the Planning Area is critical habitat for this species; principal spawning areas in Feather river are upstream of Honcut Creek.

Notes: CA = California

Sources: CNDDB 2008, Data compiled by EDAW in 2008

[1]Status Definitions

Federal
- FE Listed as endangered under the federal Endangered Species Act
- FT Listed as threatened under the federal Endangered Species Act
- FD Delisted from endangered or threatened status
- FPT Proposed for listing as threatened under the federal Endangered Species Act
- FPD Federally proposed for delisting
- FSC Federal special concern species
- -- No designation

State
- CE Listed as endangered under the California Endangered Species Act
- CT Listed as threatened under the California Endangered Species Act
- CSC California Species of Special Concern
- CFP Fully protected species – may not be taken or possessed without a permit from the Fish and Game Commission
- -- No designation

CNDDB Conservation Status Ranks
(shown only for species without legal status but which are tracked by the CNDDB)

Global Rank:
- G5 Secure—Common; widespread and abundant

State Rank:
- S3 Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors

Giant Garter Snake

The giant garter snake (*Thamnophis gigas*) is federally and state listed as threatened. Recent field studies have shown giant garter snakes to be associated with aquatic environments that contain: (1) sufficient water during the active summer season (May 1 through September 30) to supply food (fish and amphibians) and cover; (2) vegetated banks for basking located immediately adjacent to water; (3) emergent vegetation for cover during the active season; and (4) high ground or uplands, such as levees or railroad grades, that provide cover and refugia from floodwaters during the dormant winter season (Hansen 1988; Hansen and Brode 1980). The giant garter snake inhabits agricultural wetlands (especially rice) and other waterways such as irrigation canals and drainage ditches, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. Giant garter snakes have been documented within about 3 miles northwest of the Planning Area.

Although no formal surveys have been conducted within the Planning Area, the potential for giant garter snake occurrence in Morrison Slough within the Planning Area is moderate to high, based on the habitat features present and connectivity to other suitable habitat (Hansen, pers. comm., 2009). Other sloughs, ponds and waterways within the Planning Area may also provide aquatic habitat for giant garter snake.

Birds

Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*) is a California species of special concern. This species is endemic to California and southern Oregon and is a year-round resident of California. The tricolored blackbird nests colonially in stands of cattails, tules, blackberries, or other dense herbaceous vegetation, but will also nest in agricultural fields. There is potential for this species to nest and forage in the Planning Area, particularly along irrigation/drainage waterways.

Long-eared Owl

Long-eared owl (*Asio otus*) is a California species of special concern. In lowlands, it usually nests dense, riparian and live oak thickets near meadow edges. It hunts for small mammals in open areas, and occasionally in wooded and forested habitats. This species is an uncommon breeder in the Central Valley. Potentially suitable nesting and foraging habitat is present in the Planning Area.

Western Burrowing Owl

The western burrowing owl (*Athene cunicularia hypugea*) is a California species of special concern. Burrowing owls are year-round residents in the open, dry grasslands of the Central Valley. Burrowing owls nest and take shelter in burrows in the ground, typically burrows excavated by other species such as ground squirrels. They forage in grasslands and agricultural fields. Suitable nesting and foraging habitat for burrowing owls occurs throughout undeveloped areas in the Planning Area.

Loggerhead Shrike

Loggerhead shrike is a California species of special concern that forages primarily in open habitats with low-growing vegetation. It occurs only rarely in heavily urbanized areas, but often found in open cropland and sometimes uses edges of denser habitats. These predatory songbirds hunt primarily from perches, and are most common in open landscapes where thorny shrubs or fences are present. Loggerhead shrikes nest in scattered shrubs and trees within foraging areas, and in riparian scrub or other wooded margins of open habitats. Suitable nesting and foraging habitat occurs throughout the Planning Area.

Northern Harrier

Northern harrier (*Circus cyaneus*) is a California species of special concern that is distributed throughout much of California. It preys primarily upon mice and voles, and hunts over fields and wetlands with herbaceous vegetation such as grasses, tules, row crops, and dune vegetation. Northern harrier nests on the ground in areas well concealed by herbaceous vegetation, such as marshes, grasslands, or agricultural fields with dense, tall herbaceous cover (e.g., wild oat, cultivated wheat). During reconnaissance surveys for the biological inventory report, northern harriers were observed foraging in the Planning Area. Suitable nesting and foraging habitat for Northern harrier exists in the Planning Area.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is listed as threatened in California. They usually nest in large trees near extensive areas of grassland and/or open fields, which serve as foraging habitat. Swainson's hawks begin to arrive in the Central Valley from South America in March to breed and raise their young. They typically nest in large, mature trees such as valley oak, cottonwood, willow, and native black walnut. Alfalfa, row crops, grain fields, and irrigated pastures are the Swainson's hawk's preferred foraging habitats, where they take advantage of the opportunities that harvesting and irrigating practices provide for the easy capture of small rodents. They do not usually forage in vineyards, orchards, or flooded rice fields. Suitable nesting habitat for Swainson's hawks occurs within the Study Area, especially near the Feather River. One Swainson's hawk nest has been documented in the Study Area along the Feather River (Exhibit 4.6-2).

Lesser Sandhill Crane

Lesser sandhill crane (*Grus canadensis canadensis*) is a California species of special concern. The Pacific Flyway population of this species winters mostly in the Central Valley where grain fields are used for feeding and wetlands and irrigated crops or pasture are used as foraging and roosting sites. This subspecies breeds in southern Alaska. Suitable overwintering habitat occurs in the croplands in the western portion of the Planning Area.

Greater Sandhill Crane

Greater sandhill crane (*Grus canadensis tabida*) is listed as threatened in California and is a California fully protected species. This species winters in the Central Valley where grain fields are used for feeding and wetlands and irrigated fields are used as foraging and roosting sites during winter migration from nesting habitat in northeastern California wetlands. Greater sandhill cranes were observed foraging in the flooded rice fields in the southwest portion of the Planning Area near Paseo Road (City of Live Oak 2006). Suitable overwintering habitat occurs in the flooded rice fields and other grain fields in the western portion of the Planning Area.

White-tailed Kite

White-tailed kite (*Elanus leucurus*) is a California fully protected species. This species nests in rolling foothills and valley margins with scattered oaks, riparian woodlands, or marshes next to deciduous woodland, and forages in open grasslands, meadows, or marshes. White-tailed kites are known to forage for small rodents and insects in agricultural areas, especially alfalfa fields. Nests are generally built in available trees near hunting grounds. Suitable nesting and foraging habitat exists throughout the Planning Area.

Modesto Song Sparrow

The "Modesto" population of song sparrows is a California species of special concern. It is endemic to the north-central portion of the Central Valley, with highest population densities in the Delta and the Sacramento Valley's Butte Sink area (roughly 12 miles west of the Planning Area). Modesto song sparrows are most closely tied to emergent marsh, riparian scrub, and early successional riparian forest habitats, with nests placed primarily among tules, cattails, willows, blackberries, and other shrubs or young trees, or on the ground under such vegetation.

Song sparrows are omnivorous and typically forage near their nests during the breeding season, but may forage in any suitable habitat during the remainder of the year. Potentially suitable breeding and foraging habitat is present in the Planning Area.

Bank Swallow

Bank swallow (*Riparia riparia*) is listed as threatened under the California ESA. The bank swallow is a colonial nesting bird, which normally nests in vertical banks just under the root line along the banks of rivers. The bank swallow is typically found in riparian ecosystems, particularly rivers in the larger lowland valleys of northern California. There are four known CNDDB occurrences along the Feather River within 1 mile of the Planning Area (CNDDB 2008). These nest sites are shown on Exhibit 4.6-2.

Mammals

Pallid Bat

Pallid bat (*Antrozous pallidus*) is a California species of concern. Pallid bats occupy a wide variety of habitats, and are most common in open, dry habitats with rocky areas for roosting. Pallid bats roost in rock crevices, caves, mine shafts, under bridges, in buildings and tree hollows and forage in open areas. Colonies are usually small and may contain 12-100 bats. Pallid bats have been documented just to the west of the Planning Area on the east side of the Sutter Buttes (CNNDB 2008). Suitable roosting and foraging habitat for pallid bat is present in the Planning Area.

Ringtail

Ringtail is a California fully protected species. This species occurs in mixed riparian and other forest and shrubby habitats, in close association with permanent water and rocky areas. Ringtail use rock crevices, hollow trees, logs, snags, abandoned burrows, or woodrat nests for dens. Ringtail young are typically born in May and June. Riparian vegetation within the Planning Area provides limited suitable habitat for ringtail.

Silver-haired Bat

Silver-haired bat (*Lasionycteris noctivagans*) is considered “vulnerable” by DFG and is tracked by the CNDDB, but is not a California species of concern. The silver-haired bat prefers forested areas adjacent to lakes, ponds, and streams. During migration, silver-haired bat sometimes occurs in drier and lower elevation areas in the valley. Summer roosts and nursery sites are in tree foliage, cavities, or under loose bark, and sometimes in buildings. Young are born and reared in tree cavities or other hollows. CNDDB records document silver-haired bat in Gridley, roughly 6 miles north of the Planning Area (CNDDB 2008). Suitable roosting and foraging habitat for this species is present within the Planning Area.

Western Red Bat

Western red bat is a California species of concern. It prefers edges or habitat mosaics that have trees for roosting and open areas for foraging, and is closely associated with riparian cottonwoods and sycamores. It forages on insects in canopy openings, mostly on moths, crickets, beetles, and cicadas. It also uses orchards as alternative habitat. Trees in or near riparian woodlands, and possibly orchards, provide potential habitat in the Planning Area for this species.

American Badger

American badger (*Taxidea taxus*) is a California species of special concern that occupies dry, open, treeless regions including prairies, parklands and cold desert areas. They require sufficient food (burrowing rodents), friable soils for burrowing, and open, uncultivated ground. Suitable burrowing habitat for badger within the

Planning Area is limited. Due to the high level of disturbance the potential for this species to still be found in the Central Valley floor is very low. Drier portions of some of the larger patches of riparian woodland, where prey would be abundant, may be potential habitat for badgers.

Special-status Fish

Central Valley Spring-run Chinook Salmon and Central Valley Steelhead

Central Valley Spring-run chinook salmon (*Oncorhynchus tshawytscha*) is listed as threatened by the state and federal ESA. Central Valley steelhead (*Oncorhynchus mykiss*) is federally listed as a threatened species. The Feather River adjacent to the Planning Area is designated critical habitat for both of these fish.

Adult steelhead migrate upstream to spawning habitat in the tributaries during the winter and early spring. Juvenile steelhead reside in nursery streams for one to two years before migrating to the ocean as smolts, usually in the spring. Adult Spring-run Chinook migrate from the ocean to streams where they were born during the spring when water flows are high, allowing them access to higher elevation pools where they wait out the summer to lay their eggs in the fall. Spring run salmon can only survive in creeks and streams fed by cold snowmelt or cold springs in order to withstand high summer temperatures.

About one mile of the Feather River adjacent to the Study Area (upstream of Honcut Creek) is designated as important spawning habitat by DFG (Fish and Game Code §1505); the remainder would mostly be used by adult steelhead and salmon as a migration corridor between the ocean and coldwater habitat in the tributaries, and by juveniles for seasonal rearing and migration. Sloughs, canals, and ditches in the Planning Area do not provide important habitat for these fish, although salmon and steelhead may occasionally stray into these waterways.

SENSITIVE NATURAL COMMUNITIES AND HABITAT TYPES

Sensitive natural communities and habitat types include those that are of special concern to DFG, or that are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, the Porter-Cologne Act, and/or Section 404 of the CWA. Habitat types and natural communities within the Planning Area that would be considered sensitive by regulatory agencies include the Great Valley cottonwood riparian forest, other riparian habitat, as well as fresh emergent wetlands associated with ditches and canals in the Planning Area.

4.6.3 IMPACTS AND MITIGATION MEASURES

ANALYSIS METHODOLOGY

The analysis of the effects of implementing the 2030 General Plan on biological resources was based largely on the information provided in the Biological Resources Inventory (City of Live Oak 2006), as well as additional information on the distribution of special-status species in the Planning Area from the CNDDB and CNPS's Inventory of Rare and Endangered Vascular Plants of California. The significance of impacts was determined by comparing the land use after buildout of the 2030 General Plan against existing conditions using the significance criteria described below. The policies and implementation programs that either may lead to an impact or minimize a potential impact are discussed below for each impact area.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, an impact related to biological resources is considered significant if the proposed project would do any of the following:

- 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 DFG or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by DFG 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 nursery sites by native wildlife;
- 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 HCP, natural community conservation plan, or other approved local, regional, or state HCP.

IMPACT ANALYSIS

This section describes impacts to biological resources that could result from implementation of the 2030 General Plan. The impacts are organized by groups of related special-status species or sensitive habitat types.

The 2030 General Plan includes goals, policies, and implementation programs designed to avoid potential loss and other adverse effects to special-status species that may occur throughout the Planning Area. Such policies include requirements that a biological resources assessment for special species and their habitat be performed for development projects involving discretionary review that have the potential to affect special-status species. Policies and programs also address potential adverse effects to species that could occur in the Planning Area by requiring evaluation of potential effects and development and implementation of plans to fully mitigate unavoidable effects in a manner acceptable to the resource agencies. Impact analyses consider how successful implementation of these conservation policies, in conjunction with the more detailed mitigation measures outlined below, would avoid, minimize, and/or compensate for potential adverse effects to special-status species, as well as other more common species that utilize the same habitats.

There are no adopted habitat conservation plans, natural community conservation plans, or other approved state, regional, or local habitat conservation plans in the vicinity of the Planning Area, and therefore the General Plan would have no conflict with any such plans. This issue is not discussed further in the EIR.

The Feather River is designated critical habitat for spring-run Chinook salmon and steelhead, and the riparian corridor along the river provides an important migratory wildlife corridor. The Planning Area does not include the Feather River's riparian corridor, and the General Plan does not designate land use change along the river. Therefore, implementation of the 2030 General Plan would not 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. This issue is not discussed further in this EIR.

IMPACT 4.6-1 Impacts to special-status plant species. *Four special-status plant species: fox sedge, rose-mallow, Sanford's arrowhead, and Columbian watermeal, could occur along ditches, irrigation canals, and waterways in the Planning Area. Implementation of the General Plan update could result in loss or degradation of existing populations or of suitable habitat for these species as described below. This impact would be* ***less than significant****.*

The Planning Area supports suitable habitat for four special-status plant species. The majority of the suitable habitat in the area is located within the riparian corridor along the Feather River, which is not included in the Planning Area. However, additional suitable habitat occurs along ditches, irrigation canals and waterways throughout the Planning Area. Any populations that occur could be affected by proposed land use changes either directly or indirectly through modification of suitable habitat caused by pollutants transported by urban runoff and other means, changes in vegetation as a result of changes in land use and management practices, altered hydrology from the construction of adjacent residential development and roadways, habitat fragmentation, and the introduction of invasive species or noxious weeds from surrounding development. Protocol-level surveys have not been conducted for all suitable habitat within the Planning Area.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes policies and programs that address protection of special-status plant species, including:

- **Policy Biological-1.1:** Applicants of projects that have the potential to negatively affect special-status species or their habitat to conduct a biological resources assessment and identify design solutions that avoid such adverse effects. If adverse effects cannot be avoided, then they shall be mitigated in accordance with guidance from the appropriate state or federal agency charged with the protection of these species.

- **Implementation Program Biological-1:** The City's survey and mitigation requirements for special-status plant and wildlife species shall be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the California Native Plant Society.

Conclusion

Successful implementation of the policies and programs of the 2030 General Plan would avoid, minimize, and/or compensate for potential adverse effects to special-status plants and areas that would be considered suitable habitat for these species. Therefore, implementation of the 2030 General Plan is unlikely to result in substantial adverse effects to special-status species. This impact is considered **less than significant**.

Mitigation Measure

No mitigation is required.

IMPACT 4.6-2 Impacts to special-status wildlife and fish species. *The Planning Area contains habitat for 23 special-status wildlife and fish species. Special-status species could occur in agricultural, riparian, and ruderal, habitat throughout the Planning Area. Implementation of the 2030 General Plan could result in loss or degradation of existing populations or of suitable habitat for these species. This impact would be* ***less than significant****.*

Special-status wildlife and fish species in the Planning Area could occur in agricultural, riparian, and ruderal habitat (Table 4.6-4).

Table 4.6-4
Habitat Associations of Special-Status Wildlife

Species	Orchard	Pasture	Cropland	Irrigation Channel	Ruderal	Riparian	Riverine (Feather River)
Valley elderberry longhorn beetle				X	X	X	
Vernal pool fairy shrimp		X					
Vernal pool tadpole shrimp		X					
Northwestern pond turtle				X			X
Giant garter snake				X			
Tricolored blackbird				X			
Long-eared owl						X	
Western burrowing owl		X	X		X		
Loggerhead shrike	X				X	X	
Northern harrier		X					
Swainson's hawk		X	X			X	
Lesser sandhill crane		X	X				
Greater sandhill crane		X	X				
White-tailed kite	X	X				X	
Song Sparrow, "Modesto population"				X		X	
Bank swallow							X
Pallid bat					X		
Ringtail						X	
Silver-haired bat						X	
Western red bat	X					X	
American badger		X					
Spring-run Chinook salmon							X
Steelhead							X

Suitable agricultural habitats occur throughout the Planning Area. Special-status wildlife populations that use orchards, pastures, croplands, ditches, canals, and sloughs could be affected by proposed land use changes either directly or indirectly through modification of suitable habitat caused by changes in vegetation as a result of changes in land use and management practices and habitat fragmentation. Wildlife that is using agricultural lands at the time of conversion to urban development could be killed or injured, and nests destroyed.

The majority of riparian habitat is located within the riparian corridor along the Feather River, which is not included in the Planning Area. However, additional riparian habitat occurs along ditches, irrigation canals, and waterways throughout the Planning Area and any special-status wildlife species that use these habitats could be affected by proposed land use changes either directly, or indirectly through modification of suitable habitat caused by pollutants transported by urban runoff and other means, changes in vegetation as a result of changes in land use and management practices, altered hydrology from the construction of adjacent residential development and roadways, and habitat fragmentation.

Riverine habitat occurs in the Feather River. The Feather River is outside the Planning Area for the 2030 General Plan.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes policies and programs that address identification and protection of habitat for special-status wildlife species:

- **Policy Biological-1.1:** Applicants of projects that have the potential to negatively affect species or their habitat to conduct a biological resources assessment and identify design solutions that avoid such adverse effects. If adverse effects cannot be avoided, then they shall be mitigated in accordance with guidance from the appropriate state or federal agency charged with the protection of these species.

- **Implementation Program Biological-1:** The City's survey and mitigation requirements for special-status plant and wildlife species shall be consistent with guidance from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the California Native Plant Society.

Conclusion

Successful implementation of the policies and programs of the 2030 General Plan would avoid, minimize, and/or compensate for potential adverse effects to special-status wildlife and areas that would be considered suitable habitat for these species. Therefore, implementation of the General Plan is unlikely to result in substantial adverse effects to special-status species. This impact is considered **less than significant**.

Mitigation Measure

No mitigation is required.

IMPACT 4.6-3 Loss of Native Trees and/or Heritage Trees. *Construction of infrastructure, roadways, or developments associated with General Plan buildout could result in adverse effects on native trees and/or large heritage trees, which provide both aesthetic and wildlife value. This impact would be less than significant.*

The City has many large native trees and large non-native, ornamental tree species that provide important nesting habitat for many common and uncommon wildlife species. These trees provide many benefits to residents and visitors, such as shade and aesthetic value.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes policies and programs to address tree preservation:

- **Policy Biological-2.1:** New developments shall preserve all native oaks with a diameter at breast height (dbh) of 6 inches or greater and all other trees that have a dbh of 30 inches or greater to the greatest extent feasible.

- **Implementation Program Biological-2:** The City will develop and adopt an ordinance requiring preservation of all heritage trees within the Study Area. Heritage trees will include native oak trees greater than 6 inches dbh and all other trees greater than 30 inches dbh. The ordinance shall require a certified arborist to evaluate any trees proposed to be removed or disturbed and work with the City to develop measures to preserve the trees or mitigate their loss. The ordinance will provide an exception to projects where any economically viable development is precluded by the existence of a heritage tree.

Conclusion

The policies and programs of the 2030 General Plan described above are designed to avoid potential loss and other adverse effects to trees within the Planning Area. Successful implementation of these policies and programs would avoid, minimize, and/or compensate for potential adverse effects to trees. Therefore, implementation of the

2030 General Plan is unlikely to result in substantial adverse effects to trees. This impact is considered **less than significant**.

Mitigation Measure

No mitigation is required.

IMPACT 4.6-4 Loss and Degradation of Federally and State Protected Wetlands, and/or Riparian Vegetation. *Construction of infrastructure, roadways, or developments resulting from General Plan buildout could result in adverse effects on federally protected wetlands and other sensitive habitat types. This impact would be less than significant.*

The Planning Area supports riparian and wetland plant communities that likely qualify for protection under state and/or federal regulations. Habitats in these categories include patches of riparian and wetland habitats found along canals and waterways occurring throughout the Planning Area. Delineation of wetland and aquatic habitats that would be considered jurisdictional waters of the United States under Section 404 of the CWA or waters of the state under the Porter Cologne Water Quality Control Act has not been conducted for the entire Planning Area.

Relevant Policies and Programs of the 2030 General Plan

The 2030 General Plan includes policies and programs that address the identification and preservation of state and federally protected wetlands and riparian habitats:

- **Policy Biological-3.1:** Where feasible, the City will require that new developments avoid the conversion of existing riparian habitat and require that an adequate buffer of the associated riparian areas be established to protect this resource. Where feasible, the riparian buffers shall be incorporated into open space corridors, public landscapes, and parks.

- **Policy Biological-3.2:** The City will take advantage of opportunities to enhance and restore existing riparian areas along Live Oak Slough and other drainage canals. Where feasible, these resources shall be incorporated into open space corridors, public landscapes, and park during the preparation of the Parks and Recreation Master Plan.

- **Policy Biological-3.3:** The City shall require new developments to avoid the loss of federally and state protected wetlands. If loss is unavoidable, the City shall require applicants to mitigate the loss on a "no net loss" basis through a combination of avoidance, minimization, and/or compensation in accordance with state and federal law.

- **Implementation Program Biological-3:** The City will adopt development standards that require a riparian protection buffer (RPB) specifying an appropriate setback distance from existing riparian habitat or natural water bodies for development or other significant disturbance. This habitat is known to occur near the west bank of the Feather River. In areas with existing development, the RPB shall not be less than 25 feet, measured from top of the bank. In all other areas, the RPB shall not be less than 100 feet, measured from top of bank. If existing riparian vegetation is greater than 100 feet in width, the RPB shall encompass all of the riparian habitat; however, in no case shall the RPB be required to exceed 250 feet. Where feasible, the riparian buffers shall be incorporated into open space corridors, public landscapes, and parks. Trails and other recreation development should be designed and constructed to be compatible with riparian ecosystem.

Conclusion

Implementation of these policies and implementation program would avoid adverse effects to the riparian and wetland habitat occurring in the Planning Area and would ensure unavoidable indirect effects would be mitigated.

The policies specify means of determining exact acreages of important habitat (including those protected by federal, state, regional, and/or local regulations) that would be impacted and require preparation and implementation of a mitigation plan (approved by the appropriate regulatory agencies) to replace or rehabilitate affected habitats in a manner that ensures no net loss of habitat functions and values. It also requires that any applicable regulatory permits and authorizations be obtained.

General Plan policies described above are designed to avoid potential loss and other adverse effects to areas of protected habitat within the Planning Area. The policies also require evaluation of potential effects and development and implementation of plans to fully mitigate unavoidable effects in a manner acceptable to the resource agencies. Successful implementation of these conservation policies would avoid, minimize, and/or compensate for potential adverse effects to protected habitats. Therefore, implementation of the General Plan is unlikely to result in substantial adverse effects to federally and state protected wetlands and/or state protected riparian vegetation. This impact is considered **less than significant**.

Mitigation Measure

No mitigation is required.