

## 4 BIOLOGICAL RESOURCES

### 4.1 INTRODUCTION

This chapter provides information relevant to biological resource impacts under NEPA and CEQA in connection with the Proposed Action and alternatives. This chapter includes several sections: introduction, environmental and regulatory setting, impact analysis methods and assumptions, significance criteria, environmental effects of the action and alternatives, and mitigation measures to address effects that are identified as significant. Potential conflicts with other HCPs or NCCPs are addressed in Chapter 5, *Land use*.

#### 4.1.1 Data Sources

The following sources of information were reviewed to prepare the biological resources chapter.

- ▲ California Natural Diversity Database (CNDDDB) records search of Yolo County (CNDDDB 2015);
- ▲ U.S. Fish and Wildlife Service (USFWS) list of endangered, threatened, and proposed species for Yolo County (USFWS 2015);
- ▲ California Native Plant Society Online Inventory of Rare and Endangered Vascular Plants of California for Yolo County (CNPS 2015);
- ▲ CalFlora's (2015) online Inventory of Vascular Plants of California;
- ▲ California Department of Fish and Wildlife (CDFW) Special Animals (CDFW 2015a) and Special Plants lists (CDFW 2015b);
- ▲ *Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP)* (Yolo Habitat Conservancy 2018);
- ▲ The Background Report for the Yolo County 2030 Countywide General Plan Update (Yolo County 2005a);
- ▲ *Yolo County 2030 Countywide General Plan EIR* (Yolo County 2009a); and
- ▲ Species Accounts for the Yolo Natural Heritage Program.

#### 4.1.2 Definitions

**Covered Species:** Covered species are those species for which take authorization would be provided by the permits issued for the approved HCP/NCCP. The Yolo HCP/NCCP provides for the conservation and management of these species in the Plan Area to offset the effects of implementing the covered activities on these species.

**Land Cover:** Land cover is the observed physical cover on the earth's surface. Land cover in this document includes vegetation classifications, bare land, man-made features, and water surface classifications.

**Special-status Species:** Special-status species are defined as animals and plants that are legally protected under the federal Endangered Species Act (FESA), the California Endangered Species Act (CESA), or other

regulations and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as:

- ▲ species that are listed or proposed for listing as threatened or endangered under the FESA (50 Codes of Federal Regulations [CFR] 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the Federal Register [FR] for proposed species);
- ▲ species that are candidates for possible future listing as threatened or endangered under FESA (73 FR 75178, December 10, 2008);
- ▲ species listed or proposed for listing by the State of California as threatened or endangered under the CESA (14 CCR 670.5);
- ▲ considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA Section 15125 (c)) or is so designated in local or regional plans, policies, or ordinances (State CEQA Guidelines, Appendix G);
- ▲ otherwise meets the definition of rare or endangered under CEQA Section 15380(b) and (d);
- ▲ animals listed as California species of special concern on CDFW's Special Animals List (CDFW 2015a);
- ▲ animals fully protected in California (California Fish and Game Code [CFG] 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]; and
- ▲ plants listed as rare under the California Native Plant Protection Act of 1977 (California Fish and Game Code, Section 1900 et seq.); and plants considered by CNPS to be "rare, threatened, or endangered in California" (California Rare Plant Ranks of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; and 2, considered rare or endangered in California but more common elsewhere). The California Rare Plant Ranks correspond with and replace former CNPS listings. While these rankings do not afford the same type of legal protection as FESA or CESA, the uniqueness of these species requires special consideration under CEQA.

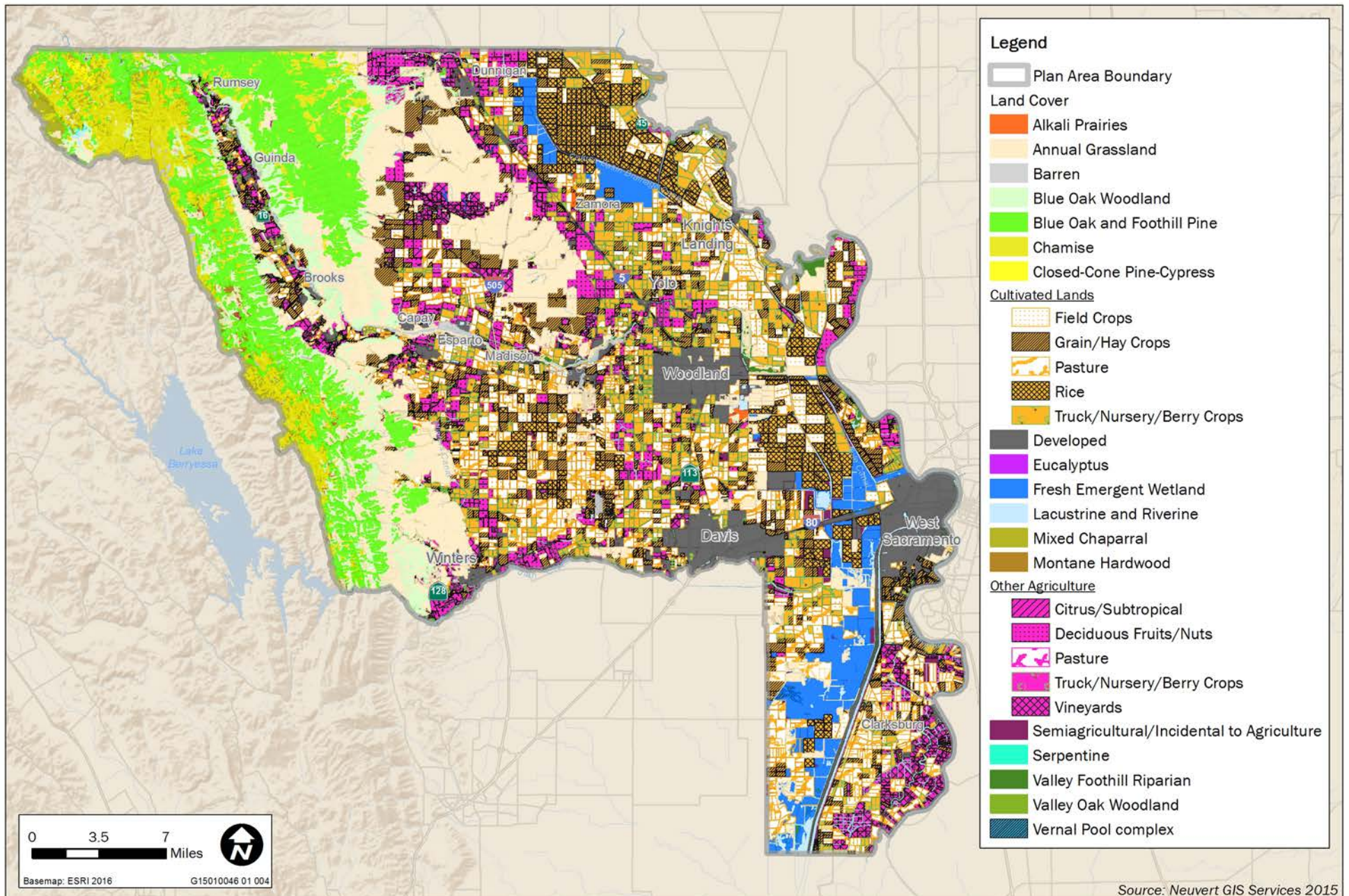
## 4.2 AFFECTED ENVIRONMENT

### 4.2.1 Environmental Setting

The following vegetation and land cover type information for the Yolo HCP/NCCP Area (Plan Area) was derived from the Draft HCP/NCCP (Yolo Habitat Conservancy 2018); all land cover types within the Plan Area cover approximately 653,494 acres. The expanded Plan Area along Putah Creek in Solano County covers an additional 1,174 acres and is not included in the land cover acreages provided below. See Section 2.3.2, Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation), for further information on the expanded Plan Area. The methodology used to classify, describe, and map land cover types within the Plan Area is described in Chapter 2, *Existing Ecological Conditions*, of the HCP/NCCP. See Exhibit 4-1 for more detail.

### VEGETATION AND LAND-COVER TYPES

Farmlands cover the majority of the Plan Area (53 percent), while undeveloped lands account for most of the remainder (40 percent). Developed and barren lands account for approximately seven percent of the Plan Area. Of the undeveloped lands, woodlands, forests, and grassland each make up approximately 25 percent of the land cover for this category, while shrublands make up approximately seven percent. Sensitive habitats such as wetlands and riparian areas compose another eight percent of undeveloped land.



**Exhibit 4-1**

**Land Cover Types within the Yolo HCP/NCCP Plan Area**

## Cultivated Land

Cultivated Lands (or Agriculture as identified in the legend of Exhibit 4-1) is a category of *Seminal* *Community* land cover that encompasses 250,841 acres (38 percent) of the Plan Area. The Cultivated Lands category includes the following agricultural land types that can provide habitat for covered species: alfalfa, field crops, grain/hay crops, pasture, rice, and truck/berry crop agricultural types. The distribution these agricultural land types within the Plan Area may expand and contract rapidly with market conditions and crop rotations. These agricultural types are described below.

### Alfalfa

Alfalfa fields account for 48,897 acres (eight percent) of the Plan Area. Alfalfa (*Medicago sativa*) is a relatively low-growing perennial herbaceous legume species that is periodically irrigated and cut for hay five times during the growing season. Since it can fix nitrogen, alfalfa is often used as a green manure and is incorporated into the soil as part of many crop rotations. The high protein content of its leaves also make alfalfa highly palatable for rodents such as ground squirrels and gophers, which are often present in high numbers in the fields.

Common wildlife species known to forage in alfalfa fields include American kestrel (*Falco sparverius*), horned lark (*Eremophila alpestris*), American pipit (*Anthus rubescens*), western meadowlark (*Sturnella neglecta*), red-winged blackbird (*Agelaius phoeniceus*), California meadow vole (*Microtis californicus*), house mouse (*Mus musculus*), brown rat (*Rattus norvegicus*), and black-tailed jackrabbit (*Lepus californicus*) may use these areas as primary habitat.

Alfalfa in particular supports special-status raptor species because it provides such important forage for ground squirrels, gophers, voles, and other small mammals. Special-status Raptors such as burrowing owl (*Athene cunicularia hypugaea*), loggerhead shrike (*Lanius ludovicianus*), long-eared owl (*Asio otus*), short-eared owl (*Asio flammeus*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), and Swainson's hawk (*Buteo swainsoni*) can be found foraging in these fields. Alfalfa fields are particularly important for Swainson's hawk which preferentially congregate in large numbers in these fields to forage on insects, voles, and other prey flushed during harvesting or flood irrigating.

### Field Crops

Field crops in the Plan Area consist of irrigated row crops and represent one of the most abundant agricultural types within Yolo County, accounting for approximately 42,077 acres (six percent) of the Plan Area. Field crops in the Plan Area include corn, dry beans, sorghum, safflower, Sudan grass, and sunflowers.

Common wildlife species known to forage in field crops include American kestrel, horned lark, American pipit, western meadowlark, red-winged blackbird, yellow-billed magpie (*Pica nuttalli*), house finch (*Carpodacus mexicanus*), herons and egrets. California meadow vole, house mouse, brown rat, and black-tailed jackrabbit may use these areas as primary habitat.

Field crops support special-status wildlife species including Swainson's hawks, which often congregate in large numbers to forage on insects, voles, and other prey flushed during harvesting or flood irrigating. Additionally, Townsend's big-eared bat (*Corynorhinus townsendii townsendii*) and mountain plover (*Charadrius montanus*) may utilize plowed fields for foraging.

### Grain and Hay Crops

Grain and hay crops include dryland grain and hay production operations and encompass 65,303 (10 percent) in the Plan Area. In dryland farming, wheat is the dominant grain crop, with smaller acreages of barley and rye. Oat hay is the dominant hay crop, with an average of approximately 12,000 acres. Plan Area. In some years, dryland grain and hay production occurs on less fertile soils such as those in the Dunnigan Hills and along the base of the Blue Ridge.



Grain and hay crops support common wildlife species, including mourning dove (*Zenaida macroura*), western meadowlark, Brewer's blackbird (*Euphagus cyanocephalus*), red-winged blackbird, yellow-billed magpie, coyote (*Canis latrans*), California ground squirrel (*Spermophilus beecheyi*), and black-tailed jackrabbit.

Grain and hay crops provide foraging for special-status wildlife, including Swainson's hawk, northern harrier, tricolored blackbird (*Agelaius tricolor*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), and pallid bat (*Antrozous pallidus*).

### **Pasture**

Pastures comprise 15,376 acres (two percent) of the Plan Area, are typically planted with non-native grasses or leguminous plant species, and are actively irrigated. Pastures are generally located on landscapes with flat to gently rolling terrain to facilitate border or sprinkler irrigation. Within Yolo County, the majority of the pasture lands are located on valley floors and are concentrated in the south-central and southeastern sections of the Plan Area. Pasture lands that have been planted with non-native grasses (i.e., lacking natural/ historic biological conditions) do not represent potential habitat for any special-status plant species.

Common wildlife species found in pastures include mallard (*Anas platyrhynchos*), killdeer (*Charadrius vociferus*), western kingbird (*Tyrannus verticalis*), western meadowlark, yellow-billed magpie, and red-winged blackbird.

Pasture lands provide foraging opportunities for special-status wildlife species, including California tiger salamander (*Ambystoma californiense*) (using existing burrows), western spadefoot (*Spea hammondi*), Swainson's hawk, American Peregrine falcon (*Falco peregrinus anatum*), northern harrier, burrowing owl, loggerhead shrike, long-eared owl, short-eared owl, yellow-headed blackbird, tricolored blackbird, Townsend's big-eared bat, and pallid bat. Additionally, these areas provide breeding habitat for northern harrier and burrowing owl (where existing squirrel burrows are present).

### **Rice**

Rice is a flood-irrigated crop that is a seed-producing annual grass. It is generally grown in leveled fields that are flooded for most of the growing period and then dried to mature and facilitate harvesting. Commercial rice generally grows to about 2-feet tall and has 100 percent canopy closure when it matures. Rice is generally planted in the spring and harvested in the fall. Within Yolo County, rice is found on 35,724 acres (five percent) of the Plan Area.

Rice provides valuable habitat that varies seasonally for a range of wetland and upland wildlife species. Rice is a particularly important food source for wintering waterfowl. Rice fields support a number of common wildlife species, including the great blue heron (*Ardea herodias*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), black-crowned night heron (*Nycticorax nycticorax*), tundra swan (*Cygnus columbianus*), greater white-fronted goose (*Anser albifrons*), snow goose (*Chen caerulescens*), mallard, gadwall (*Anas strepera*), northern pintail (*Anas acuta*), black-necked stilt (*Himantopus mexicanus*), long-billed dowitcher (*Limnodromus scolopaceus*), dunlin (*Calidris alpina*), least sandpiper (*Calidris minutilla*), mourning dove, western meadowlark, red-winged blackbird, and various rodents. Rice is known to provide habitat for one special-status species, giant garter snake (*Thamnophis couchi gigas*).

### **Truck and Berry Crops**

Truck and berry crops, which encompass 43,464 acres (seven percent) of the Plan Area, include intensive agricultural operations that produce food and landscaping plants that are typically transported for sale elsewhere. Truck farming is the cultivation of one or a few fruit or vegetable crops on a relatively large scale for transport to distant markets and includes the production of asparagus, broccoli, onions, garlic, and carrots. The berry crops category encompasses more than typical berries, and in the Plan Area is dominated by tomato cultivation, but other berry crops include melons, squashes, cucumbers, onions, garlic, peppers, and strawberries. Farming practices associated with these crops generally suppresses the growth of other vegetation.

Common wildlife species associated with this land cover include foraging raptors, skunks, foxes, yellow-billed magpie, and brewer's blackbirds. Special-status species that utilize truck and berry crops include northern harrier and Swainson's hawk.

## Grassland

The grassland category includes both the grassland and serpentine land covers.

### Grassland

The grassland land cover encompasses a total of 80,911 acres (12 percent) of the Plan Area. Most of the grassland within this land cover consist of annual grassland, dominated by nonnative species. While perennial grassland may occur, no mapping data currently exist for perennial grassland in the Plan Area. Many of the species that occupy this land cover type also occur as understory plants in other land cover types such as blue oak woodland. Within in the Plan Area, grassland is mainly found in the Blue Ridge and Capay Hills planning units (Exhibit 2-1). In other valley planning units, it can be difficult to distinguish grassland and fallow, weedy agricultural fields.

Grassland is typically dominated by non-native, naturalized grasses such as barbed goatgrass (*Aegilops triuncialis*), wild oats (*Avena* spp.), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), Medusahead (*Taeniatherum caput-medusae*), and rattail fescue (*Vulpia myuros*). Grassland supports both native and non-native forbs. Native forbs that occur in grassland include fiddleneck (*Amsinckia menziesii*), miner's lettuce (*Claytonia perfoliata*), blue dicks (*Dichelostemma capitatum*), doveweed (*Eremocarpus setigerus*), California poppy (*Eschscholzia californica*), miniature lupine (*Lupinus bicolor*), baby blue-eyes (*Nemophila menziesii*), California plantain (*Plantago erecta*), vinegar weed (*Trichostema lanceolatum*), tomcat clover (*Trifolium willdenovii*), butter-and-eggs (*Triphysaria eriantha*), and Ithuriel's spear (*Triteleia laxa*). Non-native forbs that typically are present in grassland include yellow star-thistle (*Centaurea solstitialis*), mustard (*Brassica* spp.), introduced clovers (*Trifolium* spp.), Italian thistle (*Carduus pycnocephalus*), milk thistle (*Silybum marianum*), radish (*Raphanus* spp.), redstem filaree (*Erodium cicutarium*), big heronbill (*Erodium botrys*), broadleaf filaree, birdfoot trefoil (*Lotus corniculatus*), bindweed (*Convolvulus arvensis*), and cutleaf geranium (*Geranium dissectum*).

Common wildlife species known to utilize grassland include reptiles such as western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and western rattlesnake (*Crotalis viridis*); mammals such as black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher (*Thomomys bottae*), western harvest mouse (*Reithrodontomys megalotis*), California meadow vole and coyote; and birds such as horned lark, and western meadowlark. Annual grassland also provides important foraging habitat for turkey vulture (*Cathartes aura*), American kestrel, and red-tailed hawk (*Buteo jamaicensis*).

Special-status wildlife species known to utilize grassland within the Plan Area are as follows. Grassland provides foraging habitat for Pallid bat, and foraging and denning habitat for American badger (*Taxidea taxus*). Bird species for which grassland provides primary foraging and nesting habitat include northern harrier, and western burrowing owl. Grassland also provides foraging habitat for raptor species including Swainson's hawk, white-tailed kite, golden eagle (*Aquila chrysaetos*), short-eared owl, and long-eared owl. Grassland also serve as primary foraging habitat for loggerhead shrike, grasshopper sparrow (*Ammodramus savannarum*), purple martin (*Progne subis*), tricolored blackbird, and yellow-headed blackbird. California tiger salamander and western spadefoot utilize vernal pools and other wetlands within grassland for breeding and the grassland themselves for cover during movement or during dry periods.

### Serpentine

Serpentine vegetation types identified in the Plan Area are serpentine chaparral, serpentine grassland, and serpentine barrens; all are rare in the Yolo County. The combined acreage and percentage of the Plan Area comprising serpentine vegetation types is 247 acres and less than one percent. Serpentine soils in the Plan Area are derived from Franciscan Complex rock of the Little Blue Ridge. Serpentine substrates are characterized by low levels of calcium, high levels of magnesium, typically have a high amount of nickel and chromium (both of which are toxic to plants), low in key nutrients (i.e., nitrogen, phosphorus, and potassium),

and are commonly very wet in winter but extremely dry in summer (Ornduff et. al. 2003; p.65). Relatively few plant species are able to tolerate these conditions, and the contrasts between serpentine vegetation and vegetation on adjacent substrates that do not contain serpentine are very pronounced (Ornduff et. al. 2003; p.63). Serpentine grassland supports a low vegetative cover of annual grassland species. Serpentine chaparral is most often dominated by leather oak with an overstory of foothill pines (*Pinus sabiniana*). Serpentine barrens, aptly named because they support little or no plant cover, may even lack soil and have a substrate consisting entirely of rock fragments (Kruckeberg 2006; p.95)

Common wildlife species known to utilize these areas are comparable to those that utilize grassland, however, serpentine does not provide primary habitat for special-status species.

## Shrublands and Scrub

### Chamise

Chamise (*Adenostoma fasciculatum*) shrublands encompass 30,187 acres (five percent) of the Plan Area. Chamise shrublands may consist of nearly homogenous areas of chamise or may have wedgeleaf ceanothus as a co-dominant species. In addition to chamise and wedgeleaf ceanothus (*Ceanothus cuneatus*), chamise vegetation types can also support plant species such as California yerba santa (*Eriodictyon californicum*), pitcher sage (*Lepechinia calycina*), and deerweed (*Lotus scoparius*).

This vegetation type supports common wildlife species such as California scrub-jay (*Aphelocoma californica*), wrentit (*Chamaea fasciata*), California thrasher (*Toxostoma redivivum*), and California towhee (*Pipilo crissalis*). Numerous special-status bird species may fly over, forage or take cover in chamise located adjacent to primary habitat but are not dependent on these areas.

### Mixed Chaparral

Mixed chaparral encompasses 14,518 acres (two percent), in the Plan Area and occurs on serpentine and non-serpentine soils. Shrub species dominant on non-serpentine soils are common manzanita (*Arctostaphylos manzanita*), scrub oak (*Quercus berberidifolia*), toyon (*Heteromeles arbutifolia*), and birch-leaf mountain mahogany (*Cercocarpus betuloides*). Other species present in mixed chaparral types are California bay (*Umbellularia californica*), and buckbrush (*Ceanothus cuneatus*). Herbaceous species present in chaparral are sparse annual grasses, pitcher sage, and deerweed. Mixed chaparral generally occurs as a mosaic on exposed sites in the Blue Ridge and Capay Hills. Shrub species dominant on serpentine soils include whiteleaf manzanita (*Arctostaphylos manzanita* ssp. *glaucescens*), California bay, and leather oak (*Quercus durata*).

Mixed chaparral supports several common wildlife species including year-round residents such as western fence lizard, western skink (*Eumeces skiltonianus*), gopher snake (*Pituophis catenifer*), common kingsnake (*Lampropeltis getula*), western rattlesnake, mule deer (*Odocoileus hemionus*), coyote, gray fox (*Urocyon cinereoargenteus*), mountain quail (*Oreortyx pictus*), California quail (*Callipepla californica*), mourning dove, Anna's hummingbird (*Calypte anna*), California scrub-jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), bushtit (*Psaltiriparus minimus*), Bewick's wren (*Thryomanes bewickii*), California thrasher, wrentit, California towhee, spotted towhee (*Pipilo maculatus*), rufous-crowned sparrow (*Aimophila ruficeps*), sage sparrow (*Amphispiza belli*), and lesser goldfinch (*Carduelis psaltria*). Summer residents include blue-gray gnatcatcher (*Poliophtila caerulea*), black-headed grosbeak (*Pheucticus melanocephalus*), orange-crowned warbler (*Vermivora celata*), and lazuli bunting (*Passerina aemona*). Winter residents include hermit thrush (*Catharus guttatus*), fox sparrow (*Passerella iliaca*), golden-crowned sparrow (*Zonotrichia atricapilla*), white-crowned sparrow (*Zonotrichia leucophrys*), and dark-eyed junco (*Junco hyemalis*). Similar to chamise, special-status bird species may fly over, forage or take cover in mixed chaparral located adjacent to primary habitat but are not dependent on these areas.

## Woodlands and Forests

### Oak-Foothill Pine Woodland

Oak-foothill pine woodland land cover encompasses 43,772 acres (seven percent) of the Plan Area. Interior live oak (*Quercus wislizeni*) and foothill pine are the dominant overstory species; however, California buckeye (*Aesculus californica*), coast live oak (*Quercus agrifolia*), and valley oak (*Quercus lobata*) may also be present. Species typically found in the shrub understory are wedgeleaf ceanothus, whiteleaf manzanita, redberry (*Rhamnus crocea*), poison oak (*Toxicodendron diversilobum*), silver bush lupine (*Lupinus albifrons*), and blue elderberry (*Sambucus mexicana*). The herbaceous understory supports grass and forb species that are also associated with annual grassland.

Oak-foothill pine woodlands support several common wildlife species, including band-tailed pigeon (*Columba fasciata*), hairy woodpecker (*Picoides villosus*), pileated woodpecker (*Dryocopus pileatus*), California scrub-jay (*Aphelocoma californica*), oak titmouse, Hutton's vireo (*Vireo huttoni*), mule deer, bobcat (*Lynx rufus*), and striped skunk (*Mephitis mephitis*).

Special-status species for which oak-foothill pine woodlands provide primary habitat include golden eagle, pallid bat, Townsend's big-eared bat, and western red bat (*Lasiurus blossevillii*).

### Blue Oak Woodland

Blue oak woodland encompasses 35,891 acres (slightly less than six percent) of the Plan Area. Blue oak is the dominant overstory species, and the associate overstory species listed above for blue oak-foothill pine woodlands may also be present. Species typically comprising the shrub layer of blue oak woodland are poison oak, California coffeeberry (*Rhamnus californica*), wedgeleaf ceanothus, and manzanita species (*Arctostaphylos* spp.). The herbaceous understory of blue oak woodland is comparable to that of blue oak-foothill pine woodlands.

Common wildlife species known to utilize blue oak woodland are comparable to those described above for blue oak-foothill pine woodlands.

Special-status species for which blue oak woodland provides primary habitat include golden eagle, loggerhead shrike, white-tailed kite, American badger, pallid bat, Townsend's big-eared bat, and western red bat.

### Closed-Cone Pine-Cypress Forest

Closed-cone pine-cypress forest encompasses 212 acres (less than one percent) of the Plan Area and is co-dominated by knobcone pine (*Pinus attenuata*) and MacNab Cypress (*Cupressus macnabiana*). Closed-cone pine-cypress forest in the Plan Area consists of relatively small trees that require periodic fires for seedling recruitment. Areas dominated by knobcone pine occur on the north-facing slope of the Blue Ridge, and along Yolo County's northern boundary immediately above Cache Creek. Areas dominated by MacNab cypress are present at the University of California's McLaughlin Reserve in the Little Blue Ridge at the junction of Yolo, Napa, and Lake Counties.

Common wildlife species known to utilize closed-cone pine-cypress forest include many of those listed for other forest and woodland land covers. Closed-cone pine-cypress does not provide primary habitat for special-status wildlife.

### Montane Hardwood Forest

Montane hardwood forests encompass 3,087 acres (less than one percent) of the Plan Area and are characterized by a mixture of conifers and broad-leaved trees that are evergreen or deciduous and generally lack a well-developed shrub understory and herbaceous layer. Trees present in the overstory of montane hardwood forest in the Plan Area are canyon live oak (*Quercus chrysolepis*), black oak (*Quercus kelloggii*), foothill pine, California bay, and California buckeye.



Montane hardwood forest supports several common wildlife species, including western skink, northern alligator lizard (*Elgaria coerulea*), common kingsnake, gopher snake, western rattlesnake, red-tailed hawk, American kestrel, California quail, mourning dove, great horned owl (*Bubo virginianus*), western screech-owl (*Otus kennicottii*), northern pygmy-owl (*Glaucidium gnoma*), Anna's hummingbird, acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttallii*), ash-throated flycatcher (*Myiarchus cinerascens*), California scrub-jay, oak titmouse, white-breasted nuthatch (*Sitta carolinensis*), Bewick's wren, house wren (*Troglodytes aedon*), blue-gray gnatcatcher, western bluebird (*Sialia mexicana*), American robin (*Turdus migratorius*), orange-crowned warbler, black-headed grosbeak, lazuli bunting, spotted towhee, California towhee, Bullock's oriole (*Icterus bullockii*), house finch, lesser goldfinch, dark-eyed junco, deer mouse (*Peromyscus maniculatus*), western gray squirrel (*Sciurus griseus*), striped skunk, raccoon (*Procyon lotor*), bobcat, and mule deer.

Montane hardwood forest may provide primary habitat for special-status wildlife species including pallid bat and Townsend's big-eared bat.

### **Valley Oak Woodland**

Valley oak woodland consists of stands dominated by valley oak that are located outside of riparian zones and encompasses approximately 181 acres (less than one percent) of the Plan Area. Valley oak woodland is considered separate from the Valley Foothill Riparian vegetation type described below under *Riparian and Wetlands*, which encompasses streamside habitats that are dominated by valley oak, but that also have a higher abundance of typical riparian species, such as Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), ash (*Fraxinus* spp.), and willows (*Salix* spp.).

Valley oak woodlands typically occur in lowland areas that have deep, well-drained alluvial soils. Valley oak woodlands were once much more abundant within lowland areas, but the conversion of these areas to agriculture has reduced the distribution within Yolo County to a few scattered, dense stands and small groves or individual trees adjacent to around farmsteads, agricultural work areas, roadsides, and within agriculture fields.

Valley oak woodlands support nesting and foraging of numerous common wildlife species, including, but not limited to Nuttall's woodpecker, yellow-billed magpie, California scrub-jay, oak titmouse, white-breasted nuthatch, western bluebird, American kestrel, and red-tailed hawk.

Special-status plant species with the potential to occur in valley oak woodlands are comparable to those that could potentially occur in oak-foothill pine woodland.

## **Riparian and Wetlands**

### **Alkali Prairies**

Alkali prairies encompasses 312 acres (less than one percent) of the Plan Area and are found in the western portion of the Plan Area. Alkali prairies occur in low-lying areas within alkaline or saline soils. The salts in the soils are dissolved during the wet winter months, and form high concentrations of salt (i.e., a crust) in these low-lying areas when the water evaporates. The high salt concentration restricts vegetation to salt-tolerant or halophytic (i.e. salt-loving) plant species; vegetation is often dominated by salt grass (*Distichlis spicata*). The amount of vegetative cover in alkali prairies tends to be less than in other saline habitats (i.e., saline emergent marsh) because when a certain salt concentration is reached, no plant species can survive, and as a result there are unvegetated areas (Ornduff et. al. 2003: p. 59).

Plant species present in alkali prairies in the Plan Area include flat-face downingia (*Downingia pulchella*), curly dock (*Rumex crispus*), gumplant (*Grindelia camporum*), alkali coyote thistle (*Eryngium aristulatum*), alkali heath (*Frankenia salina*), bush seepweed (*Suaeda moquinii*), common spikeweed (*Centromadia pungens*), and annual hairgrass (*Deschampsia danthonoides*).

Common wildlife species found in this land cover include great blue heron, killdeer, and song sparrow (*Melospiza melodia*).

Alkali prairies also support special-status wildlife species including western snowy plover (*Charadrius alexandrinus nivosus*). Many special-status hawk species including northern harrier, American peregrine falcon, Swainson's hawk, and white-tailed kite utilize these areas for foraging.

### **Freshwater Emergent Wetland**

Freshwater emergent wetland encompasses 26,114 acres (four percent) of the Plan Area and is typically associated with level to gently rolling landscapes along rivers, lakes, and creeks, but can be found anywhere the topography permits perennial or seasonal soil saturation or flooding by fresh water.

Perennially flooded areas are typically dominated by cattails, tule, and California bulrush that can reach up to 12 feet in height. Seasonally saturated or inundated areas contain much smaller plant species and are more variable in their plant species composition. Dominant species in many lower elevation, seasonally-inundated wetlands include Baltic rush (*Juncus balticus*), iris-leaved rush (*Juncus xiphioides*), and spikerushes (*Eleocharis* spp.).

Within Yolo County, sedges (*Carex* spp.) and rushes (*Juncus* spp.) dominate the emergent wetlands that are found within the drainages located between the Blue Ridge and Highway 16, between Rocky Ridge and Interstate 5, and in the Dunnigan Hills. There are bulrush and cattail emergent wetlands in the Willow Slough Bypass just east of the City of Davis, and alkali bulrush emergent wetlands in the lowlands just west of the Sacramento River Deep Water Ship Channel in southeast Yolo County.

Saline emergent wetlands are also included in this category in the HCP/NCCP. Saline emergent wetlands are salt or brackish marshes consisting mostly of perennial grasses and forbs. Vegetation in saline emergent wetlands in the Plan Area includes perennial pepperweed (*Lepidium latifolium*), saltgrass (*Distichlis spicata*), pickleweed (*Salicornia subterminalis*), tule (*Scirpus acutus*), and white knotweed (*Polygonum punctatum*).

Freshwater emergent wetlands support a number of common wildlife species, including the great blue heron, great egret, snowy egret, black-crowned night-heron, Virginia rail (*Rallus limicola*), common moorhen (*Gallinula chloropus*), American coot (*Fulica americana*), marsh wren (*Cistothorus palustris*), song sparrow, and red-winged blackbird.

Freshwater emergent wetlands support special-status species including American peregrine falcon, black tern (*Chlidonias niger*), California black rail (*Laterallus jamaicensis coturniculus*), least bittern (*Ixobrychus exilis*), long-eared owl, northern harrier, short-eared owl, tricolored blackbird, western snowy plover, yellow-headed blackbird, and giant garter snake.

### **Valley Foothill Riparian Woodland**

Valley foothill riparian woodland encompasses 12,564 acres (two percent) in the Plan Area and consists of an overstory that contains mature valley oak, Fremont cottonwood, ash (*Fraxinus* spp.), sycamore (*Plantanus racemosa*), white alder (*Alnus rhombifolia*), and willows (*Salix* spp.). In a mature riparian forest, canopy heights reach approximately 100 feet, and canopy cover ranges from 20 to 80 percent. The shrub layer contains blue elderberry, California rose (*Rosa californica*), poison oak, mulefat (*Baccharis salicifolia*), and coyote brush (*Baccharis pilularis*). Blackberry (*Rubus* spp.) may form dense thickets in the understory and California grape (*Vitis californica*) can create a dense network of vines in the canopy of the riparian forests. In areas disturbed by frequent flooding, fire, or human activity, riparian habitat often consists of smaller trees, more shrubs, and more invasive non-native species. Valley foothill riparian woodlands are usually associated with streams and creeks with low-velocity flows, floodplains, and areas of low topography. Non-native species observed in valley foothill riparian woodland in the Plan Area are giant reed (*Arundo donax*) and salt cedar (*Tamarix parviflora*).

Valley foothill riparian woodland occurs along Cache Creek, Putah Creek, Willow Slough, Union School Slough, Dry Slough, Chickahominy Slough, the Colusa Basin Drain, and the Sacramento River delta sloughs.

Valley foothill riparian woodland supports a number of common wildlife species, including the red-shouldered hawk, great horned owl, black-chinned hummingbird, California scrub-jay, Nuttall's woodpecker, downy woodpecker (*Picoides pubescens*), American crow (*Corvus brachyrhynchos*), bushtit, yellow-billed magpie, oak titmouse, white-breasted nuthatch, black-headed grosbeak, blue grosbeak (*Passerina caerulea*), lazuli bunting, Bullock's oriole, house finch, American goldfinch (*Carduelis tristis*), striped skunk, raccoon, and various rodents.

This type also contains habitat for the following special-status wildlife species, the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), western pond turtle (*Actinemys marmorata*), bank swallow (*Riparia riparia*), Swainson's hawk, long-eared owl, western yellow-billed cuckoo (*Coccyzus americanus*), white-tailed kite, yellow-breasted chat (*Icteria virens*), pallid bat, Townsend's big-eared bat, and western red bat.

### **Vernal Pool Complex**

Vernal pool complexes encompass a total of 299 acres (less than one percent) in the Plan Area. A vernal pool complex refers to a landscape-scale mosaic of vernal pools that are typically connected by surface features such as swales and/or subsurface water flow. Vernal pools are shallow seasonally-inundated depressions, that are characterized by the presence of a restrictive layer (clay alluvium) that prevents groundwater from percolating downward and effectively keeps water perched at or near the ground surface until it evaporates or is taken up by plants. Vernal pools receive precipitation during the wet winter months, gradually dry down during the spring, and are dry during the summer. Vernal pool complexes are located on the Davis Communications Site, Woodland Regional Park, and CDFW's Tule Ranch Unit of the Yolo Bypass Wildlife Area.

Plant species commonly observed in vernal pool complexes are coyote thistle (*Eryngium castrense*), downingia (*Downingia* spp.), vernal pool goldfields (*Lasthenia fremontii*), popcorn-flower (*Plagiobothrys* spp.) vernal pool buttercup (*Ranunculus bonariensis* var. *trisepalus*), vernal pool hairgrass (*Deschampsia danthonioides*), and woolly marbles (*Psilocarphus brevissimus*).

Some common wildlife species that occur in vernal pool complexes include various aquatic invertebrates such as species of small crustaceans; seed shrimp, copepods, and daphnia; and insects; aquatic beetles, water boatman, backswimmers. Waterfowl may feed on these invertebrates during the wet season. During the dry season, common wildlife species would be similar to those associated with grassland.

Vernal pool complexes provide primary habitat for special-status wildlife species including Conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), vernal pool tadpole shrimp (*Lepidurus packardii*), and California tiger salamander (within the designated critical habitat area for the species in the Dunnigan Hills). Other special-status wildlife species, including northern harrier, prairie falcon, Swainson's hawk and white-tailed kite presumably may use vernal pool complex incidental to foraging in adjacent grassland habitats.

### **Lacustrine and Riverine**

Lacustrine and riverine includes a variety of lacustrine (lake, reservoirs, ponds), riverine (rivers and streams), and other open water areas (stock ponds, storm water detention ponds, wastewater treatment ponds). These may consist of inland topographic depressions or reservoirs formed by dams on riverine drainages, and range in size from less than 2.5 acres to several square miles, with water depths ranging from a few inches to hundreds of feet. Lacustrine and Riverine habitat is found on 13,493 acres (two percent) of the Plan Area.

Turbidity, water temperature, and oxygen content affect the quality of habitat for many plant and animal species. The amount of turbidity within the water body influences light penetration, which affects vegetation growth. Water temperature varies by season and depth. Oxygen content in lacustrine habitats is typically lower than in flowing water systems. Perennial lacustrine habitats usually contain fish, which may affect suitability for invertebrates, amphibians, and some reptiles, while ephemeral systems typically do not contain fish. Lacustrine and riverine habitats can support algae, mosses and other aquatic plants such as duckweed (*Lemna minor*).

Within Yolo County, lacustrine and riverine habitats support a number of common wildlife species, including eared grebe (*Podiceps nigricollis*), pied-billed grebe (*Podilymbus podiceps*), common goldeneye (*Bucephala clangula*), bufflehead (*Bucephala albeola*), ruddy duck (*Oxyura jamaicensis*), American coot, osprey (*Pandion haliaetus*), and California gull (*Larus californicus*).

Lacustrine and riverine areas also provide habitat for a number of special-status wildlife species including foraging habitat for American peregrine falcon, bald eagle (*Haliaeetus leucocephalus*), redhead (*Aythya americana*), and breeding and foraging habitat for western pond turtle, California tiger salamander, and foothill yellow-legged frog.

## Other Land Cover Types

### Other Agriculture

Other Agriculture land cover encompasses 62,164 acres (10 percent) of the Plan Area and includes citrus and subtropical orchards; deciduous fruit and nut orchards; flower, nursery, and tree farms; vineyards; and a form of pasture specific to this category. These agricultural types are described below.

#### **Citrus and Subtropical Orchards**

Citrus and subtropical orchards encompass 1,159 acres (less than one percent) in the Plan Area and include olives, oranges, and kiwis. Citrus and subtropical orchards in the Plan Area are typically actively irrigated and maintained (e.g., pruning, mowing between rows, pesticide application). If present, the herbaceous understory between rows is dominated by ruderal species and grasses.

Common wildlife including American crows, common raven (*Corvus corax*), Brewer's blackbird, and European starling (*Sturnus vulgaris*).

This type may provide foraging and roosting for western red bats, a special-status species.

#### **Deciduous Fruit and Nut Orchards**

Deciduous fruit and nut orchards encompass 43,591 acres (seven percent) in the Plan Area and include almonds, apples, apricots, cherries, figs, peaches, nectarines, pears, pistachios, prunes, and walnuts.

Deciduous fruit and nut orchards support a number of common wildlife species, including those listed above under citrus/subtropical and American robin, yellow-billed magpie, and house finch. Mule deer and rabbits (*Lepus californicus* and *Sylvilagus* spp.) may browse on trees, while California ground squirrels may consume fruits and nuts.

This type does support one special-status bat, the western pallid bat.

#### **Flower, Nursery, and Tree Farms**

The Flower, Nursery, and Tree Farm land cover, which encompass 122 acres (less than one percent) of the Plan Area, includes agricultural operations that produce landscaping plants that are typically transported for sale elsewhere. Nurseries produce flowering plants, shrubs, and trees for local and distant retail sales. Farming practices associated with these crops generally suppresses the growth of other vegetation.

Common wildlife species associated with this land cover will be similar to those listed for the orchard land covers above.

#### **Vineyards**

Vineyards account for 17,151 acres (three percent), of the Plan Area. Vineyards comprise single species planted in rows, usually supported on wood and wire trellises. Vineyards are usually treated with herbicides to prevent the growth of herbaceous plants. Vineyards are predominant in the north-central portion of Yolo County, near the Interstate 5 corridor, and along the Sacramento River, near the county's southern boundary.

Vineyards support a number of common wildlife species, including the American crow, California scrub-jay, American robin, European starling, mourning dove, and house finch. However, they are not primary habitat for special-status species.

### **Pasture**

Pastures under the Other Agriculture land cover type comprise 141 acres (less than one percent) of the Plan Area, are typically turf farms planted with non-native grasses. These farms are mainly composed of heavily maintained sod with frequent fertilization, watering, and mowing activities. This crop has little value for wildlife because of the heavy maintenance, lack of cover, and elimination of pests (and, in doing so, a prey base).

### **Semiagricultural and Incidental to Agricultural**

Semiagricultural areas include livestock feedlots, poultry farms, farmsteads, and miscellaneous semi-agricultural features such as small roads, ditches, and unplanted areas of cropped fields (e.g. field edges). Feedlots or “feedyards” are confined livestock feeding operations that are used for preparing livestock, mainly cattle, for slaughter. They may contain thousands of animals in an array of pens and support virtually no vegetation. Poultry farms raise chickens, turkeys, ducks, and geese for meat or egg production. Semiagricultural areas are found on 30,510 acres (five percent) of the Plan Area.

Common wildlife associated with this land cover include Brewer’s blackbird, European starling, rock dove (*Columba livia*), and mourning dove.

Tricolored blackbird, which is a covered wildlife species, may congregate in large numbers to feed on grain at feedlots and poultry operations. Additional special-status species which may use the farmsteads and field edges are Swainson’s hawk, white-tailed kite, loggerhead shrike, and western burrowing owl.

### **Barren**

Barren areas include the following land cover types: Barren, Rock Outcrop, Levee (tops and rip-rapped areas), and Gravel/Sand Bars. The Barren category includes areas that have been cleared of vegetation and are not closely associated with a human structure (in contrast to the urban land cover type which is dominated by structures and pavement, see below). Rock outcrops (which do not include Serpentine Barrens, discussed separately above under ‘Grassland’) are natural formations on non-serpentine substrates that support sparse vegetation and limited or no soil. Gravel/sand bars are sparsely vegetated areas associated with active erosion and depositional processes along stream courses. Within the Plan Area the Barren land cover type is found on 2,122 acres (less than one percent) of the Plan Area.

Barren habitats support common wildlife species including killdeer, California gull, mourning dove, horned lark, and house sparrow (*Passer domesticus*). This habitat type also provides primary habitat for the western burrowing owl and western snowy plover, which are special-status wildlife species.

### **Developed**

Developed habitats generally consist of disturbed areas that are dominated by pavement and built structures. The developed category also includes vegetated corridors along highways and patches of ornamental vegetation such as tree groves, street strips, shade trees, lawns, shrubs, and other ornamental vegetation typically supported by irrigation. In the Plan Area, the Developed category is found on 45,700 acres (seven percent).

Depending on their specific conditions, urban areas support a number of common wildlife species, including Nuttall’s woodpecker, barn swallow (*Hirundo rustica*), California scrub-jay, ruby-crowned kinglet (*Regulus calendula*), northern mockingbird (*Mimus polyglottos*), yellow-billed magpie, American robin, cedar waxwing (*Bombycilla cedrorum*), yellow-rumped warbler (*Dendroica coronata*), white-crowned sparrow, dark-eyed junco, house finch, raccoon (*Procyon lotor*), and numerous non-native species, including the European starling, house sparrow, Virginia opossum (*Didelphis virginiana*) eastern fox squirrel (*Sciurus niger*), house mouse, and roof rat (*Rattus rattus*). Urban areas support special-status wildlife species including roosting and nesting by the white-tailed kite and Swainson’s hawk. Purple martin has also been documented nesting recently only in urban overpasses and elevated freeways in Yolo County and adjacent lands.

### Eucalyptus Stands

Non-native eucalyptus (*Eucalyptus* spp.) stands in the Plan Area encompass a total of 369 acres (less than one percent) and can mostly be found in the town of Dunnigan. Eucalyptus stands are typically homogenous in composition and have often been planted as windbreaks. Eucalyptus species have invaded riparian areas in some locations and may be spreading further.

Eucalyptus stands provide nesting habitat for several common wildlife species, including barn owl, red-shouldered hawk (*Buteo lineatus*), American crow, and Anna's hummingbird and in some cases have been known to support heron and egret rookeries. Eucalyptus stands may also provide nesting habitat for Swainson's hawk.

## SPECIAL-STATUS SPECIES

Special-status species are defined in section 4.1.2 above. The text below summarizes the special-status plant and animal species identified for analysis in this EIS/EIR.

### Special-Status Plants

The review of the data sources listed above in Section 4.1.1 identified 33 special-status plant species that are known to occur or have the potential to occur in the Plan Area. The legal status, distribution, habitat requirements, blooming period, and likelihood for occurrence in the Plan Area for each of these species are provided in Table 1 of Appendix D. Twenty-eight of the special-status plant species had a high or moderate probability of occurrence in the Plan Area because they had either been reported in the Plan Area recently or neighboring counties near their border with Yolo County. Five species had a low probability of occurrence in the Plan Area either because of marginal habitat quality in the Plan Area, long distances between the Plan Area and known occurrences, or lack of recent occurrences (less than 20 years ago) in the vicinity of the Plan Area. The common and scientific names of each of the 28 special-status plant species with a moderate or high probability to occur in the Plan Area are listed below. One of these species, palmate-bracted bird's-beak, is designated as a covered species under the Plan and is shown in **bold** text below.

- ▲ Bent-flowered fiddleneck (*Amsinckia lunaris*)
- ▲ Jepson's milk-vetch (*Astragalus rattanii* var. *jepsonianus*)
- ▲ Ferris' milk-vetch (*Astragalus tener* var. *ferrisiae*)
- ▲ Alkali milk-vetch (*Astragalus tener* var. *tener*)
- ▲ Brittlescale (*Atriplex depressa*)
- ▲ San Joaquin spearscale (*Atriplex joaquiniana*)
- ▲ Vernal pool smallscale (*Atriplex persistens*)
- ▲ Round-leaved filaree (*California macrophylla*)
- ▲ Pink creamsacs (*Castilleja rubicundula* ssp. *rubicundula*)
- ▲ **Palmate-bracted bird's-beak (*Cordylanthus palmatum*)**
- ▲ Deep-scarred cryptantha (*Cryptantha excavata*)
- ▲ Dwarf downingia (*Downingia pusilla*)
- ▲ Snow Mountain buckwheat (*Eriogonum nervulosum*)
- ▲ Adobe-lily (*Fritillaria pluriflora*)
- ▲ Hall's harmonia (*Harmonia hallii*)
- ▲ Drymaria-like western flax (*Hesperolinon drymarioides*)
- ▲ Woolly rose-mallow (*Hibiscus lasiocarpus* var. *occidentalis*)
- ▲ Northern California black walnut (*Juglans hindsii*)
- ▲ Delta tule pea (*Lathyrus jepsonii* var. *jepsonii*)
- ▲ Colusa layia (*Layia septentrionalis*)
- ▲ Heckard's pepper-grass (*Lepidium latipes* var. *heckardii*)
- ▲ Mason's lilaeopsis (*Lilaeopsis masonii*)
- ▲ Jepson's leptosiphon (*Linanthus jepsonii*)
- ▲ Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)
- ▲ Colusa grass (*Neostapfia colusana*)



- ▲ Bearded popcorn flower (*Plagiobothrys hystriculus*)
- ▲ Green jewelflower (*Streptanthus hesperidis*)
- ▲ Suisun Marsh aster (*Symphotrichum lentum*)
- ▲ Saline clover (*Trifolium depauperatum* var. *hydrophilu*)
- ▲ Solano Grass (*Tuctoria mucronata*)

## Special-Status Fish and Wildlife

A total of 40 special-status wildlife species and 11 fish species are known to occur or have potential to occur within the Plan Area. Refer to Tables 2 and 3 of Appendix D for a summary of the legal status, distribution, habitat, and likelihood for occurrence in the Plan Area for each of these special-status species. Of these species, six have low potential to occur within the Plan Area based on marginal habitat quality in the Plan Area, no known occurrences in the Plan Area, and/or lack of recent occurrences (less than 20 years ago) adjacent to the Plan Area. The following 46 wildlife species listed below are known to occur or have at least moderate potential to occur within the Plan Area because of known occurrences within the Plan Area or suitable habitat occurs in the Plan Area. The eleven species “covered” under the Plan appear in **bold** print.

- ▲ Conservancy fairy shrimp (*Branchinecta conservation*)
- ▲ Vernal pool fairy shrimp (*Branchinecta lynchi*)
- ▲ Vernal pool tadpole shrimp (*Lepidurus packardii*)
- ▲ **Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)**
- ▲ **California tiger salamander – Central Distinct Population Segment (*Ambystoma californiense*)**
- ▲ Western spadefoot (*Scaphiopus hammondi*)
- ▲ Foothill yellow-legged frog (*Rana boylei*)
- ▲ **Western pond turtle (*Actinemys marmorata*)**
- ▲ **Giant garter snake (*Thamnophis couchi gigas*)**
- ▲ Northern harrier (*Circus cyaneus*)
- ▲ Golden eagle (*Aquila chrysaetos*)
- ▲ Bald eagle (*Haliaeetus leucocephalus*)
- ▲ **Swainson’s hawk (*Buteo swainsoni*)**
- ▲ **White-tailed kite (*Elanus leucurus*)**
- ▲ **Western burrowing owl (*Athene cunicularia hypugaea*)**
- ▲ Short-eared owl (*Asio flammeus*)
- ▲ American peregrine falcon (*Falco peregrines anatum*)
- ▲ Redhead (*Aythya americana*)
- ▲ California black rail (*Laterallus jamaicensis coturniculus*)
- ▲ Loggerhead shrike (*Lanius ludovicianus*)
- ▲ **Least Bell’s Vireo (*Vireo bellii pusillus*)**
- ▲ Western snowy plover (*Charadrius alexandrinus nivosus*)
- ▲ Mountain plover (*Charadrius montanus*)
- ▲ Black tern (*Chlidonias niger*)
- ▲ **Bank swallow (*Riparia riparia*)**
- ▲ Purple martin (*Progne subis*)
- ▲ **Tricolored blackbird (*Agelaius tricolor*)**
- ▲ Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)
- ▲ **Western-yellow billed cuckoo (*Coccyzus americanus*)**
- ▲ Grasshopper sparrow (*Ammodramus savannarum*)
- ▲ Yellow-breasted chat (*Icteria virens*)
- ▲ Least bittern (*Ixobrychus exilis*)
- ▲ Townsend’s big-eared bat (*Corynorhinus townsendii townsendii*)
- ▲ Pallid bat (*Antrozous pallidus*)
- ▲ Western red bat (*Lasiurus blossevillii*)
- ▲ American badger (*Taxidea taxus*)
- ▲ North American green sturgeon (*Acipenser medirostris*), Southern Distinct Population Segment (DPS)
- ▲ Delta smelt (*Hypomesus tranpacificus*)

- ▲ Longfin smelt (*Spirinchus thaleichthys*)
- ▲ Steelhead – Central Valley DPS (*Oncorhynchus mykiss*)
- ▲ Chinook salmon – Sacramento River winter-run Evolutionarily Significant Unit (ESU) (*Oncorhynchus tshawytscha*)
- ▲ Chinook salmon – Central Valley spring-run ESU (*Oncorhynchus tshawytscha*)
- ▲ Chinook salmon – Central Valley fall/late-run ESU (*Oncorhynchus tshawytscha*)
- ▲ Eulachon (*Thaleichthys pacificus*)
- ▲ Sacramento splittail (*Pogonichthys macroepidotus*)
- ▲ River lamprey (*Lampetra ayresii*)

## Sensitive Habitats

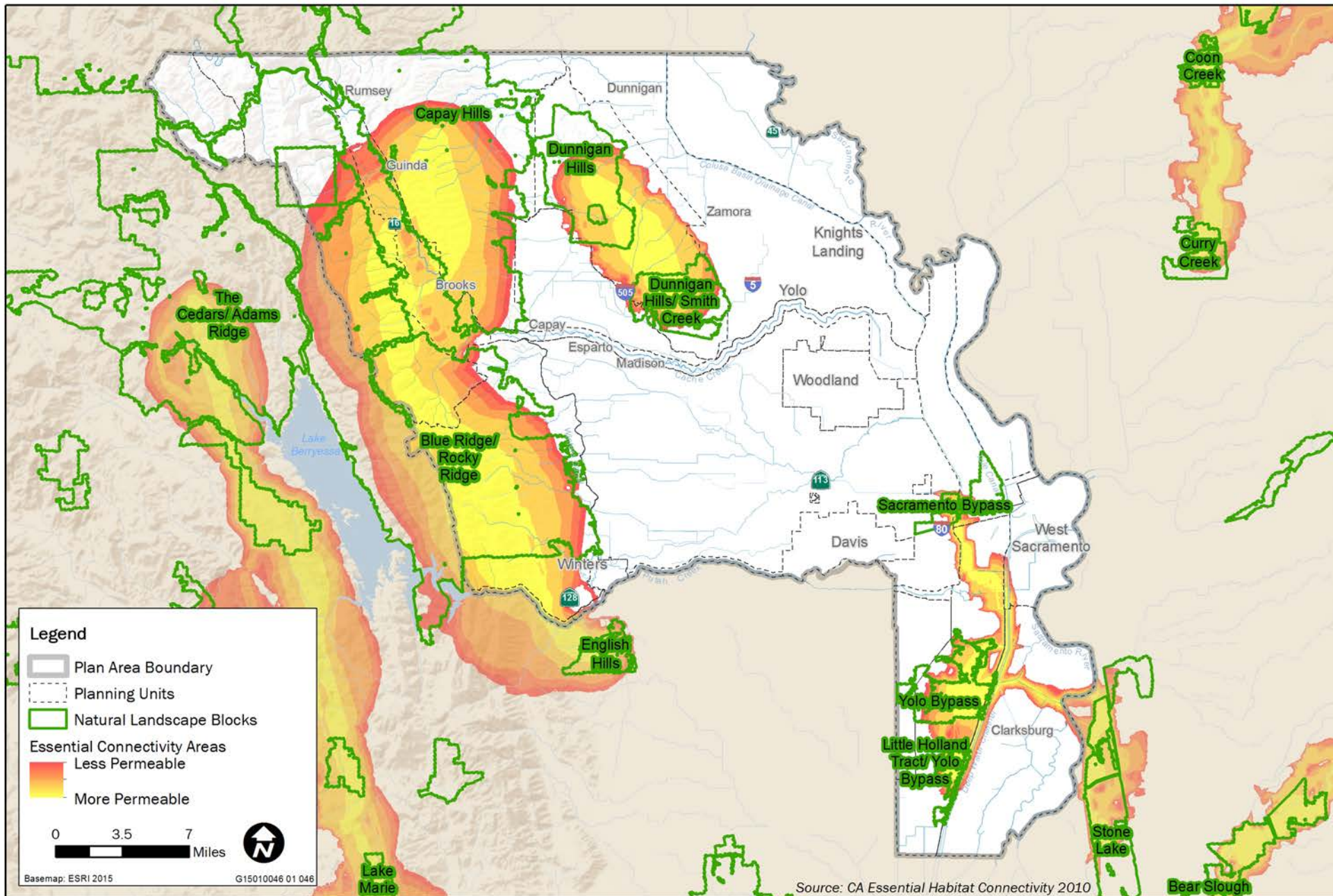
CDFW maintains a list of plant communities that are native to California (CDFG 2010). Within that list, CDFW identifies special-status plant communities (a.k.a. sensitive natural communities), which they define as communities that are of limited distribution statewide or within a county or region and often vulnerable to environmental effects of projects; these are afforded consideration as sensitive habitats under CEQA. Oak woodland, riparian, and wetland habitats are considered sensitive natural communities by CDFW (CDFG2010). Riparian and wetland habitats are also protected by the State under the CDFG Code Section 1600 to 1607 (see Section 4.2.2, *Regulatory Setting*, for further information on laws and regulations referenced here). Habitats located in waters of the United States under the jurisdiction of Section 404 of the federal Clean Water Act (CWA) are also considered sensitive. Additionally, the importance of protecting and preserving wetland and riparian habitats is recognized in the County's General Plan policies. The State of California, through the Oak Woodland Conservation Act, also considers oak woodland preservation important.

## Wetlands and Waters of the United States and State

Jurisdictionally protected wetland and waters of the United States and of the State of California (waters of the State) have not been delineated within the Plan Area. Potential wetlands and other waters of the United States and State that may occur within the Plan Area in the following land cover types: freshwater wetlands, valley foothill riparian, lacustrine and riverine (perennial streams, intermittent streams, and ephemeral streams), and vernal pool complex. Potentially jurisdictional hydrological features within the Plan Area are mostly features associated with the Willow Slough, Dry Slough, Elkhorn Slough, Sacramento River, Cache Creek, and Putah Creek. Wetlands and riparian areas associated with the settling basins of these rivers and creeks will likely be jurisdictional and protected by the federal and State regulations described below.

## Wildlife Movement Corridors

The California Essential Habitat Connectivity Project is a peer-reviewed statewide assessment of important habitat linkages (Spencer et al. 2010). The project's goal was to identify large remaining blocks of intact habitat or natural landscape at a coarse spatial scale, and model linkages between them that are important to maintain as corridors for wildlife. This coarse-scale, statewide map was based primarily on the concept of ecological integrity over a very large region, rather than the specific movement and other life history requirements of particular species, and identified essential connectivity areas (ECAs) that support this large-scale connectivity. ECAs in the Plan Area consist of the following (Exhibit 4-2), with the place names on each side of the dash indicating the beginning and end points of the connectivity area: English Hills - Blue Ridge/Rocky Ridge ECA, Blue Ridge/ Rocky Ridge - Capay Hills ECA, Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA, Stone Lake - Yolo Bypass ECA, Yolo Bypass - Sacramento Bypass ECA, and Little Holland Tract/ Yolo Bypass - Yolo Bypass ECA.



**Exhibit 4-2**

**CA Essential Habitat Connectivity (CEHC) Areas in the Plan Area**

## 4.2.2 Regulatory Setting

### FEDERAL LAWS AND REGULATIONS

#### Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 and subsequent amendments provide for the conservation of listed endangered or threatened species or candidates for listing and the ecosystems on which they depend. USFWS has jurisdiction over federally listed plants, wildlife, and resident fish and the National Marine Fisheries Service (NMFS) has jurisdiction over anadromous fish and marine fish and mammals.

#### FESA Prohibitions (Section 9)

FESA Section 9 prohibits the *take* of any fish or wildlife species listed under the FESA as endangered. Take of threatened species is also prohibited under Section 9 unless otherwise authorized by federal regulations. *Take*, as defined by the FESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” *Harm* is defined as “...an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering (50 CFR 17.3).” Harass is defined as “...an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3).” In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

#### FESA Interagency Cooperation (Section 7)

Under Section 7 of the FESA, the Secretary may exempt certain federal activities from the Section 9 take prohibitions described above through issuance of a biological opinion. Section 7 requires all federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of habitat critical to such species’ survival. To ensure that its actions do not result in jeopardy to listed species or in the adverse modification of critical habitat, each federal agency must consult with the USFWS and/or NMFS regarding federal agency actions that may affect listed species.

#### FESA Exceptions (Section 10)

Under Section 10 of the FESA, the Secretary may permit “take” (of fish or wildlife species) otherwise prohibited by section 9(a)(1)(B). Section 10 includes two types of permits: 10(a)(1)(A) typically referred to as “recovery” permits; and 10(a)(1)(B) incidental take permits. Take associated with HCPs is addressed through Section 10(a)(1)(B) for take which is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Section 10 requires the issuance of an incidental take permit before any nonfederal action may be taken that would potentially take any individual of an endangered or threatened species. The permit requires preparation and implementation of a habitat conservation plan (HCP), incidental to implementation of the project, which would offset the impact of the taking that may occur by providing for the overall preservation of the affected species through specific mitigation measures.

#### Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (Title 16, USC, Part 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union (now Russia) and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes hunting seasons and capture limits for game species and protects migratory birds, their occupied nests, and their eggs (16 USC 703; 50 CFR 21; 50 CFR 10).

Executive Order 13186 (January 10, 2001) directs each federal agency taking actions that have or may have a negative effect on migratory bird populations to work with USFWS to develop a memorandum of

understanding (MOU) that will promote the conservation of migratory bird populations. Protocols developed under the MOU must include the following agency responsibilities:

- ▲ avoid and minimize, to the extent practicable, adverse effects on migratory bird resources when conducting agency actions;
- ▲ restore and enhance migratory bird habitats, as practicable; and
- ▲ prevent or abate the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

The executive order is designed to assist federal agencies in their efforts to comply with the MBTA, and does not constitute any legal authorization to take migratory birds.

### **Bald Eagle and Golden Eagle Protection Act**

The Bald Eagle and Golden Eagle Protection Act prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions. Under the Act, it is a violation to “...take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or in any manner, any bald eagle commonly known as the American eagle, or golden eagle, alive or dead, or any part, nest, or egg, thereof...” Take is defined to include pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, and disturb. Disturb is further defined in 50 CFR Part 22.3 as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.” Bald Eagle and Golden Eagle are not covered species in this HCP/NCCP. The Plan complies with provisions of the Bald Eagle and Golden Eagle Protection Act for golden eagles.

### **Clean Water Act**

The CWA was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation’s surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers the U.S. Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations and includes programs addressing both *point-source* and *nonpoint-source* pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation’s waters are unlawful unless specifically authorized by a permit; permit review is the CWA’s primary regulatory tool. The following sections provide additional details on specific sections of the CWA.

#### **Permits for Fill Placement in Waters and Wetlands (Section 404)**

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States. Waters of the United States refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands, including any or all of the following:

- ▲ areas within the ordinary high water mark of a stream, including nonperennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and
- ▲ seasonal and perennial wetlands, including coastal wetlands

Various pieces of agency guidance and the outcome of court decisions further refine the definition of waters of the United States, and therefore the extent of U.S. Army Corps of Engineers (USACE) jurisdiction under the



CWA. Applicants must obtain a permit from the USACE for all discharges of dredged or fill material into jurisdiction waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. The USACE may issue either an individual permit evaluated on a case-by-case basis or a general permit evaluated at a program level for a series of related activities. General permits are preauthorized and are issued to cover multiple instances of similar activities expected to cause only minimal adverse environmental effects. The nationwide permits (NWP) are a type of general permit issued to cover particular fill activities. Each NWP specifies particular conditions that must be met for the NWP to apply to a particular project.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. The USACE cannot issue an individual permit or verify the use of a general permit until the requirements of NEPA, the FESA, and the National Historic Preservation Act (described in Chapter 12, *Cultural and Paleontological Resources*) have been met. In addition, the USACE cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401 (described below).

#### **Permits for Stormwater Discharge (Section 402)**

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Resources Control Board (SWRCB) is authorized by EPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs) (see the related discussion under “Porter-Cologne Water Quality Control Act” below). Yolo County is under the jurisdiction of the Central Valley RWQCB.

NPDES permits are required for projects that disturb more than 1 acre of land. The NPDES permitting process requires the applicant to file a public notice of intent to discharge stormwater and to prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities. In addition, it describes the best management practices (BMPs) that would be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

#### **Water Quality Certification (Section 401)**

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401.

### **Executive Order 11990: Protection of Wetlands**

Executive Order 11990 (signed May 24, 1977) requires federal agencies to prepare wetland assessments for proposed actions located in or affecting wetlands. Agencies must avoid undertaking new construction in wetlands unless no practicable alternative is available and the proposed action includes all practicable measures to minimize harm to wetlands.

### **Executive Order 13112: Prevention and Control of Invasive Species**

Executive Order 13112 (signed February 3, 1999) directs all federal agencies to prevent and control introductions of invasive species in a cost-effective and environmentally sound manner. The Executive Order requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential impacts, and measures to prevent or eradicate them.



## STATE LAWS AND REGULATIONS

### California Endangered Species Act

California implemented the California Endangered Species Act (CESA) in 1984 (CFGF 2050 et seq.). The act prohibits the take of listed endangered and threatened species or species designated as a candidate for listing. Section 2090 of CESA requires State agencies to comply with endangered species protection and recovery and to promote conservation of these species. CDFW administers the act and authorizes take through Section 2081 agreements (except for species designated as fully protected).

### California Fish and Game Code

#### Lake or Streambed Alteration Agreements

Section 1600 et seq. of the CFGF requires project proponents to notify CDFW before any project that would divert, obstruct, or change the natural flow, bed, channel, or bank (which may include associated riparian resources) of any river, stream, or lake, or use material from a streambed. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable changes to the project to protect the resources. These modifications are formalized in a Lake or Streambed Alteration Agreement (LSAA) that becomes part of the plans, specifications, and bid documents for the project.

#### Species Protection

The CFGF provides protection from take for a variety of species, defining take as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Certain species are considered fully protected, meaning that the Code explicitly prohibits all take of individuals of these species, except for take required for scientific research, which may be authorized by CDFW in some situations. Section 5050 of the CFGF lists fully protected amphibians and reptiles, Section 5515 lists fully protected fishes, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals.

The CFGF provides less stringent protection for other species, prohibiting most take, but permitting CDFW to issue regulations authorizing take under some circumstances. Eggs and nests of all birds are protected under Section 3503, nesting birds (including raptors and passerines) under Sections 3513 and 3503.5, birds of prey under Section 3503.5, migratory nongame birds under Section 3800, and other specified birds under Section 3505.

### Natural Community Conservation Planning Act

The Natural Community Conservation Planning Act (Sections 2800-2835 of the CFGF) allows for the identification and provision of measures necessary to conserve and manage natural biological diversity while allowing compatible use of the land. A number of Natural Community Conservation Plans (NCCPs), which function as a habitat conservation plan (HCP) and more, have been established in various areas of the State.

### California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) of 1977 prohibits importation of rare and endangered plants into California; take of rare and endangered plants; and sale of rare and endangered plants. The *threatened* category replaced *rare* when CESA was enacted in 1984. CESA prohibits take of listed plants except as otherwise authorized by the CNPPA, which ensures that State-listed plant species are protected when State agencies are involved in projects subject to CEQA.

Removal of plants for performance of a public service by a public agency or a publicly or privately owned public utility is exempt from CNPPA. Accordingly, some Proposed Action activities may be considered exempt from the CNPPA. However, evaluation of potential impacts on State-listed plant species is required pursuant to CEQA Guidelines Section 15380(c)(1).

## **Porter-Cologne Water Quality Control Act**

California Water Code Section 13260 requires “any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements).” Under the Porter-Cologne Act definition, waters of the State are “any surface water or groundwater, including saline waters, within the boundaries of the state.” Although all waters of the United States that are within the borders of California are also waters of the State, the reverse is not true. Therefore, California retains authority to regulate discharges of waste into any waters of the State, regardless of whether the USACE has concurrent jurisdiction under CWA Section 404. If the USACE determines that a wetland is not subject to regulation under Section 404, CWA Section 401 water quality certification is not required. However, the RWQCB may impose waste discharge requirements (WDRs) if fill material is placed into waters of the State. Yolo County falls within the jurisdiction of the Central Valley RWQCB.

## **California State Wetland Conservation Policy (Executive Order W-59-93)**

Executive Order W-59-93 requires that all State government programs and policies conduct their activities consistent with the following three objectives: 1) long-term net gain and no overall net loss in quantity, quality, and permanence of wetland acreage and value in California; reduce procedural complexity in administration of State and Federal wetlands conservation programs; and encourage partnerships to make restoration, landowner incentive programs, and cooperative planning efforts the primary focus of wetlands conservation. The policy designates a task force and State agencies to create and maintain a wetlands inventory and wetlands accounting system in an effort to maintain these objectives. It also requires identification and implementation of restoration goals, and consistent standards and guidelines for mitigation, monitoring, and restoration efforts, including mitigation banking.

## **California Public Resources Code Section 21083.4 (Oak Woodlands)**

Section 21083.4 of the California Public Resources Code requires counties to determine if a project within their jurisdiction may result in conversion of oak woodlands that would have a significant adverse effect on the environment. If the lead agency determines that a project would result in a significant adverse effect on oak woodlands, mitigation measures to reduce the significant adverse effect of converting oak woodlands to other land uses are required.

## **Delta Protection Act (1992)**

The Delta Protection Act of 1992 (California Water Code Section 12220) established the Delta Protection Commission (DPC). The Delta Reform Act of 2009 (SBX7-1) amended the 1992 act in November 2009. The Commission has land use planning jurisdiction over the Delta Primary Zone, which generally consists of lands in the central portion of the Delta that were not within either the urban limit line or sphere of influence of any local government’s general plan. The Primary Zone, which comprises 487,625 acres, or approximately 66%, of the Delta, encompasses portions of San Joaquin, Contra Costa, Solano, Yolo, and Sacramento Counties. The Secondary Zone is the area outside the Primary Zone and within the “Legal Delta.” The Primary Zone is within the planning area of the DPC but the Secondary Zone is not. Lands in Yolo County that are overlaid by the Primary and Secondary Delta Zones are shown in Exhibit 5-3, and are comprised of areas in the southeastern corner of the county, which includes lands that are part of the Yolo Bypass (Yolo County 2009a).

The Delta Protection Commission is charged with preparing a regional plan for the Primary Zone to address land uses and resources management, with particular emphasis on agriculture, which was designated by the Delta Protection Act as the primary use of this zone. This plan, the Land Use & Resource Management Plan (LURMP) provides guidance to local governments. Specifically, Land Use Policy P-2 and Agriculture Policies P-1 through P-10 address the role of local governments in preserving and protecting long-term agricultural viability and open space values in the Primary Zone through implementation of general plan policies and zoning codes.

## State Wildlife Action Plan

The California State Wildlife Action Plan 2015 Update (SWAP 2015) (CDFW 2015c) provides a vision and a framework for conserving California's diverse natural heritage. SWAP 2015 also recognizes the need and calls for developing a collaborative framework to manage ecosystems sustainably across the State in balance with human uses of the natural resources. The SWAP document was meant to be tiered to companion plans that supplement the overarching SWAP Plan. To address the need for a collaborative framework, CDFW, partner agencies, and organizations began preparation of sector-specific companion plans before the submission of the SWAP 2015 final document. Currently these plans are in draft form and have yet to be finalized. These companion plans are being developed with and without jurisdictional authority for implementing strategies and conservation activities described in SWAP 2015 and the associated companion plans. Participants in plan development include, but are not limited to, CDFW leadership team and staff, California Fish and Game Commission, cooperating State, Federal, and local government agencies and organizations, California Tribes and tribal governments, and partners (such as non-governmental organizations, academic, research institutions, and citizen scientists). Since these plans are not finalized, SWAP will not be discussed further in this analysis.

## LOCAL LAWS AND REGULATIONS

### Yolo County 2030 Countywide General Plan

The Conservation and Open Space Element of the 2030 Yolo County General Plan was established to provide guidance regarding the preservation of open space and the conservation, continued enjoyment, and enhancement of the natural resources of Yolo County. Policies described in the Conservation and Open Space Element that directly pertain to biological resources in the Plan Area and may be applicable to the analysis of the HCP/NCCP include:

- ▲ **Policy CO-1.14** Support the preservation of open space consistent with this general plan, via acquisition of fee title or easement interest by land trusts, government agencies, and conservancies from willing landowners.
- ▲ **Policy CO-1.15** Support efforts to acquire either fee title or easements on additional open space areas adjoining existing protected natural resource areas to increase the size, connectivity, and buffering of existing habitat.
- ▲ **Policy CO-1.16** Coordinate open space acquisition with habitat acquisition that occurs pursuant to the Yolo Natural Heritage Program.
- ▲ **Policy CO-1.25** Allow for specified areas of resource parks to be preserved, enhanced and/or restored as mitigation sites for public agencies only, consistent with the requirements of appropriate regulatory and funding agencies, provided that adequate compensation, including funding for operations and maintenance of the mitigation, is provided.
- ▲ **Policy CO-2.1** Consider and maintain the ecological function of landscapes, connecting features, watersheds, and wildlife movement corridors.
- ▲ **Policy CO-2.2** Focus conservation efforts on high priority conservation areas (core reserves) that consider and promote the protection and enhancement of species diversity and habitat values, and that contribute to sustainable landscapes connected to each other and to regional resources.
- ▲ **Policy CO-2.3** Preserve and enhance those biological communities that contribute to the county's rich biodiversity including blue oak and mixed oak woodlands, native grassland prairies, wetlands, riparian areas, aquatic habitat, agricultural lands, heritage valley oak trees, remnant valley oak groves, and roadside tree rows.

- ▲ **Policy CO-2.4** Coordinate with other regional efforts (e.g., Yolo County HCP/NCCP) to sustain or recover special-status species populations by preserving and enhancing habitats for special-status species.
- ▲ **Policy CO-2.9** Protect riparian areas to maintain and balance wildlife values.
- ▲ **Policy CO-2.10** Encourage the restoration of native habitat.
- ▲ **Policy CO-2.11** Ensure that open space buffers are provided between sensitive habitat and planned development.
- ▲ **Policy CO-2.13** Promote the use of oak woodlands conservation banks to mitigate for losses due to development impacts and to provide carbon sequestration for greenhouse gas emissions under applicable State programs.
- ▲ **Policy CO-2.14** Ensure no net loss of oak woodlands, alkali sinks, rare soils, vernal pools or geological substrates that support rare endemic species, with the following exception. The limited loss of blue oak woodland and grassland may be acceptable, where the fragmentation of large forests exceeding 10 acres is avoided, and where losses are mitigated.
- ▲ **Policy CO-2.15** Encourage the use of mosquito abatement methods that are compatible with protecting fish and wildlife, including native insect pollinators.
- ▲ **Policy CO-2.16** Existing native vegetation shall be conserved where possible and integrated into new development if appropriate.
- ▲ **Policy CO-2.17** Emphasize and encourage the use of wildlife-friendly farming practices within the County's Agricultural Districts and with private landowners.
- ▲ **Policy CO-2.18** Coordinate with the Yolo County Resource Conservation District, Natural Resource Conservation Service, UC Cooperative Extension, and other farm organizations to encourage farming practices and the management of private agricultural land that is supportive of wildlife habitat values.
- ▲ **Policy CO-2.19** Support the use of sustainable farming methods that minimize the use of products such as pesticides, fuels and petroleum-based fertilizers.
- ▲ **Policy CO-2.20** Encourage the use of wildlife-friendly Best Management Practices to minimize unintentional killing of wildlife, such as restricting mowing during nesting season for ground-nesting birds or draining of flooded fields before fledging of wetland species.
- ▲ **Policy CO-2.21** Promote wildlife-friendly farming through mechanisms such as farmland trusts, conservation easements and safe harbor-type agreements.
- ▲ **Policy CO-2.22** Prohibit development within a minimum of 100 feet from the top of banks for all lakes, perennial ponds, rivers, creeks, sloughs, and perennial streams. A larger setback is preferred. The setback will allow for fire and flood protection, a natural riparian corridor (or wetland vegetation), a planned recreational trail where applicable, and vegetated landscape for stormwater to pass through before it enters the water body. Recreational trails and other features established in the setback should be unpaved and located along the outside of the riparian corridors whenever possible to minimize intrusions and maintain the integrity of the riparian habitat. Exceptions to this action include irrigation pumps, roads and bridges, levees, docks, public boat ramps, and similar uses, so long as these uses are sited and operated in a manner that minimizes impacts to aquatic and riparian features.
- ▲ **Policy CO-2.23** Support efforts to coordinate the removal of non-native, invasive vegetation within watersheds and replacement with native plants.

- ▲ **Policy CO-2.24** Promote floodplain management techniques that increase the area of naturally inundated floodplains and the frequency of inundated floodplain habitat, restore some natural flooding processes, river meanders, and widen riparian vegetation, where feasible.
- ▲ **Policy CO-2.26** Coordinate with local watershed stewardship groups to identify opportunities for restoring or enhancing watershed, instream, and riparian biodiversity.
- ▲ **Policy CO-2.27** Evaluate the need for additional water to support future riparian enhancement efforts, including the benefits of conjunctive management of groundwater and surface water resources.
- ▲ **Policy CO-2.28** Balance the needs of aquatic and riparian ecosystem enhancement efforts with flood management objectives.
- ▲ **Policy CO-2.29** Promote native perennial grass habitat restoration and controlled fire management in grazing lands to reduce invasive species cover and enhance rangeland forage.
- ▲ **Policy CO-2.30** Protect and enhance streams, channels, seasonal and permanent marshland, wetlands, sloughs, riparian habitat and vernal pools in land planning and community design.
- ▲ **Policy CO-2.31** Protect wetland ecosystems by minimizing erosion and pollution from grading, especially during grading and construction projects.
- ▲ **Policy CO-2.33** Create partnerships with landowners, non-government organizations, and other public agencies to implement the Yolo County Oak Woodland Conservation and Enhancement Plan.
- ▲ **Policy CO-2.34** Recognize, protect and enhance the habitat value and role of wildlife migration corridors for the Sacramento River, Putah Creek, Willow Slough, the Blue Ridge, the Capay Hills, the Dunnigan Hills and Cache Creek.
- ▲ **Policy CO-2.35** Consider potential effects of climate change on the locations and connections between wildlife migration routes.
- ▲ **Policy CO-2.36** Habitat preserved as a part of any mitigation requirements shall be preserved in perpetuity through deed restrictions, conservation easement restrictions, or other method to ensure that the habitat remains protected. All habitat mitigation must have a secure, ongoing funding source for operation and maintenance.
- ▲ **Policy CO-2.37** Where applicable in riparian areas, ensure that required state and federal permits/approvals are secured prior to development of approved projects.
- ▲ **Policy CO-2.38** Avoid adverse impacts to wildlife movement corridors and nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds). Preserve the functional value of movement corridors to ensure that essential habitat areas do not become isolated from one another due to the placement of either temporary or permanent barriers within the corridors. Encourage avoidance of nursery sites (e.g., nest sites, dens, spawning areas, breeding ponds) during periods when the sites are actively used and that nursery sites which are used repeatedly over time are preserved to the greatest feasible extent or fully mitigated if they cannot be avoided.
- ▲ **Policy CO-2.39** Require new or retrofitted bridges, and new or expanded roads to incorporate design and construction measures to maintain the functional value of wildlife movement corridors.
- ▲ **Policy CO-2.40** Preserve grassland habitat within 2,100 feet of documented California tiger salamander breeding ponds or implement required mitigation (equivalent or more stringent) as imposed by appropriate agencies or through the County HCP/NCCP, to fully mitigate impacts consistent with local, State, and federal requirements. Implementation and funding of mitigation measures for projects that

will be developed in phases over time may also be phased, with the applicable mitigation being implemented and funded prior to the final approval of each phase or sub-phase.

- ▲ **Policy CO-2.41** Require that impacts to species listed under the State or federal Endangered Species Acts, or species identified as special-status by the resource agencies, be avoided to the greatest feasible extent. If avoidance is not possible, fully mitigate impacts consistent with applicable local, State, and Federal requirements.
- ▲ **Policy CO-2.42** Projects that would impact Swainson's hawk foraging habitat shall participate in the Agreement Regarding Mitigation for Impacts to Swainson's Hawk Foraging Habitat in Yolo County entered into by the CDFG and the Yolo County HCP/NCCP Joint Powers Agency, or satisfy other subsequent adopted mitigation requirements consistent with applicable local, State, and federal requirements.
- ▲ **Policy CO-2.43** Projects that have the potential to impact California tiger salamander (California tiger salamander) breeding or terrestrial habitat in the Dunnigan Hills area, shall conduct a project-level biological assessment to determine the potential to impact California tiger salamander upland or breeding habitat (if such assessment has not already been done as part of an approved HCP/NCCP). Such an assessment will be required for all projects located within 1.3 miles of a known or potential breeding site. Development activities that would result in isolation of the breeding or upland habitat will be required to mitigate for such impacts. Mitigation shall consist of two components: 1) habitat preservation and enhancement of suitable upland habitat, and 2) preservation and construction of new breeding habitat. California tiger salamander upland habitat must be mitigated at a ratio of 3:1 (preserved: impacted), located within 2,100 feet of an occupied habitat, and include at least one suitable breeding pond. Equivalent or more stringent mitigation may be implemented as determined by trustee and responsible agencies. Mitigation must be coordinated with the HCP/NCCP program if adopted. (DEIR MM BIO-5c)

## Yolo County Oak Woodland Conservation and Enhancement Plan

The *Yolo County Oak Woodland Conservation and Enhancement Plan* (Yolo County 2007) promotes voluntary efforts to conserve and enhance the county's existing oak woodlands to help minimize the effects of land conversion and other factors that disturb the health and longevity of existing oak woodlands.

## Swainson's Hawk Interim Mitigation Fee Program

This program, established in 1993, utilizes mitigation fees to acquire conservation easements to protect Swainson's hawk habitat. In 2005, Yolo County established a program of "mitigation receiving sites" to provide developers with a fast, market-based system of mitigation for impacts on Swainson's hawk habitat. Changes to the program in 2006 require project applicants with projects over 40 acres in size to mitigate directly by providing land for conservation. Currently, the original agreement establishing this program has expired but is still being implemented voluntarily by all parties. The Yolo Habitat Conservancy (formerly the Yolo County HCP/NCCP Joint Powers Agency) administers this program. Once approved, the Yolo HCP/NCCP will replace the county's Swainson's Hawk Mitigation Fee Program and eliminate the need for mitigation receiving sites.

## City of Davis General Plan

The City of Davis General Plan contains the following policies that pertain to biological resources in the Plan Area and may be applicable to the analysis of the HCP/NCCP:

- ▲ **Policy HAB 1.1:** Protect existing natural habitat areas, including designated Natural Habitat Areas.
- ▲ **Policy HAB 1.2:** Enhance and restore natural areas and create new wildlife habitat areas.
- ▲ **Policy HAB 1.3:** Commit adequate City resources and staff time so as to protect habitat and other natural resources.



- ▲ **Policy HAB 1.4:** Preserve and protect scenic resources.
- ▲ **Policy HAB 2.1:** Develop environmental educational programs and public access areas and programs to allow viewing of wildlife and habitat through controlled interactions of people with natural areas.
- ▲ **Policy POS 1.2:** Provide informal areas for people of all ages to interact with natural landscapes, and preserve open space between urban and agricultural uses to provide a physical and visual edge to the City.
- ▲ **Policy POS 1.8:** Support regional and state-wide efforts that encourage open space preservation.

### City of Davis Tree Ordinance (Chapter 37)

The City of Davis acknowledges the importance of trees to the community's health, safety, welfare, and tranquility. On December 4, 2002, the City Council adopted the Tree Ordinance, Chapter 37 of the Municipal Code, to ensure that the community forest would be prudently protected and managed so as to ensure these multiple civic benefits. The Tree Ordinance protects the following trees:

- ▲ **Landmark Trees:** Any tree which has been determined by resolution of the City Council to be of high value because of its species, size, age, form, historical significance, or some other professional criterion. The Landmark Tree List is available from the Public Works Department website (<http://trees.cityofdavis.org/landmark-tree-list>), lists and identifies these trees.
- ▲ **Trees of Significance:** Any tree which measures 5 inches or more in diameter at breast height (4-6 feet above ground height).
- ▲ **Street Trees:** Any tree planted and/or maintained by the City, or recorded as a street tree, adjacent to a street or within a city easement or right-of-way, on private property, within the street tree easement.
- ▲ **City Trees:** Any tree, other than a street tree, planted or maintained by the City within a City easement, right-of-way, park, greenbelt, public place or property owned or leased by the City.
- ▲ **Private Tree:** Any tree privately owned and growing on private property, which may include a tree designated as a landmark tree and/or tree of significance, as defined within the definitions section of the Tree Ordinance, Chapter 37.

### City of West Sacramento General Plan

The City of West Sacramento General Plan contains the following goals and policies that relate to biological resources and that may be applicable to the analysis of the HCP/NCCP:

**Goal LU-8:** To protect sensitive native vegetation and wildlife communities and habitat in West Sacramento.

- ▲ **Policy LU-8 Open Space Uses.** The City shall strive to acquire and preserve open space lands for recreation, habitat protection and enhancement, flood hazard management, public safety, water and agricultural resources protection, and overall community benefit. A perpetual funding mechanism for operations and maintenance shall be established at the time of acquisition.
- ▲ **Policy LU-8.3 Connected Open Space System.** The City shall ensure that new development does not create barriers to the connections among the various parts of the city's parks and open space systems.
- ▲ **Policy LU-8.4 Open Space Buffers.** The City shall use traditional, developed parks and innovative uses of open space to "soften" the edges between urban areas and the natural environment.

**Goal NCR-2:** To protect sensitive native vegetation and wildlife communities and habitat in West Sacramento.

- ▲ **Policy NCR-2.2 Yolo Habitat Conservancy Program.** The City shall continue to work cooperatively with other jurisdictions in the county, and with the State and Federal governments to conserve habitat through the preparation and implementation of the Yolo Habitat Conservancy Program. The goal of this effort shall be to preserve and enhance habitat values in appropriate large areas while allowing the orderly development within the incorporated areas of the county.
- ▲ **Policy NCR-2.3 Habitat Connectivity.** The City shall preserve, enhance, and create interconnected open space and natural areas to provide for wildlife movement and protect biodiversity.
- ▲ **Policy NCR-2.4 Habitat Surveys.** The City shall require site-specific surveys for discretionary development proposals that could potentially impact biological resources to determine if any significant wildlife habitat and vegetation resources will be adversely affected and, if so, to identify appropriate measures to avoid or mitigate such impacts.
- ▲ **Policy NCR-2.5 Habitat Buffer.** The City shall require the provision and maintenance of an adequate setbacks between significant habitat and adjacent development. The buffer shall be landscaped with native vegetation and may be used for passive recreation purposes.
- ▲ **Policy NCR-2.7 Rare, Threatened, & Endangered Species Protection.** The City shall preserve rare, threatened, and endangered species by ensuring that development does not adversely affect such species or by fully mitigating adverse effects. For developments where adverse impacts cannot be mitigated, the City shall not approve the project.
- ▲ **Policy NCR-2.8 Habitat Preservation.** The City shall support State and Federal policies for preservation and enhancement of riparian and wetland habitats by incorporating, as deemed appropriate, the findings and recommendations of the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service into site-specific development proposals.
- ▲ **Policy NCR-2.9 No Net Loss.** The City shall require new development to ensure no net loss of State and Federally regulated wetlands, other waters of the United States (including creeks, rivers, ponds, marshes, vernal pools, and other seasonal wetlands), and associated functions and values by regulating development in and near these habitats and promoting projects that avoid sensitive areas. Where habitat loss is unavoidable, the City shall require replacement consistent with State and Federal regulations protecting wetland resources.
- ▲ **Policy NCR-2.10 Wetland and Riparian Habitat Protection.** The City shall seek to minimize the loss or degradation of wetland and riparian habitats at the following sites: Lake Washington and associated wetlands, Bee's Lake and associated riparian woodlands, riparian woodlands along the Sacramento River north of the I Street Bridge and south of the barge canal, and riparian woodlands along the Deep Water Ship Channel and the Yolo Bypass.
- ▲ **Policy NCR-2.11 Riparian Vegetation Maintenance.** The City shall encourage the maintenance of marsh and riparian vegetation along irrigation/ drainage canals and along the Deep Water Ship Channel through routine maintenance and clearing and by disturbing only one bank per year.
- ▲ **Policy NCR-2.12 Floodway Design,** The City shall encourage floodway design and flood control facilities to foster riparian habitat enhancement, improved water quality, and groundwater recharge.
- ▲ **Policy NCR-2.13 Fisheries,** The City shall implement measures to ensure that development in the city does not adversely affect fishery resources in the Sacramento River, Deep Water Ship Channel, and Lake Washington.
- ▲ **Policy NCR-2.14 Public Areas.** The City shall ensure that public access and recreation facilities do not eliminate or degrade riparian habitat values. Trails, picnic areas, and other improvements shall be sited to minimize impacts on sensitive wildlife habitat or riparian vegetation.

- **Policy NCR-2.15 Landscaping with Native Plants,** The City shall promote the use of native plants, especially valley oaks, for landscaping roadsides, medians, parks, and private properties. In particular, native plants should be used along the Sacramento River, in areas adjacent to riparian and wetland habitats, and in other open space and natural areas.

### **West Sacramento Tree Ordinance (Chapter 8.24)**

City Ordinance 04-01 Section 3 governs the removal and preservation of certain trees on private and public property within the city in addition to the planning and maintenance of street trees within new and already established developments. A permit is required for the removal or possible damage to street trees, landmark trees, or heritage trees, and any work within the dripline of these trees; permit exceptions for utility work are included in the ordinance. A heritage tree is any living tree with a trunk circumference of 75 inches or more or a native oak with a trunk circumference of 50 inches or more, both measured 4 feet 6 inches from ground level. The circumference of multi-trunk trees shall be based upon the sum of the circumference of each trunk. A landmark tree is any tree or stand of trees that is especially prominent, stately or which is of historical significance as designated by the city council. A street tree is any tree growing or placed within the tree maintenance strip or public right-of-way.

Any heritage or landmark tree removed for non-hazardous purposes must be replaced on the property of removal or within the city limits. Replacement trees will be planted at the rate of 1-inch diameter of replacement plant for every 1-inch diameter of tree removed. A diameter shall be measured at 4 feet 6 inches from ground level. Replacement trees may be a combination of 15-gallon size trees, which are the equivalent of a 1-inch diameter tree or 24-inch box trees which are the equivalent of a 3-inch diameter tree. The permit owner will replace the tree and continue to replace the replacement tree if the tree dies any time within 3 years of the initial planting. Trees removed as a result of a development project shall be replaced in accordance with the replacement schedule set forth for landmark, heritage and street trees. The permittee must replace street trees in accordance with the city of West Sacramento Landscape Development Guidelines. Any application for a development project will require a tree plan including a map of tree species within the development site and a program of preservation and replacement for landmark, heritage, and street trees.

### **City of Winters General Plan**

The City of Winters General Plan contains the following policies that relate to biological resources and may be applicable to the analysis of the HCP/NCCP:

- **Policy VI.C.A:** Prior to approving public and private development projects in areas containing or adjacent to areas containing large trees, riparian vegetation, wetlands, or other significant wildlife habitat, the City shall require the project area and its environs to be field surveyed for the presence of special-status plant and animal taxa. If special-status taxa are encountered during field surveys, appropriate measures shall be developed to minimize disturbance and protect identified populations where feasible.
- **Policy VI.C.2:** The City shall ensure that there is a no net loss of riparian or wetland habitat acreage and value and shall promote projects that avoid sensitive areas. Where habitat loss is unavoidable, the City shall require replacement on a least a 1:1 basis.
- **Policy VI.C.3:** Unless there are overriding considerations as defined in the California Environmental Quality Act, the City shall not approve any project that would cause significant unmitigatable impacts on rare, threatened, or endangered wildlife or plant species.
- **Policy VI.C.4:** The City shall support and participate in local and regional attempts to restore and maintain viable habitat for endangered or threatened plant and animal species. The City shall work with surrounding jurisdictions and state and federal agencies to develop a regional Habitat Management Plan.
- **Policy VI.C. 6:** The City shall undertake a feasibility study for the establishment of an Open Space Preserve between the Urban Limit Line and Grant Avenue west of I-505. The preserve will be designed

for a combination of uses including agriculture, habitat protection, groundwater recharge, and educational and recreational activities. It would also function as a flood control system.

- ▲ **Policy VI.D. 1:** The City shall require that all new development along Putah Creek and Dry Creek be set back at least 50 or 100 feet from the top of the creek bank.
- ▲ **Policy VI.D. 2:** Putah Creek and Dry Creek in the downtown area should be preserved as much as possible in their natural state. Public access and recreational facilities shall not eliminate or degrade riparian habitat values.

### **Winters Tree Ordinance (Chapter 12.08)**

Ordinance no. 12.08 requires a tree permit for the planting, movement, removal and replacement of trees in control and public areas. Applications shall state the number and kind of trees proposed to be moved, removed or replaced, and such other information as the city manager shall find reasonably necessary to a fair determination of whether or not authority should be issued under this article. The city manager may require the planting of a new tree as a condition for granting authority to remove a tree. (Ord. 83-03 Section 1: Prior code Section 10-2.501). Before any street improvements in any new subdivision in the city are accepted by the city, the applicant for a building permit shall pay to the city the total costs of all trees and the planting thereof. Any person building on a vacant lot in the developed area shall be required to pay the city the total costs of all street trees and the planting thereof.

### **City of Woodland General Plan**

The City of Woodland General Plan contains the following policies that relate to biological resources and that may be applicable to the analysis of the HCP/NCCP:

- ▲ **Policy 7.A.3:** Watershed Protection. Support local and regional efforts to protect the Sacramento River, Cache Creek, Putah Creek, and Willow Slough watersheds.
- ▲ **Policy 7.B.1:** Habitat Conservation Plan/Natural Community Conservation Plan. Continue to participate in the planning process for the countywide Habitat Conservation Plan/Natural Community Conservation Plan. Once adopted, fully implement the Plan to mitigate the impacts of growth projected under the General Plan on plant and wildlife habitats in the Woodland area. Evaluate the opportunity for adoption and implementation of a Local Conservation Plan to provide additional clearance under the California Environmental Quality Act (CEQA) for general biological resource impacts.
- ▲ **Policy 7.B.2:** Sensitive Habitat Types. Support and cooperate with efforts of other local, State, and Federal agencies and private entities engaged in the preservation and protection of sensitive habitat types from incompatible land uses and development. Sensitive habitat types include alkali sink, freshwater wetlands, freshwater marsh, riparian forest, drainages, riverine habitat, and lakes.
- ▲ **Policy 7.B.3:** Special-Status Species. Support preservation of the habitats of Federally- or State-listed rare, threatened, endangered, and/or other special status species. Encourage Federal and State agencies, as well as other resource conservation organizations, to acquire and manage endangered species' habitats.
- ▲ **Policy 7.B.4:** Fish and Wildlife. Support the management efforts of the California Department of Fish and Wildlife to maintain and enhance the productivity of important wildlife species by protecting identified critical habitat for these species from incompatible suburban, rural residential, or recreational development.
- ▲ **Policy 7.B.5:** Open Space for Conservation. Where appropriate, permanently protect as open space areas of natural resource value, including sensitive habitat types (e.g. alkali sink and prairie, freshwater wetlands, freshwater marsh, riparian forest, drainages). Maintain connectivity between open space areas designated for habitat conservation values within the Planning Area as well as linkages to adjacent

habitats outside the Planning Area, such as Willow Slough, Cache Creek, and habitat preserves to the east.

- ▲ **Policy 7.B.6:** Open Space Buffer. Continue to work with Yolo County and the City of Davis to maintain the permanent open space buffer between County Roads 27 and 29 and its existing wildlife habitat values.
- ▲ **Policy 7.B.7:** Woodland Regional Park. Protect and maintain Woodland Regional Park as an important wildlife preserve and habitat for special-status plants and allow for public access that is compatible with and promotes public education of the site's habitat value.
- ▲ **Policy 7.B.8:** Native and Compatible Non-Native Plant Species. Require developers to use native and compatible non-native species, especially drought-resistant species, to the extent possible in order to preserve the visual integrity of the landscape, provide benefits for native wildlife, and ensure that a variety of plants suited to the region are maintained.
- ▲ **Policy 7.B.11:** Sensitive Site Planning. Site new development to maximize the protection of native tree species and special-status plant and wildlife habitats.

### Woodland Tree Ordinance (Chapter 20A)

Ordinance no. 2003-22 governs the planting, removal and preservation of street trees, heritage trees, specimen trees, and landmark trees on public property and specified private property within the City of Woodland. A street tree is any tree growing within the tree maintenance strip, whether or not planted by the city. Heritage tree is any valley oak tree with a trunk diameter of 33 inches or more at breast height (54 inches) which is of good quality in term of health, vigor, growth and conformity to generally accepted horticultural standards of shape for its species. A landmark tree is a tree or stand of trees which is of historical or public significance as designated by the city council upon the recommendation of both the tree commission and the historical preservation commission. A specimen tree is any tree of interest because of size or unusual species, other than a heritage tree, which is of good quality in terms of health, vigor or growth and conformity to generally accepted horticultural standards of shape for its species, as designated by the city council upon the recommendation of the tree commission. A tree permit is required to plant, damage or remove any tree within a street maintenance strip. A tree plan is required for a development application that includes a map of trees (street, heritage, specimen, landmark and aesthetic value trees) within the project site and a program of preservation and replacement for removed trees. Trees would be replaced in accordance with Section 20A-1-100.

### Cache Creek Coordinated Resource Management Plan

The *Cache Creek Coordinated Resource Management Plan* was adopted by Yolo County in 2002 and the U.S. Department of the Interior, Bureau of Land Management (BLM) in 2004. It provides the framework for the future management direction of BLM lands included within the Cache Creek Natural Area. Other collaborating agencies include CDFW, which manages the Cache Creek Wildlife Area, and Yolo County General Services Department, which manages Cache Creek Canyon Regional Park.

Biological resource goals include providing for a diverse riparian ecosystem within the Cache Creek channel that is self-sustaining and capable of supporting wildlife, creating a continuous corridor of riparian and wetland vegetation to link the foothill habitats of the upper watershed with those of the settling basin, and managing riparian habitats to contribute to channel stability.

Water resource goals include promoting the connected use of surface and groundwater to maximize the availability of water, to maintain the quality of surface and groundwater for agricultural productivity and drinking water supply, and to provide habitat restoration.

### Putah Creek Nature Park Master Plan

The City of Winters developed the 2008 *Putah Creek Nature Park Master Plan* as an update to the *Winters Putah Creek Park Master Plan*. This plan is a conceptual document that discusses opportunities for public

access and sustainable fish and wildlife habitat through restoration of natural channel form and function along a 1-mile stretch of Putah Creek between Railroad Avenue and I-505. The goals of the plan are to integrate the park into the community, support the City's economic vitality, provide access to native riparian habitat, and improve the ecological vitality of the creek (City of Winters 2008).

## **Other HCPs and Conservation Plans**

There are several project or agency-specific HCPs and several regional HCPs that either provide coverage for activities within the Plan Area, provide conservation for the same covered species adjacent to the Plan Area, or encourage conservation actions within the Plan Area.

### **Low-Effect HCP - UC Davis**

The Board of Regents of the University of California prepared a low-effect HCP for capital improvement and maintenance projects at the University of California, Davis (UC Davis) campus during 2001 and 2002. These projects had the potential to affect valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), a species listed as threatened under the FESA. As a condition of these and other project approvals, UC Davis committed to (1) conducting project-specific surveys of valley elderberry longhorn beetle habitat; (2) avoiding and protecting Valley elderberry longhorn beetle habitat where feasible; and (3) where avoidance is infeasible, developing and implementing a mitigation plan in accordance with the most current USFWS Compensation guidelines (USFWS 1999) for unavoidable take of valley elderberry longhorn beetles, pursuant to Section 10(a)(1)(B) of the FESA. The USFWS issued an incidental take permit in July 2002

### **Sacramento Municipal Utility District HCP**

The Sacramento Municipal Utility District (SMUD) is in the process of preparing a HCP to cover the operations and maintenance of their infrastructure system within the county. This plan was expected to be completed by 2013 but has yet to be finalized nor has a draft HCP been released for public comment. The exact Plan Area is unknown at this time, but is expected to include SMUD's existing rights-of-way and facilities, some of which overlap with the proposed Yolo HCP/NCCP Plan Area. The exact Covered Species are unknown at this time, but is likely to include federally listed species that are also covered by the Yolo HCP/NCCP.

### **Solano Multispecies Habitat Conservation Plan (MHCP)**

The Solano MCHP is currently under development. A preliminary draft HCP was made available on the Solano County Water Agency's web page in 2012. The preliminary draft HCP covers 577,000 acres of Solano County and 8,000 acres of Yolo County. This plan contains coverage for 37 species and is administered largely by the Solano County Water Agency. This plan covers many of the same species that are proposed for coverage under the Yolo HCP/NCCP. A portion of the Solano Multispecies Habitat Conservation Plan covers lands within Yolo County, which are also covered under the Yolo HCP/NCCP. Interactions between the Solano Multispecies Habitat Conservation Plan and the Yolo HCP/NCCP are addressed in Chapter 5, *Land Use*. A formal public draft of the Solano Multispecies Habitat Conservation Plan and associated Environmental Impact Statement/Environmental Impact Report is not yet available for public comment, but the details of a draft plan are expected to be similar to those described above in the 2012 preliminary draft.

### **Natomas Basin HCP**

The Natomas Basin Habitat Conservation Plan (NBHCP), adopted in November 1997 and revised in 2003 (the USFWS issued a revised permit in June 2003), is designed to promote biological conservation along with economic development and continuation of agriculture in the 53,341-acre Natomas Basin, located in portions of northern Sacramento and southern Sutter Counties. The NBHCP was also prepared to satisfy a condition of an USACE permit, with implementation under the direction of the USFWS, CDFW, and the City of Sacramento.

The NBHCP established a multi-species conservation program to mitigate the expected loss of habitat values and incidental take of 22 protected species that would result from urban development, operation of irrigation and drainage systems, and rice farming. Since the program inception, approximately 30 mitigation properties totaling over 4,500 acres have been acquired for conservation purposes. The NBHCP does not



overlap with the proposed Yolo HCP/NCCP Plan Area, but is adjacent to and it covers many of the same species.

#### **South Sacramento HCP**

The South Sacramento Habitat Conservation Plan (SSHCP) is currently under development. The SSHCP presents a regional approach to preserve federal and State endangered and threatened species and to streamline the existing development-permitting process in the Planning Area. It is largely focused on vernal pool species conservation. As proposed, the SSHCP would allow the county to issue permits related to the CWA and the CFGC. The SSHCP Planning Area covers approximately 317,000-acre of south Sacramento County, California. It will preserve natural lands in Sacramento County and protect habitat for 28 special-status plant and animal species, including 10 species listed as threatened or endangered under FESA, CESA, or both. The SSHCP does not overlap with the proposed Yolo HCP/NCCP Plan Area, but it covers many of the same species.

#### **Yuba-Sutter Regional Conservation Plan**

The Yuba-Sutter Regional Conservation Plan is currently under development. Yuba and Sutter Counties and the cities of Live Oak and Yuba City are jointly preparing an HCP to cover approximately 18 species that would be affected by the conversion of agricultural land and lowland areas to urban development. The Plan Area does not overlap with the proposed Yolo HCP/NCCP Plan Area. Many of the same species being planned for coverage in the Yolo HCP/NCCP are being covered in this plan.

## **4.3 ENVIRONMENTAL CONSEQUENCES**

### **4.3.1 Methodology and Significance Criteria**

#### **METHODS AND ASSUMPTIONS**

As described in Section 3.3, the issuance of ITPs by the Wildlife Agencies for take of 12 covered species associated with five categories of covered activities—together with subsequent adoption and implementation of the Plan by the Applicants consistent with the permits—is the Proposed Action considered in this EIS/EIR. Issuance of permits by the Wildlife Agencies only provides compliance with the FESA and NCCPA.

All Covered Activities are subject to the approval authority of one or more of the Applicants with jurisdiction over such projects, and HCP/NCCP approval and permit issuance for take of covered species does not confer or imply approval from any entity other than the USFWS or CDFW to implement the Covered Activities. Rather, as part of the standard approval process, individual projects will be considered for further environmental analysis and generally will receive separate, project-level environmental analysis review under CEQA and, in some cases, NEPA for those projects involving federal Agencies.

Anticipated changes in land cover/land use for each alternative are described in Chapter 2, Proposed Action and Alternatives. See Chapter 3, *Approach to the Analysis*, for a description of the methodology used across all resource chapters for the analysis of cumulative effects.

The evaluation of the potential impacts that may result from each alternative is based on a review of the covered activities as described in the Yolo HCP/NCCP; review of the Yolo County General Plan, and planning documents from the Cities of Davis, West Sacramento, Winters, and Woodland; and the assumption that activities under each alternative will comply with applicable local, State, and federal regulations, general plan policies, and local agency codes and ordinances. For example, it is assumed that for any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, CDFW may require an LSAA, pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant. CDFW, as a Responsible Agency under CEQA, will consider the CEQA document prepared for the individual activity or project. The analysis also assumes the proposed Yolo HCP/NCCP conservation strategy and conservation measures

would be fully effective in their stated objectives and that habitat conditions predicted to result from Plan implementation would develop within the term of the permits. This assumption is substantially supported by successful implementation of similar conservation measures in other HCPs and NCCPs in California.

The geographic information system (GIS) data and species habitat models prepared during development of the Yolo HCP/NCCP were used to overlay covered activities with occurrences of land cover types to quantify effects of covered activities on land covers and special-status species habitat. The Lead Agencies determined the data and models represent conditions in the Plan Area with sufficient accuracy to support the impact analysis.

This EIS/EIR also evaluates special-status species and biological resources not covered by the Yolo HCP/NCCP. The evaluation of impacts on non-covered species relied on a combination of the available natural community and land cover mapping included in the GIS data and development of habitat models for each species based on the species' habitat requirements and, in some cases, conditions at known occurrences in the Plan Area. The species occurrence information was compiled primarily from CNDDDB data.

Implementation of the Yolo HCP/NCCP or other alternatives could result in both direct and indirect effects on biological resources. Direct effects are those that occur at the same time and place as project implementation, such as removal of habitat from ground disturbance. Indirect effects are those that occur either later in time or at a distance from the project location but are reasonably foreseeable, such as loss of aquatic species from downstream effects on water quality. Direct and indirect effects can be permanent or temporary. Biological resources could be affected directly or indirectly by activities associated with development as well as those associated with biological resources mitigation.

As described in Chapter 2, *Proposed Action and Alternatives*, the Conservancy has proposed a number of changes to the HCP/NCCP since the release of the Draft on June 1, 2017. These changes are described and Characterized in Section 2.3.2, *Alternative B – Proposed Action Alternative (Permit Issuance/Plan Implementation)*, of Chapter 2.

These proposed changes fall into several categories;

- ▲ Copy edits such as correction of spelling errors,
- ▲ Minor text clarifications and corrections such as providing or correcting cross references to other parts of the document,
- ▲ Minor numeric corrections, such as small adjustments to acreages of particular land cover types,
- ▲ Providing updated information since publication of the Draft HCP/NCCP such as including information from the City of Woodland General Plan Update 2035, which was adopted after the Draft HCP/NCCP was published,
- ▲ Clarifications or enhancements to particular plan elements such as new or updated Avoidance and Minimization Measures (AMMs),
- ▲ Increased details on plan implementation such as providing additional information on the content of the Implementation Handbook, and
- ▲ Changes in assumptions regarding costs and funding to reflect updated information.

These proposed changes have been analyzed to determine whether they would result in any changes to the impact analysis or conclusions reached in the Draft EIS/EIR. This analysis is provided in Section 24.2, *Evaluation of Proposed Modifications to the Draft HCP/NCCP*. The analysis substantiates that the proposed changes to the HCP/NCCP do not alter the analysis or impact conclusions provided in the Draft EIS/EIR for biological resources. Therefore, no changes to the analysis provided below are merited.

## SIGNIFICANCE CRITERIA

Effects would be significant if an alternative would result in 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 CDFW 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 CDFW or USFWS;
- ▲ have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (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;
- ▲ conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan;
- ▲ substantially reduce the habitat of a fish or wildlife species;
- ▲ cause a fish or wildlife population to drop below self-sustaining levels;
- ▲ threaten to eliminate a plant or animal community; or
- ▲ reduce the number or restrict the range of a rare or endangered plant or animal.

## ISSUES NOT EVALUATED FURTHER

As stated above in the discussion of Methods and Assumptions, it is assumed that all development and conservation related activities would be implemented in compliance with applicable general plan policies and local agency codes and ordinances. This would include policies, codes, and ordinances adopted to protect biological resources, such as tree ordinances. The County and each city are Plan Permittees. It is assumed that as they implement, or authorize implementation, of covered activities under the Plan, or any of the alternatives, that they would enforce applicable policies, codes, and ordinances. Therefore, the issue of conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, is not evaluated further in this chapter.

### 4.3.2 Effects of Proposed Action and Alternatives

#### ALTERNATIVE A—NO ACTION ALTERNATIVE (NO PERMIT/NO PLAN IMPLEMENTATION)

##### Environmental Consequences/Environmental Effects

As described previously in Chapter 2, *Proposed Action and Alternatives*, under the No Action Alternative (Alternative A), take associated with development would occur over the 50-year study period consistent with the local general plans and other applicable planning documents (e.g., community plans, specific plans, recreation plans). As also described in Chapter 2, for purposes of this analysis, development and related

activities (e.g., operations and maintenance) under the No Action Alternative are considered using the same organizational categories identified in the Yolo HCP/NCCP; urban projects and activities; rural projects and activities, which includes rural public services, infrastructure, and utilities, agricultural economic development and open space; and public and private operations and maintenance. Under the No Action Alternative, the Plan would not be approved and implemented and no Endangered Species Act authorizations would be issued by the U.S. Fish and Wildlife Service (USFWS) or CDFW related to the Plan. Endangered species permitting and mitigation would continue on an individual project-by-project basis. Under the No Action Alternative, it is assumed that there would primarily be a continuation of existing conditions in the expanded Plan Area along the south side of Putah Creek in Solano County. The land is primarily used for agriculture and this land use would continue. Some agricultural land in this area is currently under agricultural or other conservation easements, such as those purchased through the City of Davis Open Space Program, and it is anticipated that some additional landowners would also place their land under easement in the future. It is also expected that under the No Action Alternative, the riparian forest along Putah Creek would continue to be protected via various laws and regulations (Section 4.2.2) and enhanced through activities such as those implemented by the Lower Putah Creek Coordinating Committee. These conservation and enhancement activities in the expanded Plan Area are likely to have a general benefit to biological resources by limiting development in the area and enhancing riparian habitat that provides a buffer between the Creek and adjacent land uses. This general benefit is not discussed in the individual species and habitat effects sections below.

Urban projects and activities would be concentrated within the Cities of Davis, West Sacramento, Winters, and Woodland. Rural projects and activities would primarily occur within and around the existing communities within the unincorporated county (primarily Clarksburg, Dunnigan, Esparto, Elkhorn, Knights Landing, and Madison). Activities associated with the rural public services, infrastructure, and utilities, and agricultural economic development and open space categories would occur in various locations in the unincorporated county. Public and private operations and maintenance activities would occur both in the incorporated cities and the unincorporated county. Anticipated losses of modelled habitat for covered species under the No Action Alternative resulting from these projects and activities are shown in Table 4-1.

**Table 4-1 Modelled Habitat Loss, Covered Species, No Action Alternative**

Covered Species	Existing Acreage	Total Planning Units Perm. Loss (acres)	O&M Perm. Loss (acres)	Restoration Loss (acres)	Total Perm. Loss (acres)	% Remaining <sup>a</sup>	Total Temp. Loss (acres)
<b>Valley elderberry longhorn beetle</b>							
Riparian habitat	9,447	501	13	0	523	94.5%	0
Non-riparian habitat	3,932	60	1	0	61	98.4%	1
<b>Total</b>	<b>13,379</b>	<b>561</b>	<b>14</b>	<b>0</b>	<b>584</b>	<b>95.7%</b>	<b>1</b>
<b>California tiger salamander</b>							
Aquatic breeding habitat	1,004	12	0	0	12	98.8%	1
Upland habitat	86,505	349	13	36	398	99.5%	1
<b>Total</b>	<b>87,509</b>	<b>361</b>	<b>13</b>	<b>36</b>	<b>410</b>	<b>99.5%</b>	<b>2</b>
Ponds - seasonal in aquatic breeding habitat (no. of ponds)	434	3	0	0	3	99.3%	0
<b>Western pond turtle</b>							
Aquatic habitat	53,907	329	40	0	369	99.3%	31
Nesting and overwintering habitat	137,185	1,994	35	1,104	3,133	97.7%	112
<b>Total</b>	<b>191,092</b>	<b>2,323</b>	<b>74</b>	<b>1,104</b>	<b>3,502</b>	<b>98.2%</b>	<b>143</b>
Ponds - perennial in aquatic habitat (no. of ponds)	1,003	19	0	0	19	98.1%	1

**Table 4-1 Modelled Habitat Loss, Covered Species, No Action Alternative**

Covered Species	Existing Acreage	Total Planning Units Perm. Loss (acres)	O&M Perm. Loss (acres)	Restoration Loss (acres)	Total Perm. Loss (acres)	% Remaining <sup>a</sup>	Total Temp. Loss (acres)
Ponds - perennial in nesting and overwintering habitat (no. of ponds)	149	5	0	0	5	96.6%	0
<b>Total (no. of perennial ponds)</b>	<b>1,152</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>97.9%</b>	<b>1</b>
<b>Giant garter snake</b>							
Rice habitat	31,168	68	19	0	87	99.7%	0
Aquatic habitat	6,596	103	6	0	109	98.3%	1
Freshwater emergent habitat	25,897	71	4	0	76	99.7%	0
Active season upland movement	6,612	433	7	0	441	93.3%	3
Overwintering habitat	6,783	905	5	343	1,235	81.8%	5
<b>Total</b>	<b>77,056</b>	<b>1,584</b>	<b>42</b>	<b>343</b>	<b>1,966</b>	<b>97.4%</b>	<b>9</b>
Drainage miles	1,083	20	37	0	57	94.7%	0
<b>Swainson's hawk</b>							
Nesting habitat	15,673	580	71	0	651	95.8%	0
Natural foraging habitat	79,336	589	15	803	1,407	98.2%	22
Cultivated lands foraging habitat	214,078	9,099	65	236	9,399	95.6%	202
<b>Total</b>	<b>309,087</b>	<b>10,268</b>	<b>151</b>	<b>1,039</b>	<b>11,457</b>	<b>96.2%</b>	<b>224</b>
Nest trees	534	34	3	37	20	93.1%	0
<b>White-tailed kite</b>							
Nesting habitat	31,732	625	36	0	661	96.9%	0
Primary foraging habitat	101,758	2,347	26	236	2,609	97.4%	29
Secondary foraging habitat	134,740	7,125	41	803	7,969	94.1%	205
<b>Total</b>	<b>268,230</b>	<b>10,401</b>	<b>103</b>	<b>1,039</b>	<b>11,239</b>	<b>95.7%</b>	<b>234</b>
Nest trees	531	35	3	0	38	92.8%	0
<b>Western yellow-billed cuckoo</b>							
Nesting/foraging habitat	3,868	56	4	0	59	98.5%	0
<b>Western burrowing owl</b>							
Primary habitat	37,694	612	13	236	861	97.7%	1
Other habitat	66,160	1,467	41	803	2,311	96.5%	218
<b>Total</b>	<b>103,854</b>	<b>2,079</b>	<b>54</b>	<b>1,039</b>	<b>3,172<sup>c</sup></b>	<b>96.9%</b>	<b>219</b>
<b>Least Bell's vireo</b>							
Nesting/foraging habitat	4,719	36	3	0	39	99.2%	0
<b>Bank swallow</b>							
Nesting habitat	962	0	37 <sup>b</sup>	0	37	96.2% <sup>b</sup>	0
<b>Tricolored blackbird</b>							
Nesting habitat	4,680	84	2	0	86	98.2%	0
Foraging habitat	261,133	7,832	80	1,030	8,942	96.6%	230
<b>Total</b>	<b>265,813</b>	<b>7,917</b>	<b>81</b>	<b>1,030</b>	<b>9,028</b>	<b>96.6%</b>	<b>230</b>

**Table 4-1 Modelled Habitat Loss, Covered Species, No Action Alternative**

Covered Species	Existing Acreage	Total Planning Units Perm. Loss (acres)	O&M Perm. Loss (acres)	Restoration Loss (acres)	Total Perm. Loss (acres)	% Remaining <sup>a</sup>	Total Temp. Loss (acres)
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**Palmate-bracted bird's beak**

Habitat	312	4	0	0	4	98.7%	0
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<sup>a</sup> Rounded to nearest 0.1 percent

<sup>b</sup> Actual nest sites will be avoided. Up to 37 acres of barren floodplain may be permanently affected by bank stabilization activities along Cache Creek undertaken through the CCRMP as needed to protect property or valuable resources. Additional barren floodplain is expected to be created during the 50-year permit term, however, as a result of the natural, dynamic fluvial processes along Cache Creek.

<sup>c</sup> Within the affected western burrowing owl habitat, covered activities will displace no more than four occupied sites. Within the protected burrowing owl habitat, the Conservancy will protect at least two active burrowing owl nest sites, and will additionally protect two active nest sites for each nesting pair displaced, and one active nesting site or single owl site for each non-breeding single owl displaced by covered activities. See Section 6.3.4.9, *Western Burrowing Owl*, for more detail.

<sup>e</sup> The 112 acres of temporary effects on western pond turtle upland habitat include 40 acres of riparian natural community and 37 acres of barren that are not included in Table 5-1, *Natural Community Loss, Covered Species*. This is because the barren land cover type is not considered a natural community, and because temporary impacts to the riparian natural community are treated as permanent impacts on the natural community (due to the time it takes for riparian vegetation to recover). Components necessary to provide western pond turtle uplands would recover within one year, therefore the impact is treated as temporary for western pond turtle.

Source: Yolo Habitat Conservancy 2018, data source shared by Table 5-2(a)

**Effects on Palmate-Bracted Bird's-Beak**

Palmate-bracted bird's-beak is listed as endangered under both the FESA and CESA. The detailed description of the species and known occurrences south east of Woodland, along with modeled suitable habitat can be found in Appendix D. The species is associated with small topographic features on seasonally flooded alkaline prairies. There is 312 acres of existing modeled habitat in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative can result in mortality, as well as the permanent loss of 4 acres of habitat for Palmate-bracted bird's-beak (Table 4-1), though individuals and populations of the species are likely to be avoided during project design because of its endangered status.

Projects and activities implemented under the No Action Alternative can also result in permanent indirect effects to the species including; the fragmentation of existing habitat which limits or prohibits dispersal of the species, the spread and promotion of invasive plants that increase competition, runoff, and trampling as a result of recreational activities. While no temporary loss of habitat has been quantified for this species, temporary construction effects such as dust, trampling, and temporary vegetation removal can also occur under the No Action Alternative.

Projects and activities under the No Action Alternative would be required to mitigate impacts to Palmate-bracted bird's-beak through consultation with the USFWS under Section 7 or Section 10 of FESA, as well as under CESA. Mitigation measures may also be required as part of CEQA review.

**Effects on Valley Elderberry Longhorn Beetle**

The description of modeled valley elderberry longhorn beetle habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. The valley elderberry longhorn beetle is listed as threatened under the FESA. This species is dependent on elderberry shrubs (*Sambucus glauca*, *S. mexicana*, *S. caerulea*) to host the larval stage of its lifecycle. Elderberry shrubs are primarily associated with riparian habitats, but may also be found in Oak-foothill pine woodland within the Plan Area. Valley elderberry longhorn beetle-modeled habitat within the Plan Area includes 9,447 acres of riparian habitat and 3,932 acres of non-riparian habitat for a total of 13,379 acres of habitat for the species (Table 4-1).

Projects and activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative can result in the removal of elderberry shrubs and mortality of individual valley elderberry longhorn beetle, as well as the permanent loss of 584 acres of riparian and non-

riparian habitat (Table 4-1). The majority of habitat loss could occur in the South Yolo Basin (approximately 140 acres), most of which would occur within the unincorporated community of Clarksburg, and in West Sacramento (approximately 360 acres), as a result of urban development and flood control. Additional effects can occur from rural infrastructure and operations and maintenance (e.g., road maintenance, power line right-of-way clearance) that can remove or disturb vegetation, in particular the removal of elderberry shrubs, the species obligate host plant.

Projects and activities under the No Action Alternative can also result in permanent indirect effects. While the majority of the effects on valley elderberry longhorn beetle will be within areas of existing development, permanent habitat loss will likely also result in the fragmentation of existing habitat which would limit or prohibit dispersal of the species. Other potential indirect effects on valley elderberry longhorn beetle that may occur as a result of projects and activities under the No Action Alternative include; long term changes in lighting, dust, and spread of Argentine ant (*Linepithema humile*).

Temporary effects from construction activities, as well as public and private operations and maintenance such as noise, vibrations, and dust, can also occur under the No Action Alternative and are expected to result in a temporary loss of 1 acre of habitat for the species (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to valley elderberry longhorn beetle through consultation with the USFWS under Section 7 or Section 10 of the FESA as well as mitigation required under CEQA.

#### **Effects on California Tiger Salamander**

California tiger salamander is listed as a threatened species under the FESA and critical habitat has also been designated for the species. The species is also listed as a threatened species under CESA. The description of modeled California tiger salamander habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. California tiger salamander is generally found in grassland, oak savanna, and coastal scrub in areas where ephemeral pools, and fishless artificial ponds are available for breeding, along with rodent burrows in upland habitats used for refugia during the non-breeding season. There are 1,004 acres of modeled aquatic breeding habitat and 86,505 acres of modeled upland habitat for the species in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual California tiger salamander, though no development is planned in areas of known occurrences of the species. Projects and activities are estimated to result in the permanent loss of 12 acres of aquatic habitat and 398 acres of upland habitat (Table 4-1). The majority of this habitat loss will likely occur in the Dunnigan Hills and Colusa Basin Plains Planning Units. No loss of designated critical habitat for the species is anticipated under the No Action Alternative.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects including; noise and vibrations which could cause the species to avoid habitats; lighting which could negatively affect nocturnal foraging behavior; the introduction of non-native and domestic predators; increased pesticide associated with residential development of natural lands and operation and maintenance activities; hydrologic alterations that can result in the reduction of aquatic habitat, stormwater runoff that can increase turbidity reducing foraging effectiveness and introducing petroleum based pollutants, pesticides and other contaminants that may reduce prey species availability and; rodent control which can reduce the availability of upland burrows for California tiger salamander. In addition, permanent habitat loss will likely also result in the fragmentation of existing habitat which limits or prohibits dispersal of the species and increases the relative effects of the other indirect effects listed above.

Temporary effects from construction activities, as well as public and private operations and maintenance such as noise, vibrations, lighting, dust, and pollutant spills, can also occur under the No Action Alternative and are estimated to result in a temporary loss of 2 acres of habitat for the species (Table 4-1).



Projects and activities under the No Action Alternative would be required to mitigate impacts to California tiger salamander through consultation with the USFWS under Section 7 or Section 10 of FESA as well as mitigation required under CEQA and CESA. Aquatic habitats would likely be replaced at no net loss because of USACE policy regarding impacts to jurisdictional wetlands and waters, and potential mitigation required by permitting under Section 1600 et seq. of the Fish and Game Code and with the RWQCB (Section 4.2.2).

#### **Effects on Western Pond Turtle**

Western pond turtle is a California species of special concern. The description of modeled western pond turtle habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. Western pond turtle is associated with both natural and artificial aquatic habitats such as stock ponds and other impoundments and irrigation ditches that have sufficient vegetated cover to provide refuge for the species. Western pond turtle also requires upland habitats adjacent to suitable aquatic habitat for nesting and overwintering. Within the Plan Area western pond turtle has been observed in the Sacramento River, Putah Creek Riparian Reserve, Putah Creek Sinks, Lower Willow Slough, West Sacramento, and in storm water detention basins in the City of Davis. There are 53,907 acres of modeled aquatic habitat and 137,158 acres of modeled upland habitat, including 1,152 perennial ponds in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual western pond turtles. Project and activities are also estimated to result in the permanent loss of 369 acres of aquatic habitat, including 24 perennial ponds, and 3,133 acres of upland nesting and overwintering habitat (Table 4-1). The majority of this habitat loss will likely occur in the West Sacramento and Woodland Planning Units though smaller amounts of habitat removal are anticipated in most of the Plan Area.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These indirect effects would be similar to those listed for California tiger salamander above, with the exception that western pond turtles would not be affected by rodent control in upland habitats.

Temporary effects from construction activities, as described for California tiger salamander, can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 143 acres of all habitat types for western pond turtle (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to western pond turtle as a species of special concern species of special concern under CEQA. Aquatic habitats would likely be replaced at no net loss due to USACE policy regarding impacts to jurisdictional wetlands and waters, and potential mitigation required by permitting under Section 1600 et seq. of the Fish and Game Code and RWQCB (Section 4.2.2).

#### **Effects on Giant Garter Snake**

Giant garter snake is listed as threatened under both the FESA and CESA. This species is associated with permanent or seasonal marshes and rice fields in the Plan Area, and is absent from waters containing game fish and from areas with dense vegetation that lacks basking sites. Giant garter snake also requires upland habitat above the high water mark as winter refuge during dormancy. The species is known to occur northwest of Knights Landing and near Sycamore Slough and the Colusa Basin Drainage Canal in the northeastern portion of the Plan Area. The species is also known to occur east of Davis in the vicinity of the Yolo Bypass including the rice fields to the east of the Yolo Bypass Wildlife Area. The description of modeled giant garter snake habitat and list of occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. There are 31,168 acres of rice field habitat, 25,897 acres of freshwater emergent habitat, and 6,596 acres of other aquatic habitat for giant garter snake in the Plan Area. There also 6,612 acres of upland movement habitat and 6,783 acres of overwintering habitat (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual giant garter snakes. Projects and activities are also estimated to result in the permanent loss of 87 acres of rice field habitat, 76 acres of freshwater emergent habitat, 109

acres of other aquatic habitat, 441 acres of upland movement habitat and 1,235 acres of overwintering habitat for giant garter snake in the Plan Area (Table 4-1). The majority of this habitat loss will likely occur in the Clarksburg, Woodland and West Sacramento Planning Units.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These indirect effects would be similar to those listed for California tiger salamander above.

Temporary effects from construction activities, as described for California tiger salamander, can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 9 acres of all habitat types for giant garter snake (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to giant garter snake through consultation with the USFWS under Section 7 or Section 10 of FESA as well as mitigation required under CEQA, and potential mitigation required by permitting under Section 1600 et seq. of the Fish and Game Code and RWQCB (Section 4.2.2).

#### **Effects on Swainson's Hawk**

Swainson's hawk is listed as a Bird of Conservation Concern by the USFWS, protected under the MBTA, and listed as threatened under CESA. Swainson's hawk is a resident of the Plan Area and is generally present from early March, to occupy previous nesting territories or establish new territories, until October, when young have fledged and fall migration is complete. Nesting habitat is predominately within natural riparian woodlands, though trees may be used in other natural and developed habitat types. Foraging habitat consists of natural grassland and agricultural land types that provide similar low open vegetation and high rodent densities (e.g., alfalfa, dry grain and row crops). A complete description of modeled Swainson's hawk habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 15,673 acres of nesting habitat, 534 nesting sites, 79,336 acres of natural foraging habitat, and 214,078 acres of cultivated lands foraging habitat in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual Swainson's hawks. Project and activities are also estimated to result in the permanent loss of up to 20 nesting trees, 651 acres of nesting habitat, 1,407 acres of natural foraging habitat, and 9,399 acres of cultivated lands foraging habitat in the Plan Area (Table 4-1). This habitat loss will likely occur in locations throughout the Plan Area, with the highest loss in the Dunnigan Hills, Willow Slough Basin, Woodland and West Sacramento Plan Units.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, vibrations, lighting and human activity that may disturb nesting and foraging behavior; and increases in distance between nest trees and foraging habitat which would reduce foraging efficiency and potentially affect reproductive success.

Temporary effects from construction activities, noise, vibrations, lighting, and dust can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 224 acres of foraging habitat for Swainson's hawk (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to Swainson's hawk with CDFW under CESA, and provide mitigation required under CEQA. Mitigation for impacts to Swainson's hawk under the No Action Alternative for projects under 40 acres in size would likely be conducted as part of the Swainson's Hawk Mitigation Fee Program administered by the Yolo Habitat Conservancy.

#### **Effects on White-Tailed Kite**

White-tailed kite is a California fully protected species and protected under the MBTA. White-tailed kite is year-round resident of the Plan Area that has similar nesting habitat to that described for Swainson's hawk though the species exhibits less of a preference for a specific vegetation type. Foraging habitat is also

similar to that of Swainson's hawk, though defined for the purpose of this analysis as more frequently used primary and less frequently used secondary foraging habitat. A complete description of modeled white-tailed kite habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 31,732 acres of nesting habitat, 531 nesting sites, 101,758 acres of primary foraging habitat, and 134,740 acres of secondary foraging habitat in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual white-tailed kite, although the species' fully protected status would make this unlikely. Projects and activities are also estimated to result in the permanent loss of up to 35 nesting trees, 661 acres of nesting habitat, 2,609 acres of primary foraging habitat, and 7,969 acres of secondary foraging habitat in the Plan Area (Table 4-1). This habitat loss is expected to occur in locations throughout the Plan Area, with the greatest losses in the Dunnigan Hills, Willow Slough Basin, Woodland, and West Sacramento Plan Units.

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative would have similar permanent indirect and temporary effects as discussed for Swainson's hawk above, although the total temporary white-tailed kite habitat loss would be 234 acres (Table 4-1).

Projects and activities under the No Action Alternative would be required to avoid mortality of white-tailed kite as a fully protected species, and mitigate impacts to habitat under CEQA.

#### **Effects on Western Burrowing Owl**

Western burrowing owl is USFWS Bird of Conservation Concern, protected under the MBTA, and a California species of special concern. The species is a year-round resident of the Plan Area that is associated with grassland and agricultural lands and is also found in developed areas where patches of habitat exist. Western burrowing owls utilize abandoned ground squirrel burrows for nesting and are often found in locations with a high density of burrows. Within the Plan Area there are 37,694 acres of primary habitat (e.g., natural lands, pastures, and other open or barren areas on the lower slopes and valley floors) and 66,160 acres of other habitat (e.g. margins of agricultural fields) suitable for the species (Table 4-1). A complete description of modeled western burrowing owl habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Projects and activities (e.g., construction of urban and rural development) under the No Action Alternative may result in the mortality of individual western burrowing owls. A high risk to this species is entombment in nesting burrows and loss of nests during construction. Projects and activities are also estimated to result in the permanent loss of up to 861 acres of primary habitat and 2,311 acres of other habitat in the Plan Area (Table 4-1). This habitat loss would occur in locations throughout the Plan Area.

The No Action Alternative would have similar permanent indirect and temporary effects to those discussed for Swainson's hawk above, although burrowing owls are also likely to have additional impacts related to domestic pets (e.g., dogs and cats) because of predation on ground squirrels, which may result in fewer nesting burrows, and the potential for predation and harassment of owls themselves. The total temporary western burrowing owl habitat loss would be 219 acres (Table 4-1).

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to western burrowing owl and its habitat under CEQA.

#### **Effects on Least Bell's Vireo**

Least Bell's vireo is listed as endangered under both the FESA and CESA. The species is migratory and has historically nested within riparian habitats within the Plan Area, although surveys within the Yolo Bypass Wildlife Area have not detected breeding behavior in the last several years. There is currently 4,719 acres of modeled nesting/foraging habitat for least Bell's vireo in the Plan Area (Table 4-1). A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Projects and activities (e.g., construction of urban and rural development) that occur within riparian habitat under the No Action Alternative may result in the mortality of individual least Bell's vireo. Project and activities are also estimated to result in the permanent loss of up to 39 acres of potential nesting/foraging habitat in the Plan Area (Table 4-1). This habitat loss would occur in the Lower Cache Creek, Colusa Basin, North Yolo Basin, and North Yolo Bypass Planning Units. The anticipated loss within the Cache Creek Planning Unit is part of the Cache Creek Resources Management Plan.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, lighting and human activity that may disturb breeding and foraging behavior; as well as the potential for development to increase invasion by non-native plant species. Temporary effects from construction activities, noise, lighting, temporary vegetation removal and dust could occur under the No Action Alternative, however there is not expected to be any temporary habitat loss for the species associated with these activities.

Projects and activities under the No Action Alternative would be required to mitigate impacts to least Bell's vireo through consultation with the USFWS under Section 7 or Section 10 of FESA and with CDFW under CESA, and provide mitigation required under CEQA.

#### **Effects on Bank Swallow**

Bank swallow is listed under CESA as threatened and protected under the MBTA. This species migrates to the Plan Area to breed in colonies in vertical cliffs and cut banks along rivers, streams, quarries, and road-cuts. Colonies have been documented in the past along the Sacramento River and Cache Creek. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Bank stabilization activities along Cache Creek under the No Action Alternative could result in the mortality of individual bank swallow. Project and activities are also estimated to result in the permanent loss of up to 37 acres of nesting/foraging habitat in the Plan Area (Table 4-1), all of which are located within the floodplain of Cache Creek as part of the Cache Creek Resources Management Plan.

Mining and operations and maintenance activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include noise and human activity that may disturb breeding and foraging behavior. Temporary effects from activities, noise, temporary vegetation removal and dust could occur under the No Action Alternative, however there is not expected to be any temporary habitat loss for the species.

Projects and activities under the No Action Alternative would be required to mitigate impacts to bank swallow through consultation with CDFW under CESA, and provide mitigation required under CEQA.

#### **Effects on Tricolored Blackbird**

Tricolored blackbird is a candidate for listing as endangered under CESA and protected under the MBTA. Tricolored blackbird is a year-round resident of the Plan Area and breeding colonies have been documented in several locations including the Yolo Bypass. The species is associated with a variety of habitats for nesting including wetlands, agricultural areas, and other areas that contain dense vegetation (e.g., cattails, blackberry, and willows). The species is known to forage in natural and agricultural areas that contain high densities of insects. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 4,680 acres of modeled nesting, and 261,813 acres of foraging habitat for tricolored blackbird in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development, and operations and maintenance) under the No Action Alternative may result in the mortality of individual tricolored blackbird. Project and activities are also estimated to result in the permanent loss of up to 86 acres of nesting habitat, and 8,942 acres of foraging habitat in the Plan Area (Table 4-1). The majority of the nesting habitat loss will likely occur

in the South Yolo Basin and West Sacramento Planning Units. Loss of foraging habitat would occur throughout the Plan Area.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, vibrations, lighting and human activity that may disturb nesting and foraging behavior; and habitat fragmentation.

Temporary effects from construction activities, noise, vibrations, lighting, and dust can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 230 acres of foraging habitat for the species (Table 4-1).

Projects and activities under the No Action Alternative would be required to mitigate impacts to tricolored blackbird through consultation with CDFW under CESA, and provide mitigation required under CEQA as well as mitigation required under CEQA.

#### **Effects on Western Yellow-Billed Cuckoo**

Western yellow-billed cuckoo is listed as threatened under the FESA and CESA and is protected under the MBTA. The species is migratory, arriving in the Central Valley of California in July and breeds and forages within riparian habitat. There are no current records of nesting individuals within the Plan Area, although nesting has been observed in nearby Sutter County. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 3,868 acres of modeled nesting and foraging habitat for western yellow-billed cuckoo in the Plan Area (Table 4-1).

Projects and activities (e.g., construction of urban and rural development, and operations and maintenance) under the No Action Alternative may result in the mortality of individual western yellow-billed cuckoo. Projects and activities are also estimated to result in the permanent loss of up to 59 acres of habitat in the Plan Area (Table 4-1). This loss of habitat is anticipated to occur in the Lower Cache Creek, Willow Slough Basin, North Yolo Basin, and South Yolo Basin Planning Units.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, vibrations, lighting that may disturb nesting and foraging behavior; and the introduction and spread of invasive plant species which may reduce foraging and nesting suitability. There are not estimated to be temporary effects from construction activities under the No Action Alternative though if they should occur, they would include, noise, vibrations, lighting, and dust.

Projects and activities under the No Action Alternative would be required to mitigate impacts to western yellow-billed cuckoo through consultation with the USFWS under Section 7 or Section 10 of FESA as well as consult with CDFW under CESA and implement mitigation required by CEQA.

#### **Effects on Special-status Plants Not Covered by the Yolo HCP/NCCP**

There are 27 special-status plant species other than palmate-bracted bird's-beak (addressed above) that are either known to occur or have at least a moderate potential to occur in the Plan Area. Information on these species' legal status, habitats, and occurrences in the Plan Area can be found in Appendix D. For the purpose of this analysis, these species are further categorized by the natural land cover types in which they are predominately found.

Those species associated within the serpentine community are; Jepson's milk-vetch, pink creamsacs, Snow Mountain buckwheat, Hall's harmonia, drymaria-like western flax, Colusa layia, and green jewel-flower. The projects and activities under the No Action Alternative (e.g., construction of urban and rural development, operations and maintenance activities) are not expected to result in any permanent or temporary loss of the serpentine natural community type, and therefore are not likely to result in adverse effects on these species.

Species associated with alkali prairie are; alkali milk-vetch, brittlescale, San Joaquin spearscale, and Heckard's pepper-grass. The projects and activities under the No Action Alternative are estimated to result in

the permanent loss of 4 acres of alkali prairie habitat, which may result in adverse effects on these species should they occur in the vicinity of the project or activity.

Species associated with grassland, blue oak woodland, blue oak and foothill pine, and valley oak woodland are; bent-flowered fiddleneck, round-leaved filaree, deep-scarred cryptantha, adobe-lily, and Jepson's leptosiphon. The projects and activities under the No Action Alternative are estimated to result in the permanent loss of 3 acres of blue oak woodland and 1,734 acres of grassland. The temporary loss of 28 acres of grassland is also projected. These permanent and temporary losses of habitat may result in adverse effects on these species should they occur in the vicinity of the project or activity.

Plant species associated with fresh emergent wetland are Ferris' milk-vetch, woolly rose-mallow, Mason's lilaeopsis, delta tule pea, Baker's navarretia, Colusa grass, bearded popcorn flower, Suisun Marsh aster, saline clover, and Solano grass. The projects and activities under the No Action Alternative are estimated to result in the permanent loss of 88 acres of fresh emergent wetland, which may result in adverse effects on these species should they occur in the vicinity of the project or activity.

Plant species associated with vernal pool complex are dwarf downingia and vernal pool smallscale. The projects and activities under the No Action Alternative are not estimated to result in any permanent or temporary loss to vernal pool complex. As such no adverse effects on these species are anticipated.

Northern California Black walnut is associated with the valley foothill riparian natural community type, which as a result of actions and projects under the No Action Alternative is estimated to be permanently reduced by 588 acres.

Permanent indirect effects on special-status plant species that are associated with natural land cover types affected by the projects and activities under the No Action Alternative can also occur. These adverse effects would be the same as those discussed above for Palmate-bracted bird's-beak.

Temporary effects from construction activities, as well as public and private operations and maintenance such as dust, trampling, and temporary vegetation removal, can also occur under the No Action Alternative when special-status plants occur in the vicinity of the activity.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to these species for projects subject to CEQA, and further protections would be afforded those species listed under FESA or CESA as threatened or endangered. Losses of any fresh emergent wetland that falls under USACE jurisdiction under the CWA would likely be replaced at no net loss due to USACE policy regarding impacts to jurisdictional wetlands and waters.

#### **Effects on Special-status Vernal Pool Invertebrates**

Three special-status vernal pool invertebrates are known to occur within the Plan Area; conservancy fairy shrimp, which is listed as endangered under the FESA; vernal pool fairy shrimp, which is listed as threatened under the FESA; and vernal pool tadpole shrimp, which is listed as endangered under the FESA and for which critical habitat has been designated within the Plan Area. These three species are associated almost exclusively with vernal pool habitats. A further description of these species' Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. There is approximately 299 acres of vernal pool complex habitat within the Plan Area.

Projects and activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative are not anticipated to result in the temporary or permanent loss of vernal pool complex habitat nor is it anticipated that any take of these species would occur. It should be noted however, that not all urban development and other land use changes that may occur in the Plan Area are part of the No Action Alternative, such as the reasonably foreseeable projects identified previously in Section 3.6.3. Should it be found that any project or activity may result in the taking of any of these vernal pool invertebrate species or adverse effects on critical habitat for vernal pool tadpole shrimp, then consultation with the USFWS under Section 7 or Section 10 of FESA would be required, and losses of any

aquatic habitats that fall under USACE jurisdiction under the CWA would likely be replaced at no net loss due to USACE policy regarding impacts to jurisdictional wetlands and waters.

#### **Effects on Special-status Amphibians Not Covered by the Yolo HCP/NCCP**

Two CDFW species of special concern amphibians are known to occur within the Plan Area that are not covered species under the Yolo HCP/NCCP. These species are western spadefoot toad and foothill yellow-legged frog. A description of these species' Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. Habitat for these species have not been specifically modeled for this analysis, but land covers in the Plan Area likely to include suitable habitat for one or both of these species consist of; lacustrine and riverine, fresh emergent wetland, vernal pool complex, valley foothill riparian, chamise chaparral, mixed chaparral, blue oak woodland, valley oak woodland, and grassland. Of these habitat types only grassland (1,734 acres), fresh emergent wetland (88 acres), valley foothill riparian (588 acres) and lacustrine and riverine (236 acres) are anticipated to be subject to permanent loss because of construction of projects and conducting of activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative. These acreages reflect the maximum potential habitat loss for these species and do not take into account factors that limit suitability of habitats for these species within the broader land cover categories. The acreages for upland habitat types likely include areas that are not suitable because of distance from water being greater than the species would travel for estivation.

Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities. These effects would be similar to those detailed for California tiger salamander above. Temporary habitat loss for amphibians not covered by the HCP/NCCP is anticipated to be 28 acres of grassland and 31 acres of lacustrine and riverine.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to these species for projects subject to CEQA. Losses of any aquatic habitats that fall under USACE jurisdiction under the CWA would likely be replaced at no net loss because of USACE policy regarding impacts to jurisdictional wetlands and waters.

#### **Effects on Special-status Birds not covered by Yolo HCP/NCCP**

There are 17 special-status bird species that are either known to occur or have at least a moderate chance to occur in the Plan Area and that are not covered by the Yolo HCP/NCCP. Description of these species and information on legal status, habitats, and occurrences in the Plan Area can be found in Appendix D. For the purpose of this analysis these species are categorized into a nesting raptor group which includes those species that are known or are likely to nest in the Plan Area based on potentially suitable natural land cover types and other factors. The remaining species are analyzed in the following groups based on the natural land cover types in which they are predominately found; wetland birds, riparian birds, and grassland/woodland birds. Habitat for these species has not been specifically modeled for this analysis, but is based on the overall occurrence of potentially suitable natural community types in the Plan Area.

The nesting raptor group includes; northern harrier, golden eagle, bald eagle, American peregrine falcon, and short-eared owl. Of these species, American peregrine falcon is not likely to be adversely affected by projects and activities under the No Action Alternative as there are no projects or activities anticipated to occur within suitable habitat for the species in the Upper Putah Creek Planning Unit where the single recorded nest of the species was located.

There is limited nesting habitat for bald eagle in the western portion of the Plan Area and project and activities are not anticipated to adversely affect this habitat under the No Action Alternative. Bald eagles forage within lacustrine and riverine habitat, however, and perch in the adjacent valley foothill riparian habitat. These habitats may be adversely affected by projects and activities. There are 26,058 acres of potential bald eagle foraging and wintering habitat (lacustrine, riverine, and valley foothill riparian) within the Plan Area, of which 824 acres are estimated to be permanently lost under the No Action Alternative, although not all of this habitat, either existing or lost, would be suitable for bald eagle foraging and wintering habitat. Projects and activities under the No Action Alternative can also result in permanent indirect effects



and temporary effects (31 acres) from construction activities. These effects would be similar to those detailed for Swainson's hawk above.

There is also limited nesting habitat for golden eagle in the western portion of the Plan Area and the species is not documented to nest in the Plan Area. However, golden eagles may forage within 116,983 existing acres of blue oak woodland, valley oak woodland, and grassland communities within the Plan Area, of which 1,737 acres are estimated to be permanently lost under the No Action Alternative. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects (31 acres) from construction activities. These effects would be similar to those detailed for Swainson's hawk above.

Northern harrier and short-eared owl are both predominately associated with grassland, cultivated lands, and natural and agricultural wetlands and marshes for both nesting and foraging. There are 80,991 acres of grassland, 26,309 acres of freshwater emergent wetland, 299 acres of vernal pool complex, 214,939 acres of cultivated lands, and 35,724 acres of rice cultivation that may be suitable for these species in the Plan Area. Under the No Action Alternative there is estimated to be a total of 10,085 acres of permanent habitat loss across these community types, although not all of this habitat would be suitable for these species. For example, orchards within the cultivated lands category would not be suitable foraging habitat for these species. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities, estimated to total 31 acres. These effects would be similar to those detailed for Swainson's hawk above.

The special-status bird species included in this analysis that are predominately associated with wetlands are; least bittern, redhead, California black rail, western snowy plover, black tern, and yellow-headed blackbird. There are 26,309 acres of freshwater emergent wetland, and 299 acres of vernal pool complex that may support habitat suitable for these species in the Plan Area. Under the No Action Alternative there is estimated to be a total of 88 acres of permanent habitat loss for these species as a result of loss of freshwater emergent wetlands. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities. These effects would be similar to those detailed above for tricolored blackbird.

There are two special-status bird species included in this analysis that are primarily associated with the valley foothill riparian natural community type, purple martin and yellow-breasted chat, although purple martin are also known to utilize manmade structures such as bridges and highway overpasses for nesting. There are 12,565 acres of valley foothill riparian natural community type within the Plan Area that may be suitable for these species and 588 acres of this community type are estimated to be permanently lost under the No Action Alternative. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities. These effects would be similar to those detailed for western yellow-billed cuckoo above.

The special-status grassland bird species considered in this analysis are; mountain plover, loggerhead shrike, and grasshopper sparrow. These species are often associated with open grassland, prairies, and open agricultural areas such as grain crops and pastures. Within the Plan Area there are 80,911 acres of grassland and 214,939 acres of non-rice cultivated lands that could provide suitable habitat for these species. However, the non-rice cultivated lands land cover category also includes orchards and other more specific categories of agricultural lands that are not suitable for these species. Under the No Action Alternative, 1,734 acres of grassland and 9,910 acres of non-rice cultivated lands are estimated to be permanently lost, and an additional 28 acres of grassland and 3 acres of non-rice cultivated lands are anticipated to be temporarily lost. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects from construction activities.

Projects and activities under the No Action Alternative can also result in reduced habitat function in adjacent habitats through permanent indirect effects. These permanent indirect effects would include; noise, vibrations, lighting and human activity that may disturb nesting behavior of loggerhead shrike and grasshopper sparrow, and foraging behavior for all special-status grassland bird species; and increases in

distance between nesting and foraging habitat for loggerhead shrike and grasshopper sparrow which would reduce foraging efficiency and potentially affect reproductive success.

Temporary effects from construction activities, noise, vibrations, lighting, and dust can occur under the No Action Alternative and are estimated to result in a temporary loss of a total of 2 acres of nesting/ foraging habitat for loggerhead shrike and grasshopper sparrow and foraging habitat for mountain plover (Yolo Habitat Conservancy 2018).

These acreages reflect the maximum habitat loss for these species and do not take into account factors that limit suitability of habitat for these species within portions of the land cover categories. For example, field crops within the cultivated lands land cover category do not provide suitable habitat for many species, but the available GIS data does not allow for the removal of field crops from the assessment of effects on the broader cultivated lands category. Therefore, acreage losses for cultivated lands include losses of field crops, providing a larger acreage of potential habitat removal for some species than actually would occur.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to species identified as species of special concern or Fully Protected by CDFW as part of CEQA review, and further protections would be afforded those species listed under the FESA or CESA.

#### **Effects on Special-status Bats**

There are three special-status bat species that are known to occur in the Plan Area. A description of these species' Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. Townsend's big-eared bat, which is a candidate species under CESA and a California species of special concern, roosts in caves, tunnels, mines, bridges and abandoned buildings and forages in nearby habitats ranging from forests to prairies, but predominately along riparian woodlands. Pallid bat and western red bat are both California species of special concern and are associated with blue oak woodland, blue oak and foothill pine, closed-cone pine-cypress, montane hardwood, valley oak woodland, and valley foothill riparian natural community types. In addition to crevices in trees within these natural community types, pallid bat is also known to use cracks in cliffs and structures (e.g. bridges and buildings) for roosts. Western red bat utilizes the foliage of trees within the above mentioned natural community types for roosts and is also known to utilize orchards for roosts within the foliage of fruit trees. Suitable habitat for these species has not been specifically modeled for this analysis, but includes the natural community types listed above.

As mentioned previously, Townsend's big-eared bat roosts in mines, tunnels, bridges, and abandoned buildings (Pierson and Rainey 1998). While projects and activities under the No Action Alternative would not affect mine shafts and tunnels abandoned mines or tunnels suitable for Townsend's big-eared bat, abandoned buildings may be demolished as part of projects and activities, and bridges are anticipated for reconstruction. These activities can result in loss of day and maternity roosts for the species. The valley foothill riparian natural community type that is associated with foraging for Townsend's big-eared bats is estimated to be subject to 588 acres of permanent loss under the No Action Alternative.

Of the natural community types that are potentially suitable habitat for pallid bat and western red bat, only blue oak woodland (3 acres), and valley foothill riparian (588 acres) are anticipated to be subject to permanent loss because of construction of projects and conducting of activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative. As noted above, western red bat is also known to utilize orchards for roosts within the foliage of trees; however, the available land cover data does not support a calculation of the loss of the specific orchard habitat type within the broader Other Agriculture land cover type. Under the No Action Alternative there is estimated to be a permanent loss of 1,628 acres, and temporary loss of 2 acres, of the Other Agriculture land cover type, but only the portion of this acreage that supports orchards could provide potential habitat for western red bat.

Projects and activities under the No Action Alternative can also result in permanent indirect effects on special-status bat species, including habitat fragmentation, human disturbance, and pesticide use limiting prey availability. A specific acreage of temporary habitat loss because of construction is not anticipated.

within the natural community types that are potentially suitable for these special-status bat species. Temporary adverse effects could include, however, noise, vibration, lighting, and dust.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to these species for projects subject to CEQA.

### **Effects on American Badger**

American Badger is a California species of special concern and there are four historical records of the species occurring in Yolo County. The most recent documented observation of the species was recorded west of Davis in 1997. American badgers occur in a wide variety of open, arid habitats but are most commonly associated with grassland, savannas, mountain meadows, and open areas of desert scrub; the principal habitat requirements for the species appear to be sufficient food (burrowing rodents), friable soils for construction of burrows, and relatively open, uncultivated ground. Within the Plan Area, suitable habitat for American badgers could be associated with blue oak woodland, blue oak and foothill pine, closed-cone pine-cypress, montane hardwood, valley oak woodland, grassland, and alkali prairie where suitable soils for burrows are available.

Of the natural community types that could potentially provide suitable habitat for American badger, only blue oak woodland (3 acres), grassland (1,734 acres) and alkali prairie (4 acres) are anticipated to be subject to permanent loss because of construction of projects and conducting of activities (e.g., construction of urban and rural development, operations and maintenance activities) under the No Action Alternative. These acreages reflect the maximum habitat loss for these species and do not take into account factors that limit suitability of habitats within the larger land cover categories, such as soil composition.

Projects and activities under the No Action Alternative can also result in permanent indirect effects on American badger which can include; habitat fragmentation, human disturbance, pesticide use limiting prey availability, and domestic pets which can disturb American badger burrows and prey on rodents that are primary food source for American badgers. Temporary habitat loss because of construction is anticipated within the grassland and alkali prairie natural community types that are potentially suitable for American badger and would include; noise, ground vibrations, and lighting.

Projects and activities under the No Action Alternative would likely be required to mitigate impacts to American badger for projects subject to CEQA.

### **Effects on Special-status Fish Species**

There are 10 special-status fish species, Distinct Population Segments (DPS), and Evolutionarily Significant Units (ESU) that are either known to occur or have at least a moderate likelihood of occurring in the Plan Area; North American green sturgeon, southern DPS; delta smelt; longfin smelt; steelhead – Central Valley DPS; chinook salmon – Sacramento River winter-run ESU; chinook salmon – Central Valley spring-run ESU; chinook salmon – Central Valley fall/late-run ESU; eulachon; Sacramento splittail; and river lamprey. Critical habitat for delta smelt, North American green sturgeon, steelhead, Sacramento River winter-run ESU; chinook salmon, and Central Valley spring-run ESU; chinook salmon also has been designated within the Plan Area. Further information on these species' legal status, habitats, and occurrences in the Plan Area can be found in Appendix D.

The natural communities that may contain suitable habitat or designated critical habitat for these special-status fish species within the Plan Area are freshwater emergent wetland (26,309 acres) and lacustrine and riverine (13,493 acres). Valley foothill riparian (12,565 acres in the Plan Area) is also considered in the effects analysis for these species as the shading from riparian vegetation plays an important role in the quality of lacustrine and riverine habitats for these species.

The No Action Alternative is estimated to result in the permanent loss of 88 acres of freshwater emergent wetland, 236 acres of lacustrine and riverine, and 588 acres of valley foothill riparian native communities. However, only a portion of these acreages would act as potential habitat for special-status fish species; for example, not all freshwater emergent wetland is connected to larger waterways that support these special-

status fish species, and valley foothill riparian habitat that is more distant from waterways has no influence on habitat conditions for these species. Projects and activities under the No Action Alternative can also result in permanent indirect effects and temporary effects (31 acres) from construction activities. These effects would include degradation of water quality such as increased water temperatures because of removal of riparian vegetation and reduced shading, runoff and associated increases in siltation, and introduction of contaminants (e.g. pesticides, petroleum products) which can have adverse effects on prey availability and reproductive success for these species.

Projects and activities under the No Action Alternative would be required to mitigate any potential impacts to these special-status fish species under the applicable laws and regulations including the FESA, CESA, and CEQA.

#### **Effects on Sensitive Habitat Types Including Wetlands and Other Waters of the United States**

Seven of the natural communities identified in the Plan Area are considered sensitive habitats for the purpose of this analysis because of either their limited distribution, unique plant communities, their relative importance to wildlife species, and/or legal protections provided by regulatory agencies; these are, alkali prairie, blue oak woodland, freshwater emergent wetland, lacustrine and riverine, serpentine, valley foothill riparian, and valley oak woodland. Of these seven sensitive habitat types, serpentine and valley oak woodland are not expected to be subject to loss as a result of implementation of projects under the No Action Alternative. The No Action Alternative is estimated to result in the permanent loss of alkali prairie (4 acres), blue oak woodland (3 acres), freshwater emergent wetland (88 acres), lacustrine and riverine (236 acres), and valley foothill riparian (588 acres).

Projects and activities under the No Action Alternative would likely be required to mitigate for any substantial adverse effects on sensitive communities through CEQA. Potential impacts to oak woodlands are required to be addressed under Section 21083.4 of the California Public Resources Code. Furthermore, riparian and wetland habitats are subject to CFGC Section 1600 to 1607 and local General Plan policies. Should any affected wetland or other water be considered a jurisdictional water of the United States, then any discharge or fill would be subject to CWA Section 404. In addition, the USACE cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

#### **Effects on Wildlife Movement Corridors**

As identified above in Section 4.2.1, the California Essential Habitat Connectivity Project has identified, at a coarse spatial scale, several linkages between large blocks of intact habitat or natural landscapes that could provide wildlife movement corridors in the Plan Area (Exhibit 4-2); these consist of the following ECAs, the English Hills - Blue Ridge/ Rocky Ridge ECA; Blue Ridge/ Rocky Ridge - Capay Hills ECA; Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA; Stone Lake - Yolo Bypass ECA; Yolo Bypass - Sacramento Bypass ECA; and the Little Holland Tract/ Yolo Bypass - Yolo Bypass ECA.

Although most of the urban and rural development under the No Action Alternative is expected to occur in the vicinity of existing developed areas, the following categories of projects and activities under this alternative are anticipated to occur within small portions of the ECAs listed above; urban public services, infrastructure, and utilities; rural public services, infrastructure, and utilities; agricultural economic development and open space; and public and private operations and maintenance. However, no ECA would be blocked and the ability of wildlife to move through these ECAs would not be substantially affected.

### **Cumulative Effects**

Expansion of development in urban and rural areas (i.e., Davis, West Sacramento, Winters, Woodland, Knights Landing, Dunnigan, Esparto) over the past century has resulted in an increase in the amount of agricultural land and natural communities converted to residential, commercial and other uses across the Plan Area. This past and current conversion to development has reduced suitable habitat for many common and special-status species and increased the effects of habitat fragmentation, which can limit movement between suitable habitats for foraging, juvenile dispersal, and other ecological processes. These development effects would continue with implementation of projects and activities under the No Action

Alternative. However, the current County General Plan and County zoning code precludes most urban development in agricultural areas, focusing development in existing urban areas. Individual city general plans contain similar protections.

In contrast to the adverse effects of past and existing development on biological resources, the Plan Area also contains an existing network of conservation lands that include those with predominately natural habitats preserved in perpetuity, those with the purpose of conservation but without a permanent conservation easement that provide habitat for covered species, and those without a permanent conservation easement where the primary goal is not conservation, but that provide habitat for covered species. In total, there are approximately 90,967 acres of conservation lands of varying types within the Plan Area. These conservation lands provide habitat for many common and special-status species. Mitigation required for biological resources impacts resulting from implementation of projects and activities under the No Action Alternative would include creation of protected mitigation lands that would add to these conservation lands.

Additional foreseeable future development in the county beyond those activities included under the No Action Alternative would include activities such as Caltrans infrastructure projects and additional flood control activities, which would have similar impacts to biological resources as projects under the No Action Alternative. The development of solar and wind energy facilities would result in effects on biological resources associated with land conversion, but would also have effects unique to these facilities, such as direct mortality to common and special-status birds and bats.

Although future development under the No Action alternative would be subject to federal and State regulations as well as policies in the applicable city and County General Plans which protect agricultural and natural communities, when combined with past present and other foreseeable future actions, the cumulative outcome would be a continued loss of habitat and adverse effects on biological resources.

## **ALTERNATIVE B—PROPOSED ACTION (PERMIT ISSUANCE/PLAN IMPLEMENTATION)**

The Proposed Action (Alternative B) provides incidental take authorization for the same development related activities identified for the No Action Alternative (urban projects and activities; rural projects and activities; rural public services, infrastructure, and utilities; agriculture economic development and open space; and public and private operations and maintenance). For this alternative, the Yolo HCP/NCCP provides a mechanism for the Wildlife Agencies to provide incidental take authorization for these lawfully undertaken covered activities. Biological resource impacts as a result of these activities would be the same as described under the No Action Alternative, as indicated by the maximum authorized habitat take limits shown in Table 4-2 below being the same as the habitat losses for covered species under the No Action Alternative provided in Table 4-1. A further comparison of the impacts from these covered activities under the Proposed Action Alternative to those under the No Action Alternative is not discussed further in the impact discussions below.

Where the Proposed Action Alternative differs from the No Action Alternative is in the implementation of the Yolo HCP/NCCP, including its conservation strategy and Neighboring Landowner Protection Program as well as the required implementation of Avoidance and Minimization Measures (AMMs) during implementation of covered activities. The following impact discussions focus on these elements of the HCP/NCCP that differ from the No Action Alternative. Components of the conservation strategy include but are not limited to habitat assessment surveys and population surveys; habitat management; restoration, enhancement, and creation of habitats; conversion of agricultural lands to create habitat; construction of facilities necessary for management and maintenance; and monitoring; and control of invasive nonnative species.

Except where noted in the individual effect sections below, activities under the conservation strategy, such as establishment of conservation easements would not cause adverse effects on biological resources; however, covered management activities under the conservation strategy that require ground or vegetation disturbance (e.g. habitat enhancement/restoration/creation, trail building, road decommissioning, demolition, signage, operations and maintenance) could cause adverse effects. The mechanisms for these

adverse effects would be the same as described for other activities under the No Action Alternative for each resource. The maximum habitat acreage take limits for each covered species under the Yolo HCP/NCCP are shown in Table 4-2.

**Table 4-2 Maximum Habitat Based Take Limits, Covered Species, Proposed Action Alternative**

Species	Existing Modeled Habitat in Plan Area (acres)	Take Limit, Permanent	Take Limit, Temporary	% Remaining <sup>a</sup>
<b>Valley elderberry longhorn beetle</b>				
Riparian habitat	9,447	523	0	94.5%
Non-riparian habitat	3,932	61	1	98.4%
<b>Total</b>	<b>13,379</b>	<b>584</b>	<b>1</b>	<b>95.6%</b>
<b>California tiger salamander</b>				
Aquatic breeding habitat	1,004	12	1	98.8%
Upland habitat	86,505	398	1	99.5%
<b>Total</b>	<b>87,509</b>	<b>410</b>	<b>2</b>	<b>99.5%</b>
<b>Western pond turtle</b>				
Aquatic habitat	53,907	369	31	99.3%
Nesting and overwintering habitat	137,185	3,133	112	97.7%
<b>Total</b>	<b>191,092</b>	<b>3,502</b>	<b>143</b>	<b>98.2%</b>
<b>Giant garter snake</b>				
Rice habitat	31,168	87	0	99.7%
Aquatic habitat	6,596	109	1	98.3%
Freshwater emergent habitat	25,897	76	0	99.7%
Active season upland movement	6,612	441	3	93.3%
Overwintering habitat	6,783	1,235	5	81.8%
<b>Total</b>	<b>77,056</b>	<b>1,966</b>	<b>9</b>	<b>97.4%</b>
<b>Swainson's hawk</b>				
Nesting habitat	15,673	651	0	95.8%
Natural foraging habitat	79,336	1,407	22	98.2%
Cultivated lands foraging habitat	214,078	9,399	202	95.6%
<b>Total</b>	<b>309,087</b>	<b>11,457</b>	<b>224</b>	<b>96.2%</b>
Nest trees	534	20 <sup>c</sup>	0	96.3%
<b>White-tailed kite</b>				
Nesting habitat	31,732	661	0	96.9%
Primary foraging habitat	101,758	2,609	29	97.4%
Secondary foraging habitat	134,740	7,969	205	94.1%
<b>Total</b>	<b>268,230</b>	<b>11,239</b>	<b>234</b>	<b>95.7%</b>
<b>Western yellow-billed cuckoo</b>				
Nesting/foraging habitat	3,868	59	0	<b>98.5%</b>
<b>Western burrowing owl</b>				
Primary habitat	37,694	861	1	97.7%
Other habitat	66,160	2,311	218	96.5%
<b>Total</b>	<b>103,854</b>	<b>3,172<sup>d</sup></b>	<b>219</b>	<b>96.9%</b>
<b>Least Bell's vireo</b>				
Nesting/foraging habitat	4,719	39	0	99.2%
<b>Bank swallow</b>				
Nesting habitat <sup>b</sup>	962	37	0	96.2% <sup>b</sup>
<b>Tricolored blackbird</b>				
Nesting habitat	4,680	86	0	98.2%

**Table 4-2 Maximum Habitat Based Take Limits, Covered Species, Proposed Action Alternative**

Species	Existing Modeled Habitat in Plan Area (acres)	Take Limit, Permanent	Take Limit, Temporary	% Remaining <sup>a</sup>
Foraging habitat	261,133	8,942	230	96.6%
<b>Total</b>	<b>265,813</b>	<b>9,028</b>	<b>230</b>	<b>96.6%</b>

**Palmate-bracted bird's beak**

Habitat	312	4	0	98.7%
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<sup>a</sup> Rounded to nearest 0.1 percent

<sup>b</sup> Actual nest sites will be avoided. Up to 37 acres of barren floodplain may be permanently affected by bank stabilization activities along Cache Creek undertaken through the CCRMP as needed to protect property or valuable resources. Additional barren floodplain is expected to be created during the 50-year permit term, however, as a result of the natural, dynamic fluvial processes along Cache Creek.

<sup>c</sup> The effects analysis based on the covered activities footprint and operations and maintenance assumptions predicts 37 nest trees may be removed. However, the Swainson's hawk nest tree take limit is set at 20 to account for the implementation of avoidance and minimization measures. The number of nest trees per planning unit will not exceed those provided in Table 5-5 of the HCP/NCCP, and the total will not exceed 20 nest trees. Source: Yolo Habitat Conservancy 2018, data source shared by Table 5-2(a)

<sup>d</sup> Within the affected western burrowing owl habitat, covered activities will displace no more than four occupied sites. Within the protected burrowing owl habitat, the Conservancy will protect at least two active burrowing owl nest sites, and will additionally protect two active nest sites for each nesting pair displaced, and one active nesting site or single owl site for each non-breeding single owl displaced by covered activities. See Section 6.3.4.9, *Western Burrowing Owl*, for more detail.

The primary result of the Neighboring Landowner Protection Program, from a biological resources perspective, would be the general preservation of existing conditions on lands adjacent to reserve system lands. The voluntary Neighboring Landowner Protection Program is described in more detail in Chapter 2, *Proposed Action and Alternatives*. The program would not change conditions related to most biological resources (e.g., species not covered under the program, sensitive habitats), however there may be additional considerations for the individual species covered under the program that will be discussed in the individual effects discussions below.

All covered activities implemented under the Proposed Action, including both development and conservation actions would be subject to applicable AMMs required by the HCP/NCCP, which would reduce impacts to biological resources. The AMMs that would reduce the likelihood of biological resource impacts are shown in Table 2-7 and discussed in detail in Appendix C. These AMMs include project design and construction AMMs that would reduce impacts from covered activities to biological resources in general including; establishing buffers between projects and sensitive natural communities during project design; designing projects to minimize indirect effects to non-agricultural natural communities, including noise, light, pets, and accidental dispersal of non-native plants; confining and delineating work areas during construction; covering trenches and holes during construction and maintenance to avoid trapping covered species; controlling fugitive dust; conducting worker training on the protection of sensitive natural communities and covered species; directing nighttime lighting in construction areas into the construction site and away from natural habitats and; locate construction and staging areas to avoid and minimize temporary effects on covered species and sensitive habitats. In addition to these general project and construction AMMs there are specific AMMs for cache Creek projects, sensitive natural communities, and individual covered species. These AMMs are discussed in the relevant effect sections below. All AMMs minimize effects on one or more covered species; therefore, a listing of relevant AMMs is not provided here as it would simply repeat information provided in Table 2-7 and Appendix C.

## Environmental Consequences/Environmental Effects

### Effect Bio-1: Palmate-bracted bird's-beak.

Palmate-bracted bird's-beak is a covered species under the Yolo HCP/NCCP and is listed as endangered under both the FESA and CESA. A detailed description of the species and known occurrences south east of Woodland, along with identification of modeled suitable habitat can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in palmate-bracted bird's-beak habitat loss and/or mortality would be required to implement general project and construction AMMs as discussed above, to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement AMMs specific to the avoidance and minimization of take of palmate-bracted bird's-beak. These species-specific AMMs are detailed in Appendix C and include identification of suitable habitat, surveys, and avoidance of activity within 250 feet of occupied habitat unless a shorter distance is determined to avoid effects and approved by the Conservancy, USFWS, and CDFW.

The conservation strategy includes a monitoring and adaptive management component, incorporation of pre-permit reserve lands, and a specific biological objective to manage and enhance habitat for the conservation of palmate-bracted bird's-beak. In addition to this species-specific objective, the conservation strategy also has three objectives related to the protection and management of the alkali prairie natural community as a whole. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands that will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As a result of the conservation strategy, 174 acres of palmate-bracted bird's-beak habitat would be protected, monitored and adaptively managed, including 141 acres of pre-permit reserve lands and 33 newly protected acres. In addition, 3 acres of habitat for the species is anticipated to be restored assuming maximum allowable loss (Yolo Habitat Conservancy 2018).

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that is incorporated and connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on palmate-bracted bird's-beak.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-2: Valley elderberry longhorn beetle.**

Valley elderberry longhorn beetle is proposed for coverage under the Yolo HCP/NCCP and is listed as threatened under the FESA. The species account for valley elderberry longhorn beetle habitat and occurrences in the Plan Area can be found in Appendix D. Valley elderberry longhorn beetle modeled habitat within the Plan Area includes 9,447 acres of riparian habitat and 3,932 acres of non-riparian habitat for a total of 13,379 acres of habitat for the species.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. In addition to management activities under the conservation strategy, the Neighboring Land Owner Program provides take coverage for valley elderberry longhorn beetle on private lands adjacent to reserve system lands as discussed above and in Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in valley elderberry longhorn beetle habitat loss and/or mortality would be required to implement general project and construction AMMs (Table 2-7) as discussed above to reduce



these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement AMMs specific to the avoidance and minimization of take on valley elderberry longhorn beetle. These species-specific AMMs are shown in Table 2-7 and detailed in Appendix C and include surveys and designing projects to avoid mapped elderberry shrubs as well as protective measures consistent with USFWS guidelines (USFWS 1999).

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of pre-permit reserve lands, and two specific biological objectives for the conservation of valley elderberry longhorn beetle. The first objective is to prioritize protection of populations of valley elderberry longhorn beetle along Lower Cache Creek and Lower Putah Creek and Sacramento River, and adjacent lands within the 1,600 acres of valley foothill riparian habitat in the reserve system to provide for valley elderberry longhorn beetle population expansion. The second objective is to establish elderberry shrubs and associated riparian plant species within valley foothill riparian habitats on reserve system lands and prioritize lands adjacent to existing populations to provide for population expansion. In addition to species specific objectives, the conservation strategy prioritizes the incorporation of lands into the reserve system that are adjacent to baseline public and easement lands; these lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, 2,306 acres of valley elderberry longhorn beetle habitat would be protected, monitored and adaptively managed. In addition, riparian habitat for valley elderberry longhorn beetle restored is estimated to exceed the acres lost by 53 acres (Yolo Habitat Conservancy 2018). Although there is a net loss of the less valuable non-riparian habitat of 61 acres, the incorporation of specific elderberry planting rations (Yolo Habitat Conservancy 2018), as well as monitoring and adaptive management into the conservation strategy would ensure successful restoration of riparian habitat.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is expected to result in a net gain in high quality restored riparian habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on valley elderberry longhorn beetle. However, take granted through the neighboring landowner protection program could slightly reduce the beneficial effects of the conservation strategy.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

#### **Effect Bio-3: California tiger salamander.**

California tiger salamander (Central Distinct Population Segment) is proposed for coverage under the Yolo HCP/NCCP and is listed as a threatened species under FESA and critical habitat has also been designated for the species. The species is also listed as threatened under CESA. The description of modeled valley California tiger salamander habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. There are 1,004 acres of modeled aquatic breeding habitat and 86,505 acres of modeled upland habitat for the species in the Plan Area. The majority of this habitat loss will occur in the Dunnigan Hills and Colusa Basin Plains Planning Units.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. In addition to management activities under the conservation strategy, the

Neighboring Land Owner Program provides take coverage for California tiger salamander on private lands adjacent to reserve system lands as discussed above and in Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in California tiger salamander habitat loss and/or mortality would be required to implement general project and construction AMMs as discussed above to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement AMMs specific to the avoidance and minimization of take on California tiger salamander. These species-specific AMMs are shown in Table 2-7, and detailed in Appendix C and include surveys for suitable habitat and occurrences in accordance with CDFW protocols (California Department of Fish and Game 2003). Examples of species specific AMMs include: a 500-foot setback from suitable habitat for projects other than habitat management and enhancement; a requirement that projects that affect occupied or assumed to be occupied habitat will not be implemented until four new occurrences are documented and protected in the Plan Area; and a requirement that habitat will not be removed if the Wildlife Agencies determine that the covered activity would remove a significant occurrence of this species that could be necessary for maintaining the genetic diversity or regional distribution of the species.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of pre-permit reserve lands, and specific biological objectives for the conservation of California tiger salamander. The first objective is to prioritize protection of at least 2,000 acres of modeled upland habitat (within 1.3 miles of aquatic habitat) with the Dunning Hills Planning Unit and to prioritize protection of designated critical habitat. The second objective is to protect at least 36 acres of aquatic habitat and to restore or create an additional 36 acres that includes at least five breeding pools that support all life stages through all water years. In addition to species-specific objectives, the conservation strategy includes objectives related to the natural grassland community that would protect 3,000 acres of grassland within the Dunnigan Hills Planning Unit and enhance habitat quality through the increase in abundance of rodent burrows and reducing invasive plant occurrences. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to baseline public and easement lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, a total of 2,439 acres of California tiger salamander habitat would be protected, monitored and adaptively managed. In addition, aquatic habitat for California tiger salamander restored is estimated to exceed that lost by 24 acres.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is expected to result in a net gain in restored aquatic habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species-specific AMMs that would further reduce adverse effects on California tiger salamander. However, take granted through the neighboring landowner protection program could slightly reduce the beneficial effects of the conservation strategy.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-4: Western pond turtle.**

Western pond turtle is proposed for coverage under the Yolo HCP/NCCP, and is a California species of special concern. The description of modeled western pond turtle habitat and occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. Within the Plan Area, western pond turtles have been observed in the Sacramento River, Putah Creek Riparian Reserve, Putah Creek Sinks, Lower Willow Slough, West Sacramento, and in storm water detention basins in the City of Davis. There are 53,907 acres of modeled aquatic habitat and 137,158 acres of modeled upland habitat, including 1,152 perennial ponds in the Plan Area.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. The restoration of western pond turtle aquatic habitat is estimated to result in the permanent loss of up to 1,118 acres of upland habitat for the species. In addition to management activities under the conservation strategy, the Neighboring Land Owner Program provides take coverage for western pond turtle on private lands adjacent to reserve system lands as discussed above and in Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in western pond turtle habitat loss and/or mortality would be required to implement general project and construction AMMs (as discussed above in the introduction to the analysis of the Proposed Action Alternative), to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement AMMs specific to the avoidance and minimization of take on western pond turtle. These species specific AMMs are detailed in Appendix C and are the same as those for the valley foothill riparian and lacustrine and riverine natural communities that require 100-foot setbacks for construction.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of pre-permit reserve lands, and a specific biological objective for the conservation of western pond turtle to include habitat features within restored and enhanced lacustrine and riverine habitats that benefit western pond turtle. In addition to the species-specific objective, the conservation strategy includes objectives to protect 2,800 acres of rice fields and 500 acres of emergent wetland as well as 600 acres of lacustrine and riverine habitat suitable for western pond turtle. Under the Proposed Action, western pond turtle would also benefit from objectives for giant garter snake that would provide suitable habitat in the form of at least 3,475 acres of upland giant garter snake habitat. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to baseline public and easement lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*].

As the result of the conservation strategy, at total of 9,320 acres of western pond turtle habitat would be protected, monitored and adaptively managed. In addition, implementation of the conservation strategy includes restoration of 369 acres of aquatic habitat for western pond turtle which is expected to result in a no net loss of aquatic habitat.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western pond turtle. However, take granted through the neighboring landowner protection program could slightly reduce the beneficial effects of the conservation strategy.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-5: Giant garter snake.**

Giant garter snake is proposed for coverage under the Yolo HCP/ NCCP and is listed as threatened under both FESA and CESA. This species is associated with permanent or seasonal marshes and rice fields in the Plan Area, and is absent from areas with dense vegetation that lack basking sites. Giant garter snakes also require upland habitat above the high water mark as winter refuge during dormancy. The species is known to occur northwest of Knights Landing and near Sycamore Slough and the Colusa Basin Drainage Canal in the northeastern portion of the Plan Area. The species is also known to occur east of Davis in the vicinity of the Yolo Bypass including the rice fields to the east of the Yolo Bypass Wildlife Area, as well as recent surveys within the Yolo Bypass. The description of modeled giant garter snake habitat and list of occurrences in the Plan Area can be found in Appendix D, along with a detailed species account. There are 31,168 acres of rice field habitat, 25,897 acres of freshwater emergent habitat, and 6,596 acres of other aquatic habitat for giant garter snake in the Plan Area. There also 6,612 acres of upland movement habitat and 6,783 acres of overwintering habitat.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. In addition to management activities under the conservation strategy, the Neighboring Land Owner Program provides take coverage for giant garter snake on private lands adjacent to reserve system lands as discussed above and in Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in giant garter snake habitat loss and/or mortality, would be required to implement general project and construction AMMs as discussed above to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement an AMM specific to the avoidance and minimization of take of giant garter snake. This species specific AMM is shown in Table 2-7 and detailed in Appendix C. This AMM requires avoidance of development in or within 200 feet of aquatic habitat, and if habitat cannot be avoided survey using the USFWS protocol (USFWS 1997), as well as additional measures to encourage giant garter snakes to leave the site on their own accord, and measures to avoid injury or mortality if giant garter snakes are encountered during construction.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 2,910 acres of giant garter snake habitat on pre-permit reserve lands, and specific biological objectives for the conservation of giant garter snake including; protecting 2,800 acres of rice fields, 1,160 acres of upland habitat, 500 acres of emergent wetland, and 420 acres of lacustrine and riverine suitable habitat for giant garter snake. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*].

As the result of the conservation strategy, a total of 10,290 acres of giant garter snake would be protected, monitored and adaptively managed. In addition, the connectivity of habitat, as well as monitoring and adaptive management under the conservation strategy would provide additional value beyond the project by project mitigation that would occur under the No Action Alternative.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is

connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on giant garter snake. However, take granted through the neighboring landowner protection program could reduce the beneficial effects of the conservation strategy.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-6: Swainson's hawk.**

Swainson's hawk is proposed for coverage under the Yolo HCP/NCCP and is listed as a Bird of Conservation Concern by the USFWS and as threatened under CESA. Swainson's hawk is a seasonal resident of the Plan Area and is generally present from early March, to occupy previous nesting territories or establish new territories, until October, when young have fledged and fall migration is complete. Nesting habitat is predominately within natural riparian woodlands, though trees may be used in other natural and developed habitat types. Foraging habitat consists of natural grassland and agricultural land types that provide similar low open vegetation and high rodent densities (e.g., alfalfa, dry grain and row crops). A complete description of modeled Swainson's hawk habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 15,673 acres of nesting habitat, 534 nesting sites, 79,336 acres of natural foraging habitat, and 214,078 acres of cultivated lands foraging habitat in the Plan Area.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in Swainson's hawk habitat loss and/or mortality, would be required to implement general project and construction AMMs (as discussed above in the introduction to the analysis of the Proposed Action Alternative), to reduce these effects to the greatest extent practicable. In addition to these general project and construction AMMs, covered activities would be required to implement an AMM specific to the avoidance and minimization of take on Swainson's hawk and white-tailed kite. This species specific AMM is detailed in Appendix C and requires avoidance of nest trees, or implementation of surveys for active nests as outlined by Swainson's Hawk Technical Advisory Committee (2000) and buffers around active nests. This AMM does allow for the removal of up to 20 nest trees (documented nesting within last 5 years) over the permit term, but not while occupied during the nesting season.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 4,795 acres of Swainson's hawk habitat on pre-permit reserve lands, and biological objectives for the conservation of Swainson's hawk including; maintaining crop types that support Swainson's hawk habitat within the 14,362 acres of protected agricultural lands, provide 4,430 acres of natural foraging habitat, protect and maintain at least 40 protected nest trees, and maintain a density of one suitable nest tree per 10 acres of agricultural lands in the reserve system. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands, which would further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 26,031 acres of Swainson's hawk habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management,

which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on Swainson's hawk.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-7: White-tailed kite.**

White-tailed kite is proposed for coverage under the Yolo HCP/NCCP and is a California fully protected species and protected under the MBTA. White-tailed kite is a year-round resident of the Plan Area that has similar nesting habitat to that described for Swainson's hawk though the species exhibits less of a preference for a specific vegetation type. Foraging habitat is also similar to that of Swainson's hawk, though defined for the purpose of this analysis as more frequently used primary and less frequently used secondary foraging habitat. A complete description of modeled white-tailed kite habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D. There are 31,732 acres of nesting habitat, 531 nesting sites, 101,758 acres of primary foraging habitat, and 134,740 acres of secondary foraging habitat in the Plan Area.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in white-tailed kite habitat loss and/or mortality would be required to implement general project and construction AMMs and the same species specific AMMs as discussed above for Swainson's hawk.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 3,545 acres of white-tailed kite habitat on pre-permit reserve lands. There are no specific biological objectives for the conservation of white-tailed kite, though the natural community objectives related to its habitat provide conservation for the species. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, a total of 23,902 acres of white-tailed kite habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on white-tailed kite.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-8: Western burrowing owl.**

Western burrowing owl is proposed for coverage under the Yolo HCP/NCCP. The species is also a USFWS Bird of Conservation Concern, protected under the MBTA, and a California species of special concern. The species is a year-round resident of the Plan Area that is associated with grassland, agricultural lands, and is also found in developed areas where patches of habitat exist. Western burrowing owls utilize abandoned ground squirrel burrows for nesting and are often found in locations with a high density of burrows. Within the Plan Area, there are 37,694 acres of primary habitat (e.g., natural lands, pastures, and other open or barren areas on the lower slopes and valley floors) and 66,160 acres of other habitat (e.g. margins of agricultural fields) utilized by the species. A complete description of modeled western burrowing owl habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in western burrowing owl habitat loss and/or mortality would be required to implement general project and construction AMMs as well as species-specific AMMs. These species-specific AMMs include; survey and avoidance of burrows and if needed passive relocation (or active relocation with Wildlife Agency approval). This species specific AMM is detailed in Appendix C.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 1,100 acres of western burrowing owl habitat on pre-permit reserve lands. In addition, there are several biological objectives for the conservation of western burrowing owl that include 3,000 acres of western burrowing owl habitat within the protected grassland natural community and 2,500 acres within the protected non-rice agricultural lands. Biological objectives also include maintaining a minimum of two active nest sites for each nesting pair displaced by covered activities, prioritization of protecting occupied habitat in the Yolo Bypass and vicinity, and implementation of management and enhancement practices within the reserve system. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands, which would further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 6,600 acres of western burrowing owl habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western burrowing owl.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-9: Least bell's vireo.**

Least Bell's vireo is listed as endangered under both the FESA and CESA as well as protected under the MBTA. The species is migratory and has historically bred within riparian habitats within the Plan Area, although surveys within the Yolo Bypass Wildlife Area have not detected breeding behavior in the last several years. There is currently 4,719 acres of modeled nesting/foraging habitat for least Bell's vireo in the Plan

Area. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in least Bell's vireo habitat loss and/or mortality would be required to implement general project and construction AMMs as well as a species specific AMM. This species specific AMM includes; USFWS protocol surveys and buffers from suitable nesting habitat and nests, or a limited operating period if activities occur within the buffer. This species specific AMM is detailed in Appendix C.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 110 acres of least Bell's vireo habitat on pre-permit reserve lands. There is also a biological objective for the conservation of least Bell's vireo that includes at least 600 acres of least Bell's vireo habitat within the protected valley foothill riparian natural community. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, a total of 1,318 acres of least bell's vireo habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional habitat conserved and other benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on least Bell's vireo.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-10: Bank swallow.**

Bank swallow is proposed for coverage under the Yolo HCP/NCCP and is listed under CESA as threatened and is protected under the MBTA. This species migrates to the Plan Area to breed in colonies in vertical cliffs and cut banks along rivers, streams, quarries, and road-cuts. Colonies have been documented in the past along the Sacramento River and Cache Creek. A complete description of modeled habitat, which includes the entire erodible open floodplain, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy such as implementation of conservation easements would not cause adverse effects on bank swallow, nor would covered management activities under the conservation strategy that require construction or other similar activities as none of these activities are anticipated to occur with bank swallow habitat.

Mining and bank stabilization activities under the Proposed Action Alternative that have the potential to result in bank swallow habitat loss and/or mortality would be required to implement general project and construction AMMs, and the Cache Creek Resources Management Plan. In addition, a species-specific AMM would also be required that includes; USFWS protocol surveys and buffers of suitable nesting habitat and



colonies, or a limited operating period if activities occur within the buffer. This species-specific AMM is detailed Appendix C.

The conservation strategy includes a monitoring and adaptive management component as well as the implementation of biological objectives for the conservation of bank swallow that includes at least 50 acres of nesting habitat within occupied habitat within the Lower Cache Creek Planning Unit or along the Sacramento River and managing of this habitat to enhance habitat value. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*].

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on bank swallow.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-11: Tricolored blackbird.**

Tricolored blackbird is proposed for coverage under the Yolo HCP/NCCP and is a candidate for listing as endangered under CESA and is protected under the MBTA. Tricolored blackbird is a year-round resident of the Plan Area and breeding colonies have been documented in several locations including the Yolo Bypass. The species is associated with a variety of habitats for nesting including wetlands, and agricultural areas. The species is known to forage in natural and agricultural areas that contain high densities of insects. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in tricolored blackbird habitat loss and/or mortality, would be required to implement general project and construction AMMs as well as a species-specific AMM. This species specific AMM includes; surveys for habitat and nesting colonies, buffers, and limited operating periods. This species-specific AMM is detailed in Appendix D.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 4,150 acres of tricolored blackbird habitat on pre-permit reserve lands. There are also biological objectives for the conservation of tricolored blackbird that include; at least 200 acres of modeled tricolor blackbird habitat within the protected emergent wetland natural community, and maintenance of at least one tricolored blackbird colony within the reserve system and prioritization protection of additional colonies as they are found. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands, which would further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 21,046 acres of tricolored blackbird habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional habitat conserved and other benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on tricolored blackbird.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-12: Western yellow-billed cuckoo.**

Western yellow-billed cuckoo is proposed for coverage under the Yolo HCP/NCCP and is listed as threatened under the FESA and CESA. The species is migratory and arrives in the Central Valley of California in July and breeds and forages within riparian habitat. There are no current records of nesting individuals within the Plan Area, although nesting has been observed in nearby Sutter County. A complete description of modeled habitat, a detailed species account, and a list of occurrences in the Plan Area can be found in Appendix D.

Activities under the conservation strategy that require ground or vegetation disturbance could result in adverse effects on this species. Projects and activities under the Proposed Action Alternative, including conservation strategy activities that have the potential to result in western yellow-billed cuckoo habitat loss and/or mortality would be required to implement general project and construction AMMs as well as a species specific AMM. This species specific AMM includes; surveys for habitat and nests, buffers, and limited operating periods. This species specific AMM is detailed in Appendix C.

The conservation strategy includes a monitoring and adaptive management component as well as the incorporation of 135 acres of western yellow-billed cuckoo habitat on pre-permit reserve lands. There is also a biological objective for the conservation of western yellow-billed cuckoo to conserve at least 500 acres of modeled western yellow-billed cuckoo habitat within the protected valley foothill riparian natural community, and restore at least 60 acres of habitat for the species within the reserve system. The conservation strategy also prioritizes the incorporation of lands into the reserve system that are adjacent to existing conservation lands will further limit the effects on the species from habitat fragmentation [See Section 2.3.2, *Alternative B—Proposed Action Alternative (Permit Issuance/Plan Implementation)*]. As the result of the conservation strategy, at total of 695 acres of western yellow-billed cuckoo habitat would be protected, monitored and adaptively managed.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative. The conservation strategy is also expected to result in additional habitat conserved and other benefits to the species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western yellow-billed cuckoo.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on this species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-13 Special-status plants not covered by Yolo HCP/NCCP.**

There are 27 special-status plant species that are either known to occur or have at least a moderate chance to occur in the Plan Area, and potentially be subject to impacts from covered activities. Complete description of these species' legal status, Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. For the purpose of this analysis these species are further categorized by the natural land cover types in which they are predominately found. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss due to covered activities would be the same for special-status species not covered by the Yolo HCP/NCCP as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities, would be required to implement general project and construction AMMs as discussed above. These AMMs could reduce adverse effects on special-status plant species not covered by the Yolo HCP/NCCP from covered activities by requiring actions such as designing projects to minimize indirect effects to non-agricultural natural communities, confining and delineating work areas, and locating construction and staging areas to avoid and minimize temporary effects on sensitive habitats. Other AMMs require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters. When covered and non-covered species habitat overlap, these AMMs could prevent adverse effects on special-status plant species not covered by the Yolo HCP/NCCP that are associated with these sensitive natural communities and aquatic habitats. Each project would also be required to comply with CEQA which would include measures to identify and avoid special-status plant species.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect special-status plant species not covered by the Yolo HCP/NCCP. However, there are specific goals and objectives for natural community types that provide potentially suitable habitat for these species including; Alkali prairie and vernal complex, valley foothill riparian, and freshwater emergent wetlands. For those species associated with alkali prairie (i.e. alkali milk-vetch, brittlescale, San Joaquin spearscale, Heckard's pepper-grass), the species specific AMM, goal and objective for palmate-bracted bird's-beak would also provide additional habitat benefits. Overall, the Proposed Action Alternative would result in over 24,000 acres of various natural community types being protected as new conservation lands. Where any suitable habitats for these plant species overlap with Covered Species habitat located within the reserve system, these species could also benefit from the reserve connectivity that limits effects of habitat fragmentation, as well as the same monitoring and adaptive management strategies as the rest of the reserve system.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on special-status plant species not covered by the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on these species, future projects compliance with CEQA further reduces effects on these species, and there is

compensation for effects that cannot be fully avoided through protection of over 24,000 acres of various natural communities in newly protected conservation lands.

*No mitigation is required.*

**Effect Bio-14: Special-status vernal pool invertebrates.**

Three special-status vernal pool invertebrates are known to occur within the Plan Area; Conservancy fairy shrimp, vernal pool fairy shrimp, and vernal pool tadpole shrimp. Critical habitat has been designated within the Plan Area for these species. These three species are associated almost exclusively with vernal pool habitats with associated seasonal wetlands. A more complete description of these species' Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D.

There are no projects and activities under the Proposed Action Alternative, including conservation strategy activities, that have the potential to result in vernal pool invertebrate habitat loss and/or mortality. Adverse effects on vernal pools and vernal pool invertebrates is not a covered activity. However, there is also an AMM, AMM9, that requires establishment of a 250-foot buffer around vernal pool habitat. Land cover mapping required as part of the process for obtaining HCP/NCCP coverage for a project (see Section 4.2.2 of the HCP/NCCP) would identify whether any vernal pool habitats are in a project site. In addition, any covered activities would be required to implement general project and construction AMMs as discussed above. Those AMMs that have water quality benefits (Table 9-1) could also further benefit vernal pool invertebrate species when habitats for these species are near the edge of the buffer required by AMM9. The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect vernal pool complex habitat; however, 96 percent of this habitat type is currently located on baseline public and easement lands (Yolo Habitat Conservancy 2018).

Conservation activities under the Proposed Action Alternative and other covered activities will not receive take coverage for adverse effects to vernal pool invertebrates, including loss of vernal pool species habitat. Therefore, there are no potential adverse effects on vernal pool habitat, vernal pool invertebrate species, or critical habitat for vernal pool tadpole shrimp that would result from the conservation strategy or implementation of the covered activities under the Proposed Action Alternative. If an individual project or activity may affect federally listed vernal pool species or their designated critical habitats those projects would not qualify for coverage under the Plan and would be required to seek individual incidental take authorization (through Section 7 or 10) from the USFWS. As part of authorization, a qualified biologist will conduct protocol surveys for vernal pool species. Surveys will follow the most current USFWS protocols. In addition, implementation of any required minimization and mitigation measures.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **less than significant**, although there is a potential for small benefits to these species.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as there are no covered activities under the Proposed Action Alternative that would result in vernal pool invertebrate habitat loss and/or mortality.

*No mitigation is required.*

**Effect Bio-15: Special-status amphibians not covered by Yolo HCP/NCCP.**

Two CDFW species of special concern amphibians that are not covered species under the Yolo HCP/NCCP are known to occur within the Plan Area; western spadefoot, and foothill yellow-legged frog. The foothill yellow-legged frog is a candidate for listing as a threatened species. A description of these species' habitats and known occurrences in the Plan Area can be found in Appendix D. Habitat for these species have not been specifically modeled for this EIS/EIR analysis, but includes the following aquatic and upland habitat types within the Plan Area; lacustrine and riverine, fresh emergent wetland, vernal pool complex, valley foothill riparian, chamise chaparral, mixed chaparral, blue oak woodland, valley oak woodland, and grassland. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss due to covered

activities would be the same for special-status amphibian species not covered by the Yolo HCP/NCCP as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities, would be required to implement general project and construction AMMs as discussed above, along with AMMs to establish buffers around sensitive natural communities, and to avoid and minimize effects on wetlands and waters. These AMMs could reduce adverse effects on western spadefoot and foothill yellow-legged frog from covered activities by requiring actions such as designing projects to minimize indirect effects to non-agricultural natural communities, confining and delineating work areas, and locating construction and staging areas to avoid and minimize temporary effects on sensitive habitats. Other AMMs require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters. When covered species habitat overlaps with habitat for western spadefoot toad and foothill yellow-legged frog, these AMMs could prevent adverse effects on these two amphibian species. Each project would also be required to comply with CEQA which would include measures to identify and avoid special-status amphibian species. Adverse effects on foothill yellow-legged frog would also require authorization under CESA.

Specific to vernal pool habitats, there are no projects and activities under the Proposed Action Alternative, including conservation strategy activities, that have the potential to result in vernal pool habitat loss. Adverse effects on vernal pools is not a covered activity. However, there is also an AMM, AMM9, that requires establishment of a 250-foot buffer around vernal pool habitat. Land cover mapping required as part of the process for obtaining HCP/NCCP coverage for a project (see Section 4.2.2 of the HCP/NCCP) would identify whether any vernal pool habitats are in a project site. In addition, any covered activities would be required to implement general project and construction AMMs as discussed above. Those AMMs that have water quality benefits (Table 9-1) could also further benefit special-status amphibian species not covered by the HCP/NCCP when habitats for these species are near the edge of the buffer required by AMM9.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect western spadefoot or foothill yellow-legged frog. There are specific goals and objectives for natural community types that provide potentially suitable habitat for these species, however, including; lacustrine and riverine, fresh emergent wetland, grassland, and valley foothill riparian. Overall, the Proposed Action Alternative would result in over 24,000 acres of various natural community types being protected as new conservation lands. Where any suitable habitats for western spadefoot toad and foothill yellow-legged frog are located within the reserve system, these species would benefit from reserve connectivity that limits the effects of habitat fragmentation, as well as the same monitoring and adaptive management strategies as the rest of the reserve system. Restoration activities under the conservation strategy may impact suitable upland grassland habitat (210 acres) for western spadefoot and foothill yellow-legged frog, although some of these restoration activities would result in the creation of suitable aquatic habitat in the form of 956 acres of wetlands and riparian natural communities (Yolo Habitat Conservancy 2018).

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western spadefoot and foothill yellow-legged frog.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on these species, future projects compliance with CEQA, and CESA for foothill yellow-legged frog, further reduces effects on these species, and there is compensation for effects that cannot be fully avoided through

protection of over 24,000 acres of various natural communities, some of which are suitable for western spadefoot toad and foothill yellow-legged frog, in newly protected conservation lands.

*No mitigation is required.*

**Effect Bio-16: Special-status birds not covered by Yolo HCP/NCCP.**

There are 17 special-status bird species that are either known to occur or have at least a moderate chance to occur in the Plan Area and may be adversely affected by covered activities. Complete descriptions of these species' legal status, Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. For the purpose of this analysis these species are categorized into a nesting raptor group which includes those species that are known or are likely to nest in the Plan Area based on potentially suitable natural land cover types and other factors. The remaining species are analyzed in the following groups based on the natural land cover types in which they are predominately found; wetland birds, riparian birds and grassland/woodland birds. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss because of covered activities would be the same for special-status species bird species not covered by the Yolo HCP/NCCP as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities, would be required to implement general project and construction AMMs as discussed above, along with AMMs to require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters. These AMMs could reduce any adverse effects on special-status bird species not covered by the Yolo HCP/NCCP. Project specific compliance with CEQA and the MBTA would also be required and measures to identify and avoid active bird nests.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect special-status bird species not covered by the Yolo HCP/NCCP. There are specific goals and objectives for natural community types that provide potentially suitable habitat for these species, however, including; cultivated lands, grassland, valley foothill riparian, lacustrine and riverine, and freshwater emergent wetlands. Overall, the Proposed Action Alternative would result in over 24,000 acres of various natural community types being protected as new conservation lands. Where suitable habitats for these species are located within the reserve system, these species would also benefit from the reserve connectivity that limits effects of habitat fragmentation, as well as the same monitoring and adaptive management strategies as the rest of the reserve system. In addition, there is a specific objective for maintaining or enhancing cultivated lands for raptors that would benefit non-covered raptor species. Biological objectives for covered bird species may also provide benefits for non-covered bird species; for example, maintaining crops that support Swainson's hawk habitat will also benefit species that utilize these types of crops as habitat (e.g. northern harrier, short-eared owl, and loggerhead shrike).

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on special-status bird species not covered by the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on these species, compliance with CEQA and the MBTA further reduces effects on these species, and there is and compensation for effects that cannot be fully avoided through protection of over 24,000 acres of various natural communities in newly protected conservation lands.

*No mitigation is required.*

**Effect Bio-17: Special-status bats.**

There are three special-status bat species that are known to occur in the Plan Area. A description of these species' habitats and known occurrences in the Plan Area can be found in Appendix D and discussed for the No Action Alternative above. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential permanent habitat loss because of covered activities would be the same for Townsend's big-eared bat, pallid bat and western red bat as discussed under the No Action Alternative above, including the demolition of abandoned buildings as part of development and conservation projects and activities, as well as reconstruction of bridges that can result in loss of roosts for Pallid and Townsend's big-eared bat.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities, would be required to implement general project and construction AMMs as discussed above, along with AMMs to require buffers on sensitive natural communities, including valley foothill riparian. By requiring actions such as designing projects to minimize indirect effects to non-agricultural natural communities, confining and delineating work areas, and locating construction and staging areas to avoid and minimize temporary effects on sensitive habitats, these AMMs could reduce adverse effects on special-status bat species from covered activities, including roosts of western red bat that utilizes the foliage of riparian trees for day and maternity roosts. Additional AMMs would minimize the potential for destruction of some pallid bat or Townsend's big-eared bat maternity roosts through minimizing disturbance to adjacent properties (Townsend's big-eared bat is highly sensitive to disturbance) and protecting oak woodland habitats. Each project would also be required to comply with CEQA which would include measures to identify and avoid special-status bat species, and in particular, bat roosts.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect special-status bat species not covered by the Yolo HCP/NCCP. However, there are specific goals and objectives for natural community types that provide potentially suitable foraging habitat for these species including; cultivated lands, grassland, and valley foothill riparian. These goals and objectives would also increase the number of potential roosts for pallid bat and western red bat; however, these goals and objectives would not increase potential roosts for Townsend's big-eared bat. Overall, the Proposed Action Alternative would result in over 24,000 acres of various natural community types being protected as new conservation lands. Where any suitable habitats for these special-status bat species overlap with Covered Species habitat located within the reserve system, these bat species could also benefit from the reserve connectivity that limits effects of habitat fragmentation, as well as the same monitoring and adaptive management strategies as the rest of the reserve system. Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **less than significant** because the potential to adversely affect maternity roosts for the red bat and Townsend's big-eared bat would be similar for the Proposed Action Alternative and the No Action Alternative.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on these special-status bat species, future projects compliance with CEQA further reduces effects on these species, and there are further benefits to the species provided through protection of over 24,000 acres of various natural communities in newly protected conservation lands.

*No mitigation is required.*

**Effect Bio-18 American badger.**

American Badger is a California species of special concern and there are four historical records of the species occurring in Yolo County. The most recent documented occurrence of the species was recorded west of Davis in 1997. American badgers occur in a wide variety of open, arid habitats but are most commonly associated with grassland, savannas, mountain meadows, and open areas of desert scrub; the principal habitat requirements for the species appear to be sufficient food (burrowing rodents), friable soils for construction of burrows, and relatively open, uncultivated ground. Within the Plan Area, American badgers are likely to be associated with blue oak woodland, blue oak and foothill pine, closed-cone pine-cypress, montane hardwood, valley oak woodland, grassland, and alkali prairie where suitable soils for burrows are available. Suitable habitat for these species has not been specifically modeled for this analysis, but includes the natural community types listed above. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss due to covered activities would be the same for American badger as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities would be required to implement general project and construction AMMs (as discussed above in the introduction to the analysis of the Proposed Action Alternative), along with AMMs to require buffers alkali prairie. These AMMs could reduce any adverse effects on American badger. Project specific compliance with CEQA would also be required for many projects and activities and would result in implementation of measures to identify, minimize, and/or compensate for effects on American badger.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect American badger. However, there are specific goals and objectives for natural community types that provide potentially suitable habitat for the species including; grassland, and alkali prairie. American badger will benefit from over 4,400 acres of suitable habitats included in the reserve system as new conservation lands. American badger could also benefit from the reserve connectivity that limits the effects of habitat fragmentation as well as the monitoring and adaptive management strategies applied to the reserve system.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to American badger above what would likely be required under the No Action Alternative. This would result, in part, through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management, which would not be required under the No Action Alternative which does not include one cohesive conservation strategy. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on American badger.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy indirectly results in the minimization of effects on American badger, future projects compliance with CEQA further reduces effects on this species, this species, and there is compensation for effects that cannot be fully avoided through protection of over 4,400 acres of suitable habitat types in newly protected conservation lands.

*No mitigation is required.*

**Effect Bio-19: Special-status fish species.**

There are 10 special-status fish species, Distinct Population Segments (DPS), and Evolutionarily Significant Units (ESU) that are either known to occur or have at least a moderate chance to occur in the Plan Area; North American green sturgeon, southern DPS, delta smelt, longfin smelt, steelhead – Central Valley DPS, chinook salmon – Sacramento River winter-run ESU, chinook salmon – Central Valley spring-run ESU, chinook salmon – Central Valley fall/late-run ESU, eulachon, Sacramento splittail, and river lamprey. Critical



habitat for delta smelt, North American green sturgeon, steelhead, chinook salmon Sacramento River winter-run ESU, chinook salmon – Central Valley spring-run ESU, chinook salmon also has been designated within the Plan Area. Complete descriptions of these species' legal status, Plan Area habitats and known occurrences in the Plan Area can be found in Appendix D. Suitable habitat for these species has not been specifically modeled for this analysis, but rather the analysis is based on the potentially suitable natural community types in the Plan Area.

The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent and temporary habitat loss because of covered activities would be the same for special-status fish species and critical habitat as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities would be required to implement general project and construction AMMs as discussed above, along with AMMs to require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters. These AMMs would likely reduce any adverse effects on special-status fishes and designated critical habitat from covered activities.

If an individual project or activity may result in take of federal or state listed fish species or adversely affects their designated critical habitats, those projects would not qualify for coverage under the Plan and would be required to seek individual incidental take authorization (through Section 7 or 10) from the NMFS and/or USFWS for federally listed species and take authorization from CDFW for state listed species. In addition, implementation of any minimization and mitigation measures would be required.

The conservation strategy under the Proposed Action Alternative does not include commitments or objectives to protect special-status fish species or designated critical habitat. However, there are specific goals and objectives for natural community types that provide potentially suitable habitat for these species including; valley foothill riparian, lacustrine and riverine, and freshwater emergent wetlands. Biological objectives for covered wetland species may also provide benefits for non-covered fish species (e.g. western pond turtle and giant garter snake).

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to these species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on special-status fish species and designated critical habitat.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as individual projects or activities that may result in take of a federally listed fish species or adversely affect their designated critical habitats would not qualify for coverage under the Plan. Therefore, covered activities would not result in take of federally listed fish species or adversely affect their designated critical habitats.

*No mitigation is required.*

**Effect Bio-20: Sensitive habitat types including wetlands and other waters of the United States.**

Seven of the natural communities identified in the Plan Area are considered sensitive habitats for the purpose of this analysis due to their limited distribution, unique plant communities that exist within these types and/or their relative importance to wildlife species; alkali prairie, blue oak woodland, freshwater emergent wetland, lacustrine and riverine, serpentine, valley foothill riparian and valley oak woodland. The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential acres of permanent loss because of covered activities would be the same for sensitive habitats including wetlands and other waters of the U.S. as discussed under the No Action Alternative above.

Projects and activities under the Proposed Action Alternative, including conservation strategy activities would be required to implement general project and construction AMMs as discussed above, along with AMMs to require buffers on sensitive natural communities and to avoid and minimize effects on wetlands and waters by meeting the requirements of the applicable State and federal regulations discussed under the No Action Alternative. These AMMs would likely reduce adverse effects on sensitive habitat types from covered activities, though loss of sensitive habitats and wetlands would occur.

The conservation strategy under the Proposed Action Alternative includes commitments and objectives to protect natural communities including those considered sensitive that would be adversely affected by the proposed action. These objectives would protect manage, enhance and restore sensitive habitats within the reserve system that are subject to loss under the Proposed Action Alternative including; protection of 33 acres of alkali prairie; protection of 1,600 acres and restoration of 608 acres of valley foothill riparian; protect 500 acres and restore 88 acres of freshwater emergent wetland; and protect 600 acres and restore 236 acres of lacustrine and riverine. This restoration of freshwater emergent wetland; and protect 600 acres and restore 236 acres of lacustrine and riverine freshwater emergent wetland and lacustrine and riverine achieves no net loss of these types, while protecting additional acres.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to sensitive habitats and wetlands and waters of the United States over what would likely be required under the No Action Alternative through the inclusion of protected acreage in a reserve system that is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and sensitive habitat AMMs that would further reduce adverse effects sensitive habitats and wetlands and waters of the United States.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as implementation of the conservation strategy results in the minimization of effects on sensitive habitats species and compensation for effects that cannot be fully avoided.

*No mitigation is required.*

**Effect Bio-21: Wildlife movement corridors.**

The California Essential Habitat Connectivity Project is a recently-completed, peer-reviewed statewide assessment of important habitat linkages (Spencer et al. 2010). The project's goal was to identify large remaining blocks of intact habitat or natural landscape at a coarse spatial scale, and model linkages between them that are important to maintain as corridors for wildlife ECAs (Exhibit 4-2. The English Hills - Blue Ridge/ Rocky Ridge ECA, Blue Ridge/ Rocky Ridge - Capay Hills ECA, Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA, Stone Lake - Yolo Bypass ECA, Yolo Bypass - Sacramento Bypass ECA, and Little Holland Tract/ Yolo Bypass - Yolo Bypass ECA all pass through or are wholly within the Plan Area.

The Proposed Action incorporates the same development related activities identified for the No Action Alternative and therefore the potential for projects to adversely affect wildlife movement corridors as defined by ECAs would be the same for both alternatives. However, under the Proposed Action covered activities would be required to implement AMMs, as discussed in the description of this alternative above, that would avoid and mitigate adverse effects on the natural communities that function to provide movement within ECAs. In addition, one of the landscape level goals of the conservation strategy is to provide large interconnected landscapes through the conservation of natural community types (Yolo Habitat Conservancy 2018). This goal would limit the effects of habitat fragmentation on wildlife movement corridors in the Plan Area.

Conservation activities under the Proposed Action Alternative are similar to those that would be required by the permitting process under the No Action Alternative, although the conservation strategy is also expected to result in additional benefits to wildlife movement corridors over what would likely be required under the No Action Alternative through the inclusion of protected acreage in a connected reserve system. In addition,

all covered activities would be subject to AMMs that would further reduce adverse effects on wildlife movement corridors.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant** as wildlife movement corridors would be retained, and in some cases, may be enhanced relative to existing conditions.

*No mitigation is required.*

### Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and current projects is described above for the No Action Alternative and remains the same for the Proposed Action Alternative. For all of the biological resources considered in this analysis, the Proposed Action Alternative would result in a beneficial impact or less than significant impact relative to the No Action Alternative. Relative to Existing Conditions, all impacts would be less than significant either before or after mitigation. Given the regional benefits to biological resources provided by the Conservation Strategy, no impact under the Proposed Action would not result in a cumulatively considerable contribution to a significant adverse cumulative effect.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **less than significant**.

**CEQA Level of Significance:** As compared to Existing Conditions, this impact is **less than significant**.

## ALTERNATIVE C-REDUCED TAKE ALTERNATIVE

The Reduced Take Alternative (Alternative C) would include the same categories of covered activities as the Proposed Action Alternative (Alternative B); however, under the Reduced Take Alternative there are eight areas designated for development under the Proposed Action where activities that would result in take of covered species would not be permitted. See Chapter 2, Section 2.3.3, *Alternative C-Reduced Take Alternative* for more information on this alternative. Under the Reduced Take Alternative, Effect Bio-1, Bio-10, and Bio-14 would not be appreciably different from what is described for the Proposed Action Alternative because habitat for these species does not occur in the eight areas where take would not occur. Therefore, Effect Bio-1, Bio-10, and Bio-14 are not discussed further in this section.

If activities are restricted to those that do not result in take in the eight designated areas, development currently planned for these locations could be diverted to other portions of the Plan Area. Biological resources at these new locations could then be adversely affected; although, under this alternative, it is assumed that the take prohibitions in the eight designated areas transfer to any locations where development might be displaced. Because it would require significant speculation to project how much development would actually be diverted, and where it might be located, the evaluation below only addresses the limitations on take in the eight designated areas.

Other than assuming that no take of covered species would occur in the eight identified areas, and that development could be displaced to another location under the same take restriction, all other elements of the Plan (e.g., covered species, covered activities, Plan Area, conservation strategy, AMMs, monitoring, funding) remain the same under this alternative.

## Environmental Consequences/Environmental Effects

### Effect Bio-2: Valley elderberry longhorn beetle.

Under Reduced Take Alternative, there would be approximately 91 fewer acres of valley elderberry longhorn beetle habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in the same acres protected in a connected reserve system as the Proposed Action Alternative. More high quality riparian habitat would be restored than would likely be required under the No Action Alternative. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on valley elderberry longhorn beetle.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-3: California tiger salamander.**

Under the Reduced Take Alternative, there would be approximately 87 fewer acres of California tiger salamander upland habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Dunnigan area (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative and the conservation strategy is expected to result in a net gain in aquatic habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on California tiger salamander.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is reduced and **less than significant**.

*No mitigation is required*

**Effect Bio-4: Western pond turtle.**

Under the Reduced Take Alternative, there would be approximately 19 fewer acres of western pond turtle aquatic habitat and 199 fewer acres of western pond turtle upland habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, Davis, the Dunnigan area, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in a net gain in aquatic habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western pond turtle.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-5: Giant garter snake.**

Under the Reduced Take Alternative, there would be approximately 56 fewer acres of active season upland habitat, 17 fewer acres of aquatic habitat, and 103 fewer acres of upland giant garter snake habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, the Dunnigan area, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in a net gain in aquatic habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on giant garter snake.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-6: Swainson's hawk.**

Under the Reduced Take Alternative, there would be approximately 96 fewer acres of Swainson's hawk nesting habitat and 1,053 acres of foraging habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, Davis, the Dunnigan area, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on Swainson's hawk.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-7: White-tailed kite.**

Under the Reduced Take Alternative, there would be approximately 96 fewer acres of white-tailed kite nesting habitat and 1,256 acres of foraging habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in Clarksburg, Davis, the Dunnigan area, Elkhorn, and West Sacramento. (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and

adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on white-tailed kite.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and **less than significant**.

*No mitigation is required*

**Effect Bio-8: Western burrowing owl.**

Under the Reduced Take Alternative, there would be approximately 270 fewer acres of western burrowing owl habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Clarksburg, Davis, and the Dunnigan areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western burrowing owl.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-9: Least bell's vireo.**

Under the Reduced Take Alternative, there would be approximately 21 fewer acres of least Bell's vireo habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the North Yolo Bypass area (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on least Bell's vireo.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-11: Tricolored blackbird.**

Under the Reduced Take Alternative, there would be approximately one fewer acre of tricolored blackbird nesting habitat and 1,070 fewer acres of foraging habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the

change in activities described above in the Clarksburg, Davis, the Dunnigan area, Elkhorn, and West Sacramento areas (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in a net gain in aquatic habitat restored which may include tricolored blackbird habitat. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on tricolored blackbird.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-12: Western yellow-billed cuckoo.**

Under the Reduced Take Alternative, there would be approximately 14 fewer acres of western yellow-billed cuckoo habitat lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above in the Elkhorn area (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional benefits to the species above what would likely be required under the No Action Alternative through the inclusion of habitat in a reserve system that incorporates and is connected to baseline public and easement lands and is subject to monitoring and adaptive management. In addition, all covered activities would be subject to general and species specific AMMs that would further reduce adverse effects on western yellow-billed cuckoo.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-13: Special-status plants not covered by Yolo HCP/NCCP.**

Under the Reduced Take Alternative, there would be fewer acres of potentially suitable habitat for special-status plant species not covered by the Yolo HCP/NCCP lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. There would be approximately 155 fewer acres of development that would occur in potentially suitable grassland habitat for bent-flowered fiddleneck, round-leaved filaree, deep-scarred cryptantha, adobe-lily, and Jepson's leptosiphon; approximately four fewer acres in potentially suitable freshwater emergent wetland habitat for Ferris' milk-vetch, woolly rose-mallow, Mason's lilaeopsis, delta tule pea, Baker's navarretia, Colusa grass, bearded popcorn flower, Suisun Marsh aster, saline clover, and Solano grass; and approximately 51 acres in valley foothill riparian habitat for Northern California Black walnut. As previously noted, suitable habitat is not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. This is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities

would be subject to various AMMs that would further reduce adverse effects on special-status plant species not covered by the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-15: Special-status Amphibians Not Covered by Yolo HCP/NCCP.**

Under the Reduced Take Alternative, there would be approximately 55 fewer acres of potentially suitable aquatic and riparian habitat and approximately 155 acres of potentially grassland habitat for western spadefoot and foothill yellow-legged frog lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. As previously noted, suitable habitat was not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on western spadefoot and foothill yellow-legged frog.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-16: Special-status birds not covered by Yolo HCP/NCCP.**

Under the Reduced Take Alternative, there would be fewer acres of potentially suitable habitat for special-status bird species not covered by the HCP/NCCP lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. There would be approximately 69 fewer acres lost in potentially suitable habitat for bald eagle; approximately 1,273 fewer acres of potentially suitable habitat lost for northern harrier and short-eared owl; approximately fewer 6 acres of potentially suitable habitat for least bittern, redhead, California black rail, western snowy plover, black tern, and yellow-headed blackbird; approximately 51 fewer acres of potentially suitable habitat for purple martin and yellow-breasted chat; and approximately 1,256 acres of potentially suitable habitat for mountain plover, loggerhead shrike, and grasshopper sparrow. As previously noted, suitable habitat was not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on special-status bird species.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*



**Effect Bio-17: Special-status bats.**

Under the Reduced Take Alternative, there would be 51 fewer acres of potentially suitable valley riparian habitat for special-status bats lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. As previously noted, suitable habitat was not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve system than would likely be required under the No Action Alternative. In addition, all covered activities would be subject to general AMMs that would further reduce adverse effects on special-status bat species.

**NEPA Level of Significance:** As compared to the No Action Alternative, and with implementation of Mitigation Measure Bio-17, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less, and with implementation of Mitigation Measure Bio-17, this impact is **less than significant**.

**Effect Bio-18 American Badger.**

Under the Reduced Take Alternative, there would be approximately 155 fewer acres of potentially suitable habitat for American badger lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. As previously noted, suitable habitat was not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on American badger.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-19: Special-status fish species.**

Under the Reduced Take Alternative, there would be approximately 73 fewer acres of potentially suitable habitat for special-status fish species lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. The majority of potentially suitable habitat retained under the Reduced Take Alternative is located within designated critical habitat for delta smelt, North American green sturgeon, steelhead and chinook salmon in the North Yolo Basin, South Yolo Basin, and West Sacramento Planning Areas. As previously noted, suitable habitat was not modeled for these species and may overestimate the acres retained under the Reduced Take Alternative. The reduction in acres lost is the result of the change in activities described above (Exhibit 2-6).

If habitat for federally listed fish species or designated critical habitat is located within the project footprint of covered activities, a qualified biologist will conduct an evaluation to determine if any federally listed species or designated critical habitat would be affected. If an individual covered activity may result in take of a federally listed fish species or adversely affect their designated critical habitats those projects would not be qualified for coverage under the Plan but would be required to seek individual incidental take authorization (through Section 7 or 10) from the USFWS and/or NMFS including implementation of any required minimization and mitigation measures.

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on special-status fish species.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio-20: Sensitive habitat types including wetlands and other waters of the United States.**

Under the Reduced Take Alternative, there would be 55 fewer acres of sensitive habitat types including wetlands and waters of the United States lost as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above (Exhibit 2-6).

Habitat loss under the Reduced Take Alternative is expected to be less than under the No Action Alternative. The conservation strategy is also expected to result in additional acres protected in a connected reserve system above what would likely be required under the No Action Alternative. In addition, all covered activities would be various AMMs that would further reduce adverse effects on sensitive habitat types including wetlands and waters of the United States.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required*

**Effect Bio 21: Wildlife movement corridors.**

The California Essential Habitat Connectivity Project is a recently-completed, peer-reviewed statewide assessment of important habitat linkages (Spencer et al. 2010). The project's goal was to identify large remaining blocks of intact habitat or natural landscape at a coarse spatial scale, and model linkages between them that are important to maintain as corridors for wildlife ECAs (Exhibit 4-3). The English Hills - Blue Ridge/ Rocky Ridge ECA, Blue Ridge/ Rocky Ridge - Capay Hills ECA, Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA, Stone Lake - Yolo Bypass ECA, Yolo Bypass - Sacramento Bypass ECA, and Little Holland Tract/ Yolo Bypass - Yolo Bypass ECA all pass through or are wholly within the Plan Area.

Under the Reduced Take Alternative, there would be less development and less habitat loss within ECAs in the vicinity of Clarksburg and West Sacramento as a result of implementation of covered activities than under the Proposed Action Alternative and No Action Alternative. This is the result of the change in activities described above (Exhibit 2-6).

Habitat loss within ECAs under the Reduced Take Alternative is expected to be less than under the No Action Alternative, and the conservation strategy is also expected to result in additional benefits to wildlife movement corridors over what would likely be required under the No Action Alternative through the inclusion of protected acreage in a connected reserve system. In addition, all covered activities would be subject to various AMMs that would further reduce adverse effects on wildlife movement corridors.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

*No mitigation is required.*

### **Cumulative Effects**

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Take Alternative. The individual effects on biological resources in the Plan Area from the Reduced Take Alternative would be similar to those under the Proposed Action Alternative, however because of the potential for an overall reduction in development under the Reduced Take Alternative, the potential effects could be reduced on the biological resources analyzed with the exception of palmate-bracted bird's-beak, bank swallow, and special-status vernal pool invertebrates which would not be appreciably different from what is described for the Proposed Action Alternative.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to the Proposed Action Alternative, this impact is less and is **less than significant**.

### **ALTERNATIVE D- REDUCED DEVELOPMENT ALTERNATIVE**

The Reduced Development Alternative (Alternative D) would include the same categories of covered activities as the Proposed Action (Alternative B), but under the Reduced Development Alternative, development within a portion of the west side of the Dunnigan area, and the Elkhorn Specific Plan Area, would not be covered activities under the HCP/NCCP. Any development that resulted in take of listed species in these locations would be required to obtain FESA and CESA authorization on a project by project basis (see Chapter 2, Section 2.3.4, *Alternative D-Reduced Development Alternative* for more information on this alternative).

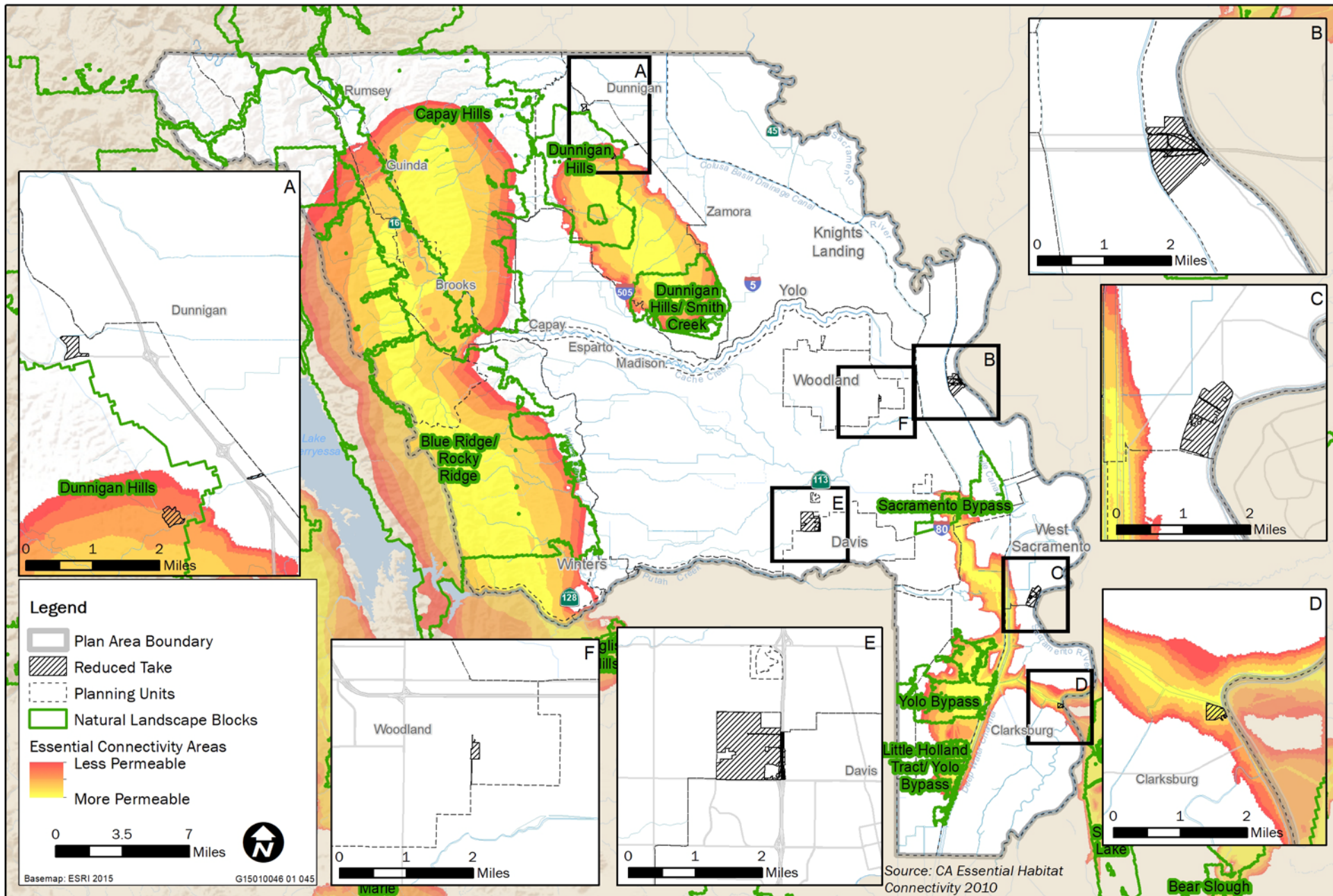


Exhibit 4-3

Reduced Take Alternative

Effects related to biological resources as a result of implementation of the Reduced Development Alternative would be similar to those discussed under the No Action Alternative and the Proposed Action; however, given that less development could occur within the two designated areas, there is the potential for less adverse effects from development related to biological resources. However, if these areas were developed some time in the future, effects on biological resources would be the same as those for the Proposed Action, although the HCP/NCCP would not be available as a mechanism to address losses of these resources. Mitigation in these two designated areas would be more similar to what would occur under the No Action Alternative.

Effects on biological resources as a result of implementation of the Reduced Development Alternative would be similar to those discussed above for the No Action and the Proposed Action Alternatives. However, as AMMs would be implemented for some, but not all activities under this alternative, the resulting impacts would be less than those for the No Action Alternative, but potentially greater than the Proposed Action Alternative. Under the Reduced Development Alternative, Effect Bio-1, Bio-10, and Bio -14 would not be appreciably different from what is described for the Proposed Action Alternative because habitat for these species does not occur in the two areas included in this alternative. Therefore, Effect Bio-1, Bio-10, and Bio -14 are not discussed further in this section.

**Effect Bio-2: Valley elderberry longhorn beetle.**

As described above, the Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 21 acres of development in the Elkhorn Specific Plan Area that would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for take of valley elderberry longhorn beetle and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-3: California tiger salamander.**

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be approximately 93 acres of development in the west side of the Dunnigan area that would not be covered under the Yolo HCP/NCCP that is within California Tiger Salamander suitable habitat (1 acre of aquatic habitat and 92 acres of upland habitat). While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for take of California tiger salamander and its habitat and designated critical habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-4: Western pond turtle.**

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under The Reduced Development Alternative there would be approximately 111 acres of development in the Dunnigan area and Elkhorn Specific Plan Area that is expected to result in permanent loss of modeled western pond turtle habitat that would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for western pond turtle and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-5: Giant garter snake.**

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 91 acres of development in the Dunnigan area and the Elkhorn Specific Plan Area that would not be covered under the Yolo HCP/NCCP, but would result in permanent loss of modeled giant garter snake habitat (10 acres of aquatic habitat and 81 acres of upland habitat). While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for giant garter snake and its habitat as under the No Action Alternative. These activities could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-6: Swainson's hawk.**

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 1,056 acres of development in the Dunnigan area and Elkhorn Specific Plan Area that would result in permanent loss of Swainson's hawk habitat (approximately 891 acres of cultivated lands foraging, 94 acres of natural foraging and 70 acres of nesting habitat). This development would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for Swainson's hawk and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-7: White-tailed kite.**

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 956 acres of development in the Dunnigan area and Elkhorn Specific Plan Area that would result in permanent loss of white-tailed kite habitat (70 acres of nesting, 92 acres of primary foraging and 792 acres of secondary foraging habitat). This development would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for white-tailed kite and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-8: Western burrowing owl.**

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 94 acres of development in the Dunnigan area that would result in permanent loss of western burrowing owl habitat. This development would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for western burrowing owl and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-9: Least bell's vireo.**

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 21 acres of development in the Elkhorn Specific Plan Area that would not be covered under the Yolo HCP/NCCP, but would result in permanent loss of modeled least Bell's vireo habitat. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for least Bell's vireo and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-11: Tricolored blackbird.**

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 870 acres of development in the Dunnigan area and Elkhorn Specific Plan Area that would permanently remove tricolored blackbird foraging habitat. This development would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for tricolored black bird and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-12: Western yellow-billed cuckoo.**

The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under The Reduced Development Alternative there would be 14 acres of development within western yellow-billed cuckoo modeled habitat in the Elkhorn Specific Plan Area that would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements for western yellow-billed cuckoo and its habitat as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-13: Special-status plants not covered by Yolo HCP/NCCP.**

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be development that would occur and would not be covered under the Yolo/HCP/NCCP. There would be approximately 92 acres of development that would occur in potentially suitable grassland habitat for bent-flowered fiddleneck, round-leaved filaree, deep-scarred cryptantha, adobe-lily, and Jepson's leptosiphon; approximately 6 acres in potentially suitable freshwater emergent wetland habitat for Ferris' milk-vetch, woolly rose-mallow, Mason's lilaeopsis, delta tule pea, Baker's navarretia, Colusa grass, bearded popcorn flower, Suisun Marsh aster,



saline clover, and Solano grass; and approximately 23 acres in valley foothill riparian habitat for Northern California Black walnut.

While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-15: Special-status amphibians not covered by Yolo HCP/NCCP.**

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be approximately 131 acres of development that would occur in potentially suitable habitat for western spadefoot and foothill yellow-legged frog and would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-16: Special-status birds not covered by Yolo HCP/NCCP.**

As described above the Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be development that would occur and would not be covered under the Yolo/HCP/NCCP. This development would occur in; approximately 33 acres of potentially suitable habitat for bald eagle; approximately 867 acres of potentially suitable habitat for northern harrier and short-eared owl; approximately 6 acres of potentially suitable habitat for least bittern, redhead, California black rail, western snowy plover, black tern, and yellow-headed blackbird; approximately 23 acres of potentially suitable habitat for purple martin and yellow-breasted chat; and approximately 870 acres of potentially suitable habitat for mountain plover, loggerhead shrike, and grasshopper sparrow. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for Alternative B. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-17 Special-status bats.**

As described above the Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be approximately 23 acres of development that could occur in potentially suitable valley and foothill riparian habitat for special-status bats and would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation of habitat types in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on special-status bats as they would not be subject to the same general AMMs as required under the Yolo HCP/NCCP, though adverse effects to roosts would be the same as under the No Project Alternative. Implementation of Mitigation Measure Bio-17 (described above for Effect Bio-17 under the Proposed Action Alternative) would reduce this impact to a less than significant level for the Reduced Development Alternative.

**NEPA Level of Significance:** As compared to the No Action Alternative, and with implementation of Mitigation Measure Bio-17, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar, and with implementation of Mitigation Measure Bio-17 is **less than significant**.

**Effect Bio-18 American badger.**

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be approximately 92 acres of development in the Dunnigan area that would occur in potentially suitable habitat for American badger and would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-19: Special-status fish species.**

As described above the Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be 33 acres of development that would occur in potentially suitable habitat for special-status fish species and designated critical habitat for North American green sturgeon, steelhead and chinook salmon and would not be covered under the Yolo HCP/NCCP. While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also

could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*

**Effect Bio-20: Sensitive habitat types including wetlands and other waters of the United States.**

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be development that would occur and would not be covered under the Yolo/HCP/NCCP. This development would occur in freshwater emergent wetland (6 acres), lacustrine and riverine (2 acres), and valley foothill riparian (23 acres). While there are no immediate plans to develop these areas, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on the species as they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required*

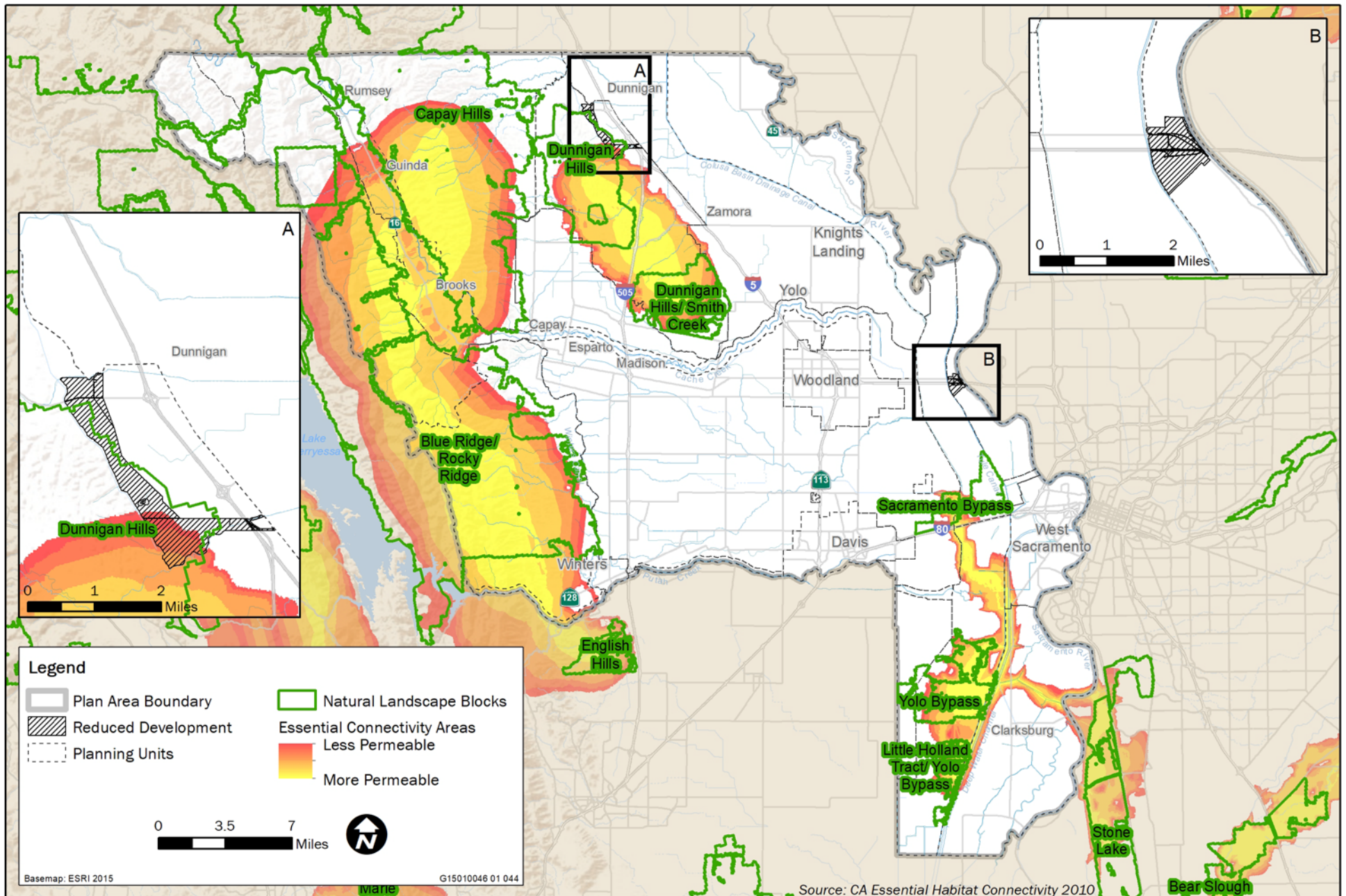
**Effect Bio 21: Wildlife movement corridors.**

As described above The Reduced Development Alternative is in most aspects the same as the Proposed Action Alternative. However, under the Reduced Development Alternative there would be development in the Dunnigan area that would occur in Dunnigan Hills/ Smith Creek - Dunnigan Hills ECA (Exhibit 4-4) that would occur and would not be covered under the Yolo/HCP/NCCP. While there are no immediate plans to develop this area, some type of development could potentially occur in the future. Should development occur, it would be subject to the same permitting and mitigation requirements as under the No Action Alternative. This may result in reduced conservation as it would not be subject to the same requirements for mitigation in the conservation strategy as would apply to covered activities and discussed for the Proposed Action Alternative. These activities also could result in greater adverse effects on wildlife movement corridors because they would not be subject to the same AMMs as required under the Yolo HCP/NCCP.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

*No mitigation is required.*



**Exhibit 4-4**

**Reduced Development Alternative**

## Cumulative Effects

The existing cumulative condition in the Plan Area resulting from past and present projects is described above for the No Action Alternative and remains the same for the Reduced Development Alternative. The contribution of the Reduced Development Alternative to the cumulative condition of biological resources in the Plan Area would be similar to that from the Proposed Action Alternative, in the type, scope and location of activities implemented, as well as the implementation of AMMs that would further reduce negative effects on water quality. However, unlike the Proposed Action Alternative, under the Reduced Development Alternative, some activities that could potentially be implemented in the future would not be covered under the Yolo HCP/NCCP and would not be subject to the same AMMs. Still, like the Proposed Action Alternative, the Reduced Development Alternative would result in less of a cumulatively considerable contribution to a significant cumulative effect than the No Action Alternative.

**NEPA Level of Significance:** As compared to the No Action Alternative, this impact is **beneficial**.

**CEQA Level of Significance:** As compared to Proposed Action Alternative, this impact is similar and is **less than significant**.

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