

4.6 BIOLOGICAL RESOURCES

4.6.1 EXISTING CONDITIONS

This section addresses terrestrial and aquatic biological resources that could be affected by implementation of the 2002 Zone 40 Water Supply Master Plan (2002 Zone 40 WSMP). Sources of information used to prepare this section include published and unpublished biological reports, environmental impact studies, and consultation with biologists and other experts regarding local natural resources.

GENERAL BIOLOGICAL RESOURCES

The Zone 40 Service area covers approximately 86,000 acres, and the 2030 Study Area covers approximately 46,500 acres of Zone 40 (see Chapter 3, Project Description). Although the 2030 Study Area is the focus of this analysis, the discussion is expanded for some topics to address biological resources outside of this study area that could be directly or indirectly affected by the project.

Zone 40 is largely characterized by a mosaic of grasslands, agricultural lands, and urban development. Exhibit 4.6-1 depicts the distribution of habitat types in Zone 40. This is based on Geographical Information Systems (GIS) data layers created for the Draft South Sacramento Habitat Conservation Plan (SSHCP) (Sacramento County 2000). Development of the GIS layers was primarily based on interpretation of aerial photos at a scale of 1 inch equals 3,200 feet (Jones & Stokes Associates 1999). Therefore, the accuracy of the habitat map is somewhat limited by the relatively large scale of the aerial photography. In addition, minimum mapping units of varying acreages were utilized for different habitat types; using larger mapping units can affect the accuracy of the data as well. Nonetheless, these GIS data provide the most accurate and comprehensive source of habitat information currently available for the Zone 40 service area.

For purposes of this analysis, habitat types were combined to form a larger category (e.g., riparian includes mixed riparian scrub, mixed riparian woodland, riparian oak woodland, and cottonwood woodland) when they were known to provide similar value to plant and wildlife resources. Table 4.6-1 provides approximate acreage values for habitat types in the 2030 Study Area, and a brief description of these habitat types is provided below.

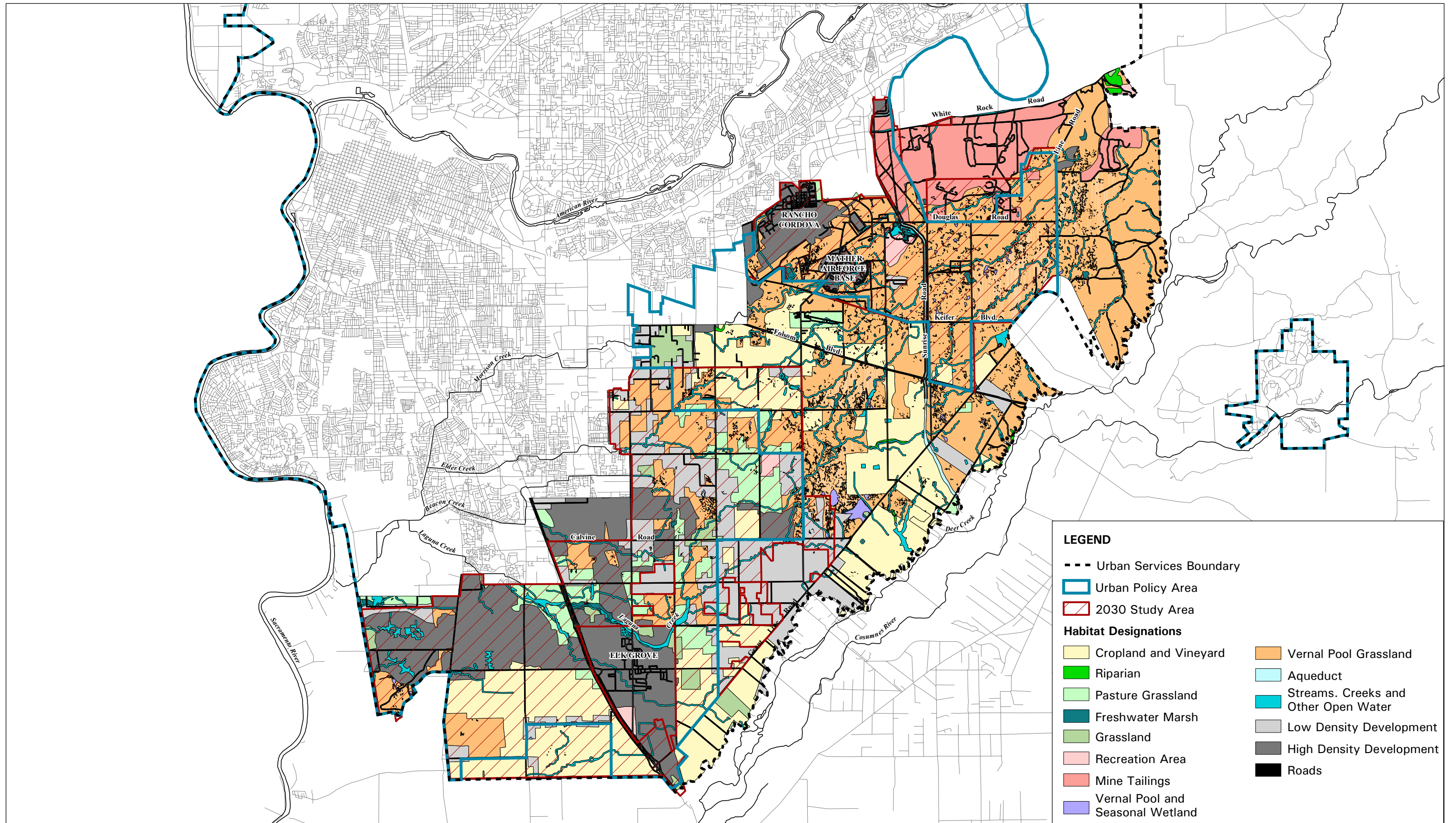
Grassland is the most abundant habitat in the 2030 Study Area, covering approximately 14,310 acres. Grasslands in 2030 Study Area have historically been used as grazing land for livestock, which continues to be prevalent in much of the area. These grasslands were separated into two habitat categories, vernal pool grasslands and annual grasslands. Vernal pool grasslands make up more than two-thirds of the total grassland acreage in the area, including the majority of land in the northern half. This habitat type, characterized by annual grassland areas interspersed with vernal pools and other seasonal wetlands, is considered a sensitive habitat and is discussed in more detail below. The remaining annual grassland areas are drier upland habitats, and wetlands are generally absent.

Agricultural land covers approximately 10,870 acres of the 2030 Study Area and is abundant in the southwestern portion. Agricultural land uses within the 2030 Study Area include row crops and pasture grassland.

Habitat Type	Acreage
Aqueduct	80
Cropland	7,910
Freshwater marsh	190
Grassland	530
High density development	8,540
Low density development	5,270
Mine tailings	1,430
Pasture grassland	2,960
Recreation area	310
Roads	2,910
Streams, creeks, and other open water	2,160
Vernal pool and seasonal wetland	480
Vernal pool grassland	13,780
Note: Numbers have been rounded.	
Sources: Sacramento County 2003, MWH 2003.	

Open water habitats cover a total of approximately 2,350 acres throughout the 2030 Study Area. These include freshwater marsh and a number of creeks and streams that cross the 2030 Study Area, predominately flowing in a northeast to southwest direction. Much of the open water habitat in areas traditionally used for livestock grazing is represented by stock ponds. The primary creeks in the 2030 Study Area are Morrison Creek and Laguna Creek. The system of channels in the upper Morrison Creek and Laguna Creek watersheds are typically several feet wide (bank to bank at ordinary high-water mark) and are sparsely vegetated from the scouring effects of fast-moving water and seasonal water availability (Sacramento County 2001). To a limited degree, more extensive vegetation is present along lower reaches of Laguna Creek and Morrison Creek where the riparian corridor is up to 100 feet wide (Sacramento County 1999). Freshwater marsh, creeks, and associated riparian habitats are considered sensitive and described in more detail in the following section.

Approximately 16,720 acres in 2030 Study Area are designated for urban uses, including high- and low-density development and roadway networks. The highest concentration of urban land use is near the city of Elk Grove, in the southwestern portion of the 2030 Study Area. Other primary urban areas include the city of Rancho Cordova and Mather Air Force Base.



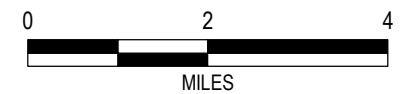
Sources: Sacramento County 1998, 1999; Montgomery Watson Harza 2003; U.S. Census Bureau 2002

Habitat Types in Zone 40

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Mine tailings cover approximately 1,430 acres of the 2030 Study Area, primarily east of Rancho Cordova, between Douglas Road and White Rock Road.

The 2030 Study Area provides important foraging and nesting opportunities for many of the wildlife species found in Sacramento County. The large contiguous area of vernal pool grassland habitat located in the northern half of the 2030 Study Area (Exhibit 4.6-1) supports sensitive vernal pool invertebrates, a number of special plant species, and terrestrial wildlife, such as wintering and nesting raptors (e.g., hawks, owls, eagles, and falcons). These habitats can also support a variety of reptiles and amphibians. Common wildlife species expected to occur in open grassland habitat include western fence lizard, western meadowlark, horned lark, California ground squirrel, and black-tailed jackrabbit. Agricultural areas are expected to provide habitat for common wildlife species such as mourning dove, American robin, Brewer's blackbird, California vole, and house mouse. Field crops can provide important foraging habitat for raptors, geese, and waterbirds (e.g., sandhill crane and white-faced ibis). Wildlife diversity and abundance is expected to be highest in riparian and perennial wetland habitats, despite the fact that these areas are generally restricted to narrow stream corridors and small, isolated locations surrounded by agricultural and urban land uses. Wildlife diversity in developed areas is expected to be relatively low and dominated by non-native and other species adapted to disturbed areas, such as house sparrow, European starling, house finch, opossum, raccoon, and house mouse.

SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources include those that are afforded special protection through CEQA, California Fish and Game Code, federal Endangered Species Act (ESA), California Endangered Species Act (CESA), and federal Clean Water Act (CWA). Sensitive biological resources also include those afforded protection under the County's General Plan Policies.

Special-Status Species

Special-status species include plants and animals that are legally protected or otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Special-status species addressed in this section include those in the following categories:

- ▶ species listed or proposed for listing as threatened or endangered under ESA or CESA;
- ▶ species considered as candidates for listing as threatened or endangered under ESA or CESA;
- ▶ species identified by the California Department of Fish and Game (DFG) as California Species of Special Concern and by U.S. Fish and Wildlife Service (USFWS) as federal Species of Concern;
- ▶ animals fully protected in California under the California Fish and Game Code; and

- ▶ plants designated by the California Native Plant Society (CNPS) Inventory as List 1B (plants rare, threatened or endangered in California and elsewhere) or List 2 (plants rare, threatened or endangered in California but more common elsewhere).

Special-status species known to occur within a 5-mile radius of Zone 40 were identified through a search of the California Natural Diversity Database (CNDDDB) (DFG 2003). Table 4.6-2 includes a list of special-status species known or expected to occur in the vicinity of Zone 40. This table was developed by compiling information from the CNDDDB search and prior biological surveys conducted in the vicinity of Zone 40.

Table 4.6-2 Special-Status Species Potentially Occurring in the Vicinity of Zone 40				
Species	Habitat	CNPS	DFG	USFWS
PLANTS				
Ahart's dwarf rush <i>Juncus leiospermus</i> var <i>ahartii</i>	Valley and foothill grasslands, edges of vernal pools and other seasonal wetlands	1B	--	--
Bogg's Lake hedge-hyssop <i>Gratiola heterosepala</i>	Marshes and swamps, vernal pools	1B	E	--
Dwarf downingia <i>Downingia pusilla</i>	Vernal pools in valley and foothill grasslands	2	--	--
Greene's legenere <i>Legenere limosa</i>	Vernal pools and other seasonal wetlands in valley and foothill grasslands	1B	--	--
Pincushion navarretia <i>Navarretia myersii</i>	Vernal pools in valley and foothill grasslands	1B	--	--
Sacramento Orcutt grass <i>Ocuttia viscida</i>	Vernal pools in valley and foothill grasslands	1B	E	E
Sanford's arrowhead <i>Sagittaria sanfordii</i>	Marshes, ponds, ditches and other shallow freshwater habitats	1B	--	--
Slender Orcutt grass <i>Orcuttia tenuis</i>	Vernal pools in valley and foothill grasslands	1B	E	T
FISH				
Chinook salmon - Central Valley winter run <i>Oncorhynchus tshawytscha</i>	Rivers and streams, including the Sacramento River	--	E	E
Chinook salmon - Central Valley spring run <i>Oncorhynchus tshawytscha</i>	Rivers and streams, including the Sacramento River	--	T	T
Chinook salmon - Central Valley fall/late fall run <i>Oncorhynchus tshawytscha</i>	Rivers and streams, including the Sacramento and Cosumnes rivers	--	SSC	C
Central Valley steelhead <i>Oncorhynchus mykiss</i>	Rivers and streams, including the Sacramento and Cosumnes rivers	--	--	T

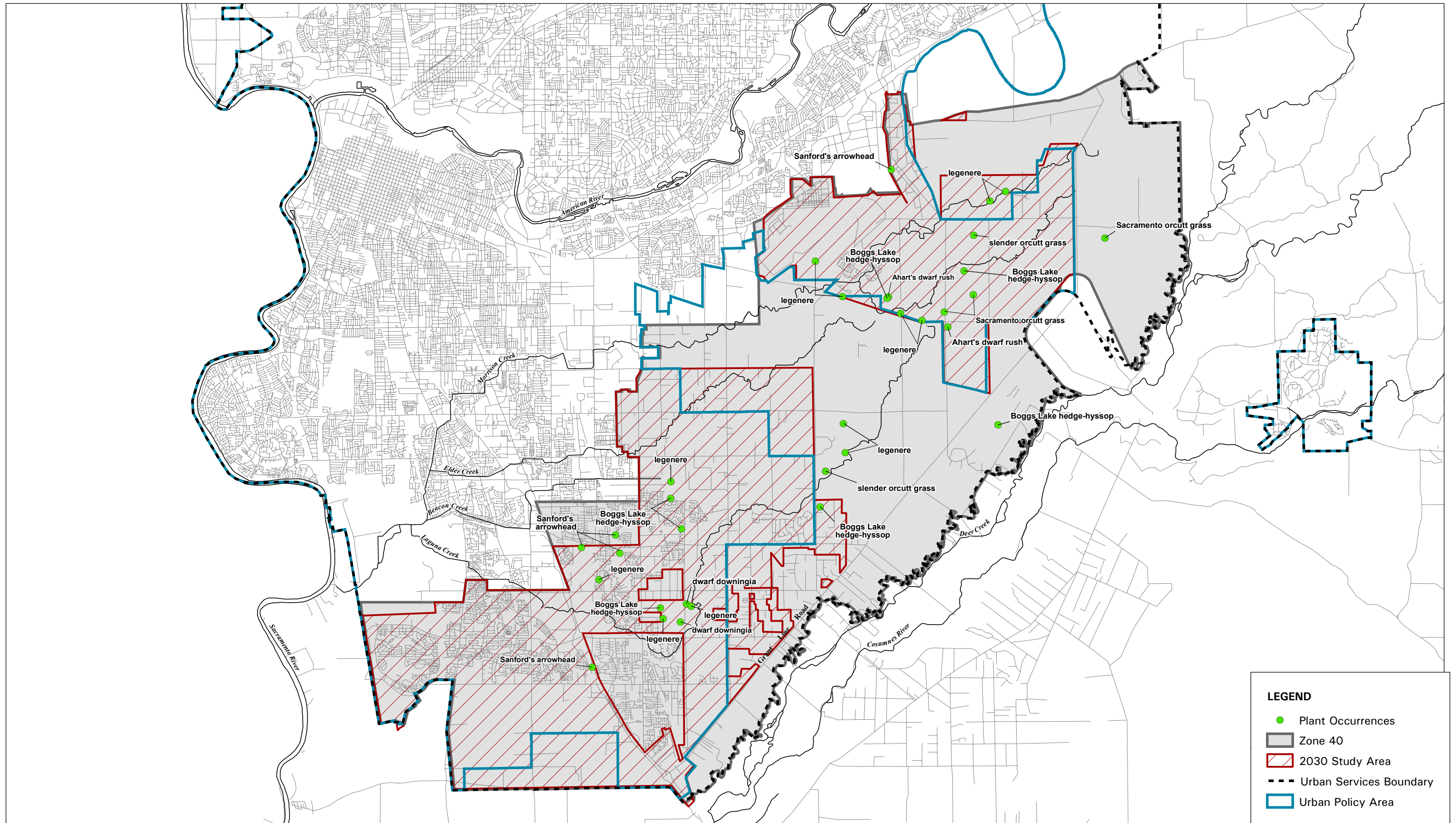
**Table 4.6-2
Special-Status Species Potentially Occurring in the Vicinity of Zone 40**

Species	Habitat	CNPS	DFG	USFWS
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	San Francisco Bay Delta and associated rivers and streams, including the Sacramento and Cosumnes rivers	--	SSC	--
INVERTEBRATES				
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Vernal pools and other seasonal wetlands in valley and foothill grasslands	--	--	T
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	Vernal pools and other seasonal wetlands in valley and foothill grasslands	--	--	E
California linderiella <i>Linderiella occidentalis</i>	Vernal pools and other seasonal wetlands in valley and foothill grasslands	--	--	SC
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	Elderberry bushes below 3,000 feet	--	--	T
AMPHIBIANS AND REPTILES				
California tiger salamander <i>Ambystoma californiense</i>	Vernal pools and other seasonal ponds in valley and foothill grasslands	--	SSC	C
Western spadefoot <i>Scaphiopus hammondi</i>	Vernal pools and other seasonal ponds in valley and foothill grasslands	--	SSC	SC
Northwestern pond turtle <i>Clemmys marmorata marmorata</i>	Freshwater marsh, ponds, lakes, and rivers	--	SSC	SC
Giant garter snake <i>Thamnophis gigas</i>	Freshwater marsh, sloughs, and slow-moving rivers	--	T	T
BIRDS				
White-tailed kite <i>Elanus leucurus</i>	Grasslands, agricultural land, and open woodlands	--	FP SSC	--
Northern harrier <i>Circus cyaneus</i>	Grasslands, marshes, agricultural land, and open woodlands	--	SSC	--
Sharp-shinned hawk <i>Accipiter striatus</i>	Dense coniferous and riparian forest	--	SSC	--
Cooper's hawk <i>Accipiter cooperii</i>	Open woodlands and woodland margins	--	SSC	--
Swainson's hawk <i>Buteo swainsoni</i>	Forages in grasslands and agricultural land, nests in riparian and isolated trees	--	T	--

Species	Habitat	CNPS	DFG	USFWS
Ferruginous hawk <i>Buteo regalis</i>	Forages in grasslands, agricultural fields, and other open habitats; does not nest in California	--	SSC	SC
Merlin <i>Falco columbarius</i>	Forages in a variety of open habitats; does not nest in California	--	SSC	--
Prairie falcon <i>Falco mexicanus</i>	Forages in grasslands and other open dry open habitats, nests on cliffs	--	SSC	--
Greater sandhill crane <i>Grus canadensis tabida</i>	Grasslands, irrigated pastures, alfalfa and fallow fields	--	T	--
Western burrowing owl <i>Athene cunicularia hypugea</i>	Grasslands, agricultural land, and open woodlands	--	SSC	SC
Short-eared owl <i>Asio flammeus</i>	Grasslands and other open habitats	--	SSC	--
Loggerhead shrike <i>Lanius ludovicianus</i>	Grasslands, shrublands, and open woodlands	--	SSC	SC
Tricolored blackbird <i>Agelaius tricolor</i>	Forages in agricultural land and grasslands; nests in marshes and other areas that support cattails or dense thickets	--	SSC	SC
California Native Plant Society (CNPS) 1B = plants rare, threatened, or endangered in California and elsewhere 2 = plants rare, threatened, or endangered in California, but more common elsewhere California Department of Fish and Game (DFG) U.S. Fish and Wildlife Service (USFWS) E = state listed as endangered E = federally listed as endangered T = state listed as threatened T = federally listed as threatened SSC = California Species of Special Concern C = federal candidate FP = fully protected SC = federal Species of Concern Sources: CNDDDB 2002, EDAW 2002				

Special-Status Plants

A total of 8 special-status plants are known or have the potential to occur in Zone 40, as listed in Table 4.6-2. Of these, three are listed as state and/or federal threatened or endangered species: Bogg’s Lake hedge-hyssop, Sacramento Orcutt grass, and slender Orcutt grass. All three listed species are known to occur in Zone 40. The other five plants are designated as 1B or 2 on the CNPS list. All of the special-status plants listed in Table 4.6-2 are restricted to vernal pools, other wetland habitats, or uplands associated with wetland habitats. Special-status plant occurrences that are documented in the CNDDDB and located in Zone 40, including the 2030 Study Area, are depicted in Exhibit 4.6-2.



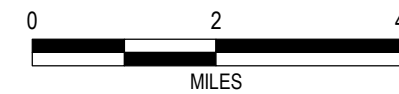
Sources: DFG 2003, Sacramento County 1999, Montgomery Watson Harza 2003, U.S. Census Bureau 2002

California Natural Diversity Database Special-Status Plant Occurrences

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EXHIBIT 4.6-2



Special-Status Animals

A total of 26 special-status animal species are known or have the potential to occur in the within 5 miles of Zone 40 (Table 4.6-2). Of these, 9 are listed as state and/or federal threatened or endangered species: Central Valley steelhead, winter-run chinook salmon, spring-run chinook salmon, vernal pool fairy shrimp, vernal pool tadpole shrimp, valley elderberry longhorn beetle, giant garter snake, Swainson's hawk, and greater sandhill crane. In addition, California tiger salamander and fall-run chinook salmon are currently considered by USFWS as candidates for listing as threatened or endangered. The remaining 15 special-status animal species are considered Species of Special Concern by DFG and/or federal Species of Concern by USFWS. Sacramento splittail was federally listed as a Threatened species, but USFWS recently published a "notice of removal" determination to remove it from the list of threatened and endangered species. Special-status animal occurrences that are documented in the CNDDDB and are located in Zone 40, including the 2030 Study Area, are depicted in Exhibit 4.6-3. These include vernal pool fairy shrimp, vernal pool tadpole shrimp, California linderiella, western spadefoot, northwestern pond turtle, giant garter snake, white-tailed kite, Cooper's hawk, Swainson's hawk, and western burrowing owl.

Many of the special-status animal species known or expected to occur in Zone 40 are restricted to riparian and wetland habitats. Vernal pools and other seasonal wetlands provide habitat for special-status invertebrates and amphibians. Stock ponds could also provide habitat for special-status amphibians. Grasslands provide important foraging habitat for special-status birds. Riparian habitat provides nesting habitat for raptors and other special-status birds and potential habitat for the valley elderberry longhorn beetle. Creeks and freshwater marsh provides potential habitat for giant garter snake and northwestern pond turtle.

Central Valley fall-run chinook salmon occurs in the Cosumnes River and the Sacramento River. Chinook salmon are known to spawn from Meiss Road upstream to Latrobe Falls in the vicinity of Rancho Murieta (Whitener, pers. comm., 2003). The CNDDDB (DFG 2003) includes occurrences of Central Valley steelhead in the Cosumnes River, but steelhead do not spawn in the Cosumnes because Latrobe Falls presents a natural barrier to suitable spawning habitat restricted to areas further upstream (Whitener, pers. comm., 2003).

Critical Habitat

Chinook Salmon and Steelhead

Critical habitat for winter-run chinook salmon, as designated under the ESA in 1993, includes the Sacramento River and its tributaries (NMFS 1993). In 2000, critical habitat was also designated for spring-run chinook salmon and Central Valley steelhead (NMFS 2000). However, the U.S. District Court of Columbia approved a consent decree withdrawing this designation in 2002. The decree was in response to litigation challenging the process by which the National Oceanic and Atmospheric Administration (NOAA) Fisheries, previously known as the National Marine Fisheries Service, established critical habitat. This critical habitat

designation included all river reaches accessible to the species in the Sacramento River and its tributaries. On September 29, 2003, NOAA Fisheries published the Final Rule amending the Code of Federal Regulations to withdraw the Critical Habitat designations that had been vacated by the court order.

Vernal Pool Crustaceans and Vernal Pool Plants

In September 2002, USFWS proposed critical habitat for four vernal pool crustaceans and 11 vernal pool plants in California and southern Oregon (USFWS 2002). Critical habitat was proposed in Sacramento County for four vernal pool species: vernal pool fairy shrimp, vernal pool tadpole shrimp, slender Orcutt grass, and Sacramento Orcutt grass. The proposal for all four of these species included portions of Zone 40. However, on August 8, 2003, following an economic analysis that found that the critical habitat designation for these 15 vernal pool species would impose economic costs that outweighed the benefits of designation, all proposed Critical Habitat within Sacramento County was excluded from the designation.

Sensitive Habitats in 2030 Study Area

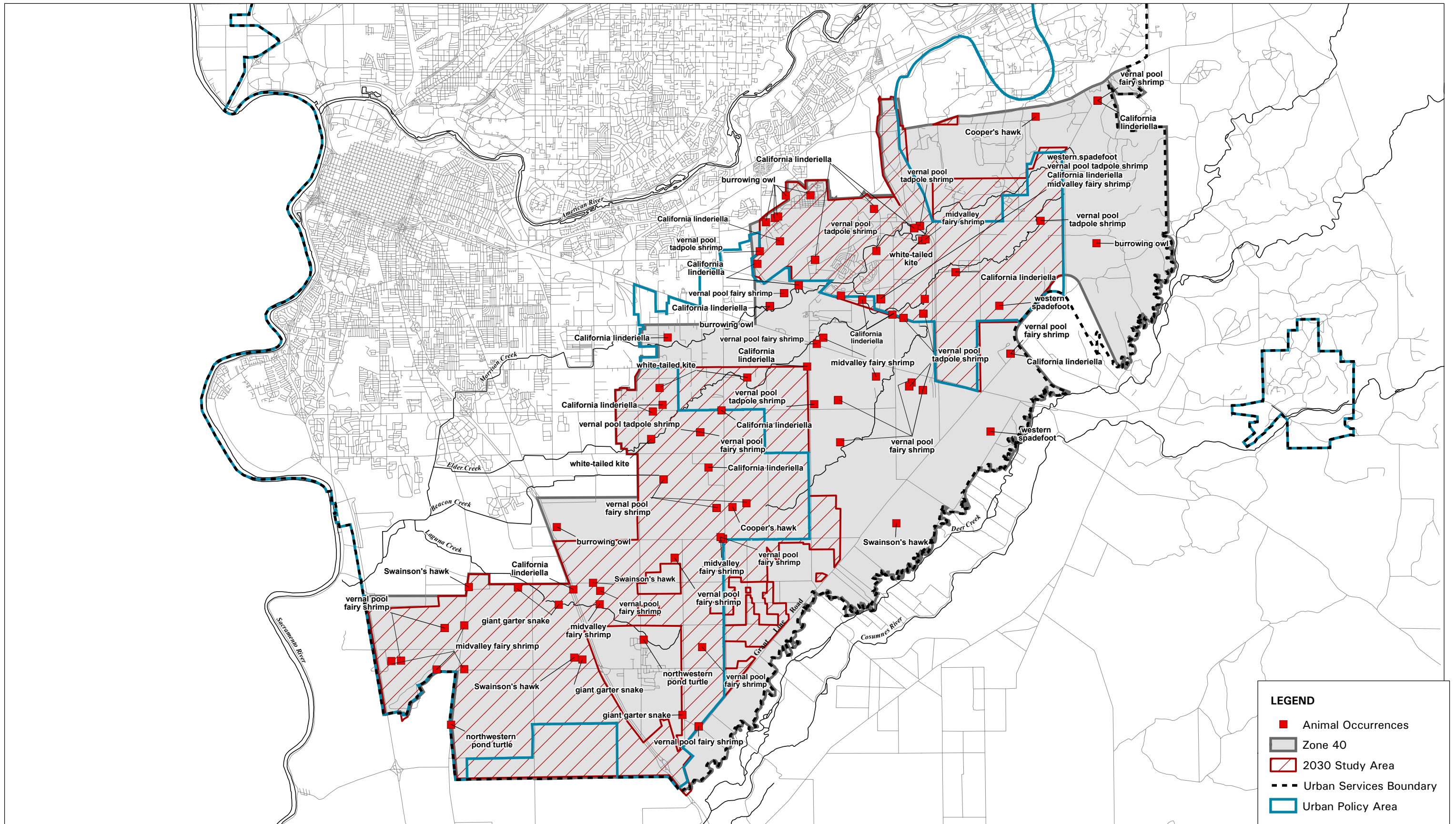
Sensitive habitats in the 2030 Study area include vernal pool grasslands, freshwater marsh, and riparian habitat (Exhibit 4.6-1). Sensitive habitats were identified through a search of the sensitive natural plant communities identified in the CNDDDB and review of prior biological studies conducted in the Zone 40 area.

Vernal Pool Grasslands

Vernal pool grassland habitat is generally described as grasslands interspersed with vernal pools and other seasonal wetlands. In the 2030 Study Area, there are approximately 13,780 acres of vernal pool grassland and approximately 480 acres of vernal pools and seasonal wetlands. Vernal pools are natural depressions covered by shallow water for variable periods from winter to spring and are typically dry for most of the summer and fall. They typically support high botanical diversity and often provide habitat for special-status plant and wildlife species. Vernal pools are classified in the CNDDDB by their substrate; those in the 2030 Study Area are classified as northern hardpan vernal pools.

Open Water and Riparian Habitats

The 2030 Study Area includes a number of streams, creeks, and ponds, totaling approximately 2,160 acres. Although the GIS habitat layers do not indicate the presence of riparian habitat associated with these open water areas, a limited amount of riparian vegetation is probably present in the 2030 Study Area. It is likely that riparian patches were too small to be identified during the aerial interpretation or that the minimum mapping unit was too small to include them. Riparian habitat includes plant communities that support woody vegetation along rivers, creeks, and streams. Vegetation can range from dense shrubs to a closed canopy of large, mature trees. Typical riparian assemblages include cottonwood woodland, valley oak riparian woodland, and mixed riparian scrub and woodlands. Riparian habitats are known to



LEGEND

- Animal Occurrences
- Zone 40
- ▨ 2030 Study Area
- - - Urban Services Boundary
- ▭ Urban Policy Area

Sources: DFG 2003, Sacramento County 1999, Montgomery Watson Harza 2003, U.S. Census Bureau 2002

California Natural Diversity Database Special-Status Animal Occurrences

EXHIBIT 4.6-3

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support a high diversity of plant and animal species, including a number of special-status species.

Freshwater Marsh

The 2030 Study Area includes approximately 190 acres of freshwater marsh. This habitat is generally restricted to narrow corridors along stream channels or locations surrounding other natural or artificial water features (e.g., stock ponds). Freshwater marsh in Zone 40 supports a variety of native plant species, including spikerush and various rushes and sedges.

Lower Sacramento and Cosumnes Rivers

The 2030 Study Area is in the vicinity of several major waterways, including the American River, Deer Creek, Cosumnes River, and Sacramento River. Biologically, these waterways are considered to be of statewide importance because they provide high wildlife values and are known to provide habitat for a number of special-status plants and animals. Two of these waterways, the Cosumnes River and the Sacramento River, are discussed further below, because of their ecological value and close proximity to Zone 40.

Lower Sacramento River

The Sacramento River is located approximately 2 miles west of the western boundary of Zone 40 (Exhibit 4.6-1). The lower Sacramento River is generally defined as the portion from Princeton to the Delta, at approximately Chippis Island (near Pittsburg). Historically, this area supported an extensive riparian and oak woodland corridor. However, today the lower Sacramento River is predominantly channelized, leveed and bordered by agricultural lands. Aquatic habitat in the lower Sacramento River is characterized primarily by slow-water glides and pools, is depositional in nature, and has reduced water clarity and habitat diversity relative to the upper portion of the Sacramento River. Despite these alterations to the river system, it provides important habitat, particularly for anadromous species that utilize it as a migratory route. Fish species composition in the lower portion of the Sacramento River is similar to that of the upper Sacramento River and includes resident and anadromous coldwater and warmwater species. Many fish species that spawn in the Sacramento River and its tributaries depend on riverflows to carry their larval and juvenile life stages to downstream nursery habitats. Native and introduced warmwater fish species primarily use the lower river for spawning and rearing; juvenile anadromous fish species also use the lower river, to some degree, for rearing (CCOMWP 1999).

Cosumnes River

The Cosumnes River watershed extends from its headwaters, at an elevation of approximately 7,500 feet on the western slope of the Sierra Nevada, to its confluence with the Mokelumne River, approximately 10 miles south of the 2030 Study Area. The Cosumnes River is the last major river draining the western slope of the Sierra Nevada with no major dams. Minor dams on the river are used for recreational purposes. The floodplain of the Deer Creek/Cosumnes

River corridor delineates the southeast boundary of Zone 40 (Exhibit 4.6-1). Although the river has no major dams, the river and its associated habitats have changed dramatically since historical times. Major alterations have resulted from timber harvest, mining, urban and residential development, grazing, and agricultural development. Historically, the lower reach of the river supported a matrix of riparian habitats, freshwater marsh, and large tracts of valley oak woodland. However, much of this habitat on the Central Valley floor has been converted or otherwise altered by human uses, with the majority of direct habitat loss resulting from conversion to agriculture (PWA 1997).

The 30,000-acre Cosumnes River Preserve project, located immediately upstream of the river's confluence with the Mokelumne River, was initiated in 1984 to protect the important biological resources associated with the Cosumnes River through land conservation, habitat restoration, and research. Although ongoing groundwater withdrawal has affected its flow profile, the primarily undammed status of the Cosumnes allows the river to retain a flow profile that supports a diverse assemblage of wetlands, riparian vegetation, bottomland oak forest, and grassland habitats (TNC 2001). The corridor also provides important habitat for a number of sensitive biological resources, such as migratory waterfowl, songbirds, raptors, anadromous fishes, and giant garter snake.

Central Valley fall-run chinook salmon begin upstream migration between late August to September (Hillock and Fry 1967), with peak spawning occurring in late October (Fisher 1994). This coincides with a period in which the middle reach of the Cosumnes River, from Twin Cities Road to Dillard Road, is dry except during and shortly after significant rainfall events. For example, late November 2002 rains provided flows for five days, resulting in approximately 1,200 adult salmon reaching the spawning grounds above Michigan Bar (Whitener, pers. comm., 2003). Based on recent observations, Whitener suggests that the minimum flow requirements for upstream passage to the Rancho Murieta spawning grounds correspond to 60 cfs at the Michigan Bar (river mile 36) gauging station. Decreased flow duration from late August to mid-November anywhere downstream of the Rancho Murieta spawning grounds and above Michigan Bar could disrupt migration and result in salmon stranding prior to spawning. Recent observations of successful salmon spawning were made during relatively wet conditions; drought conditions may lengthen the section of the river that dries up and fail to provide adequate flows for upstream migration.

Hydrology of the Cosumnes River area appears to have changed substantially since the region's settlement and development (PWA 1997). The river was likely used for surface water diversions since agriculture was first established in the region in the 1800s. Until the 1940s, the Cosumnes River flowed year round because it received baseflow from the extensive floodplain aquifer. Historical flow data suggest that flow volumes in the lower basin steadily decreased between 1942 and 1982. Flow records from the USGS McConnell gauge (near State Route 99) indicate an increase in the period of very low flow (<5 cfs) between the first and second half of the record period. In water years 1942-1961, there was an average of 82 days of very low or no flow. In water years 1962-1982, the average was 108, representing an average

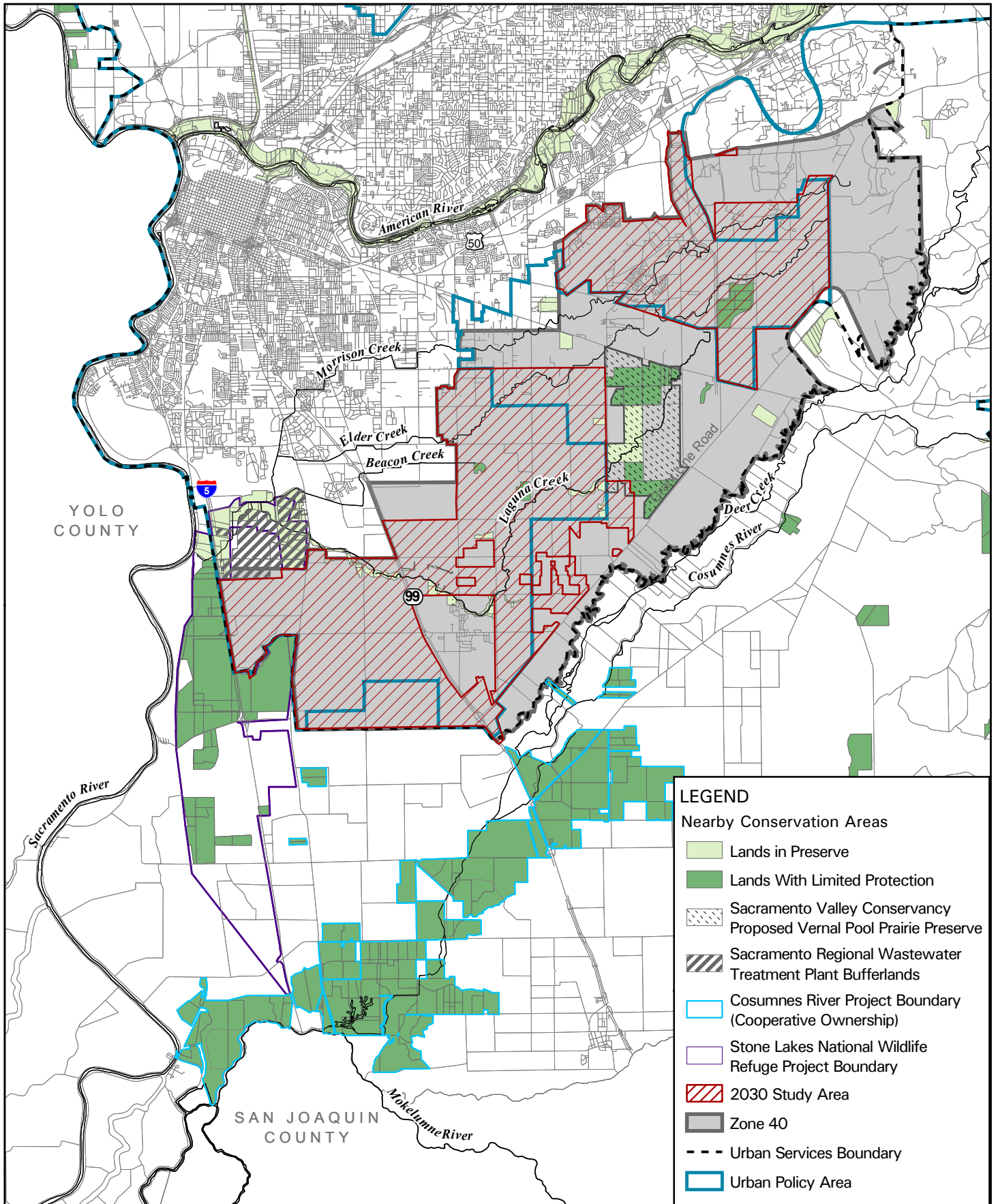
increase of 26 days per year. The current average is thought to be even higher, but daily average flow values have not been recorded at the McConnell gauge since 1982 (PWA 1997).

In addition to surface flows, groundwater levels below the Cosumnes River have also declined. The river is underlain by a system of deep and perched groundwater aquifers. The deep aquifer system has been used extensively to supply agricultural, industrial, and municipal needs. The perched or shallow aquifer system, however, is used exclusively for agriculture, and its hydrology, both in relation to the river and to the deep aquifer, is not understood (Whitener, pers. comm., 2003). The predevelopment water table was near ground level in the vicinity of the Cosumnes River, and the river is thought to have previously been a “gaining” river, meaning that it received water from underground aquifers. Under gaining conditions, it is thought that the river probably maintained some streamflows year round, with the exception of extremely dry years (PWA 1997, Whitener, pers. comm., 2003). However, maps of groundwater levels in Sacramento County, based on well data recorded by the California Department of Water Resources (DWR), suggest that groundwater levels along extended reaches of the lower Cosumnes River have been below the channel elevation for at least 30 years. Previous agricultural practices also decreased groundwater elevations. Additional studies have estimated a 60-foot decline in groundwater elevations in the vicinity of the Cosumnes River at State Route 99. During the period of 1984-1995, the 0 mean sea level groundwater elevation contour shifted approximately 12 miles upstream, from the vicinity of State Route 99 to the vicinity of the Folsom South Canal. This represents a drop of 20-30 feet in water table elevation in the vicinity of the lower Cosumnes River.

Historic groundwater withdrawal in the vicinity of the Cosumnes River has resulted in a hydraulic disconnect between the river and underlying groundwater along the majority of the river in the vicinity of Zone 40. (See Section 4.7, Water Resources, for information regarding the hydraulic disconnect.) However, reaches upstream and downstream of Zone 40 are still connected or seasonally connected to underlying groundwater aquifers, which can contribute to surface flows. Because much of the flow in the lower reaches originates from the river’s upper reaches, surface flows in the Cosumnes River continue to be affected by groundwater fluctuations.

Regional Conservation Efforts

A number of major regional conservation efforts have been initiated in Sacramento County to help preserve habitat for native plants and animals. Several of these efforts involve areas located in or adjacent to the 2030 Study Area (Exhibit 4.6-4). Areas depicted in Exhibit 4.6-4 as Lands in Preserve are those owned by an agency or nonprofit organization whose stated purpose is to protect property for purposes of habitat protection or land that is encumbered in perpetuity with a conservation or agricultural easement. Areas depicted as Lands with Limited Protection are in a natural state that is suitable as wildlife habitat but are not owned by an agency or nonprofit organization whose stated purpose is to protect the property for purposes of habitat protection. Specific regional conservation areas depicted in Exhibit 4.6-4 are described below.



Sources: Sacramento County 1999, 2003; Montgomery Watson Harza 2003; U.S. Census Bureau 2002; Danoff, pers. comm., 2003

Conservation Areas in the Vicinity of the 2030 Study Area

EXHIBIT 4.6-4

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Cosumnes River Preserve

The Cosumnes River Preserve encompasses 30,000 acres on the lower reach of the Cosumnes River, immediately upstream of its confluence with the Mokulumne River (Exhibit 4.6-4).

The preserve is a broad-based cooperative habitat planning and management effort coordinated by The Nature Conservancy (TNC) and involving multiple public agencies and private organizations aiming to restore and safeguard the integrity of the Cosumnes River and its surrounding landscape. The primary goals of the preserve are to:

- ▶ safeguard and restore the preserve’s California valley oak riparian ecosystem and its surrounding habitats;
- ▶ restore and create freshwater wetlands to increase the Pacific Flyway’s populations of migratory waterfowl; and
- ▶ demonstrate the compatibility of human uses—particularly agriculture, recreation, and education—with the natural environment.

In addition, the preserve aims to restore a significant portion of the river’s floodway and meander zone. Land-owning partners in the project include U.S. Bureau of Land Management (BLM); DFG; Wildlife Conservation Board; DWR; Sacramento County Department of Regional Parks, Open Space, and Recreation; TNC of California; and Ducks Unlimited, Inc. Additional agency support has been provided by USFWS, U.S. Environmental Protection Agency (EPA), National Fish and Wildlife Foundation, and the CalFed Bay-Delta Program. The Cosumnes River Preserve also manages 13,000 acres in southeast Sacramento County to protect portions of the Lower Cosumnes watershed, including a large vernal pool area and a low-elevation foothill oak woodland.

Sacramento Regional Wastewater Treatment Plant Bufferlands

The Sacramento Regional Wastewater Treatment Plant is surrounded by the Bufferlands, which provide separation between surrounding residences and businesses and the activities of the treatment plant. The Bufferlands encompass a total of 2,500 acres and are actively managed for open space, floodplain, agriculture, and wildlife habitat. The area provides important habitat for waterfowl, other waterbirds, and several threatened, endangered, and declining species. Ten major habitat types have been identified in the Bufferlands: annual grassland, valley oak woodland, mixed riparian forest, willow scrub, permanent freshwater marsh, seasonal wetland, vernal pools, permanent open water, agricultural land, and disturbed areas. For a thorough description of each of the habitat types present in the Bufferlands, please refer to the Bufferlands Master Plan (SRCSO 2000).

Stone Lakes National Wildlife Refuge

The USFWS Stone Lakes National Wildlife Refuge is located immediately west of Zone 40 (Exhibit 4.6-4) and is contiguous with the Bufferlands to the north. The 18,200-acre refuge was established in 1994 and includes a mosaic of grasslands, freshwater marsh, vernal pools and other seasonal wetlands, and riparian and oak forest. The refuge supports a diversity of native plant and wildlife species. The goals of the refuge include preservation, enhancement, and restoration of native Central Valley plant communities and their associated plant and wildlife species, habitat for rare, threatened, and endangered species, and migratory waterfowl and other waterbird habitat. A number of public and private partners contribute to the pursuit of these goals.

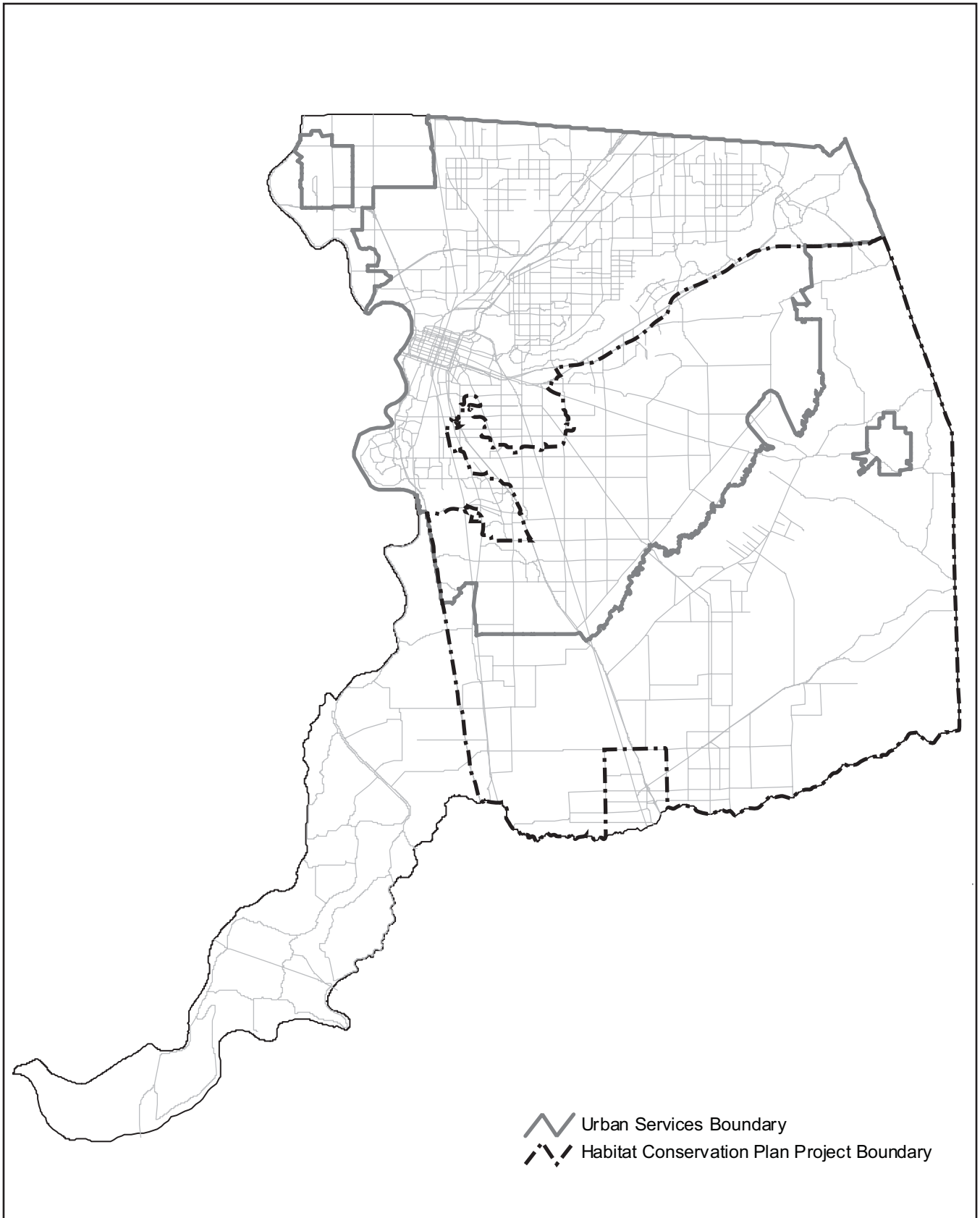
Sacramento Prairie Vernal Pool Area

The Sacramento Prairie Vernal Pool Area is a project of the Sacramento Valley Conservancy, which secures open space through the acceptance of gifts, private purchase, facilitation of public acquisition, conservation easements, and cooperative efforts. The Vernal Pool Area, located along both sides of Laguna Creek just east of the southern 2030 Study Area, was established through land purchases, conservation easements, and designation of land already owned by Sacramento County and private vernal pool mitigation banks. Currently, the preserve includes 2,000 contiguous acres of habitat; the Sacramento Valley Conservancy's goal is to increase the size of the preserve to 3,000 acres. The preserve continues to be used for managed grazing, its historical land use.

South Sacramento Habitat Conservation Plan

The SSHCP is intended to provide a regional approach to issues related to urban development, habitat conservation, agricultural protection and open space planning. It will serve as a multi-species, multi-habitat conservation plan addressing the biological impacts of future urban development within the Urban Services Boundary (USB) in the southern portion of the county. The SSHCP will provide strategies to conserve habitat for 9 plants and 42 animal species, including many of those with potential to occur in the 2030 Study Area. The process of developing the SSHCP was initiated in 1992 with limited federal funding and revised to its current scope in 1996 when additional funding became available. It is anticipated the draft SSHCP will be complete in 2005.

The SSHCP boundary encompasses the area south of U.S. Highway 50 and east of Interstate 5, including unincorporated County-owned land and the cities of Rancho Cordova and Elk Grove (Exhibit 4.6-5). It excludes the cities of Galt and Sacramento and the Sacramento River Delta. The SSHCP area includes approximately 317,000 acres of land inside and outside the USB, of which approximately 50,000 acres inside the USB are, or will likely be, designated for development. Both the 2030 Study Area and larger Zone 40 area are within the SSHCP boundary.



Source: Sacramento County Department of Environmental Review and Assessment 2002

South Sacramento Habitat Conservation Plan Project Boundary

EXHIBIT 4.6-5

The major goals of the SSHCP are to ensure long-term habitat viability, accommodate development of appropriate sites with fair and reasonable mitigation, protect agricultural lands, and streamline the permitting process. To mitigate impacts, land developers who convert habitat within the USB will pay a defined per acre fee, which will be used to protect, restore, maintain, and monitor habitat. The SSHCP will address regulatory requirements for issuance of relevant USFWS, USACE, and DFG permits, and upon adoption of the SSHCP, the County or its representative is anticipated to obtain such permits. The SSHCP is anticipated to have a 50-year threatened and endangered incidental take permit (ITP). The County or a similar public or nonprofit entity will be responsible for implementation of the SSHCP. The conservation and adaptive management strategies will be reviewed periodically (every 5-7 years) throughout the life of the 50-year ITP and additional or revised goals and strategies may be developed and implemented to ensure the SSHCP meets its long-term objectives.

It is anticipated that as growth occurs, habitat in the 2030 Study Area will be converted to residential or commercial uses. County General Plan objectives require that development occur inside the USB while prohibiting the extension of urban services outside the USB, except under extraordinary circumstances. The provision of water to the 2030 Study Area removes an obstacle to growth and development that is planned and approved by relevant land use authorities. Most of the existing habitat not currently protected in the 2030 Study Area could be converted to urban uses with approval from appropriate land use authorities. The 2030 Study Area encompasses approximately 46,500 acres, of which approximately 18,530 acres are developed or have existing development entitlements. The remaining 27,970 acres, of which all but 8,000 acres are within the County Urban Policy Area (UPA), are primarily used for grazing and agricultural production. Special-status species and habitats in the 2030 Study Area could be protected to some degree by state and federal regulatory requirements. New development proposals in the UPA could be mitigated through payment of fees under the guidelines of the SSHCP, once adopted, or through an individual Section 7 or Section 10 permit process.

As discussed previously, much of the undeveloped land in the 2030 Study Area provides suitable habitat for a number of common and sensitive plant and wildlife species, including those to be addressed in the SSHCP. Table 4.6-3 lists the general habitat types and associated acreages found in the 2030 Study Area. In addition, a variety of special-status species have been documented within the 2030 Study Area and larger Zone 40 area (see Exhibits 4.6-2 and 4.6-3). The SSHCP planning process is focusing on conservation of vernal pool grasslands and habitat for giant garter snake and Swainson's hawk. Conservation of these habitats will serve as an umbrella, of sorts, for most of the other species and habitats to be covered under the SSHCP. As part of the planning process, USFWS has identified a target of preserving approximately 50% of the approximately 1,000 acres of vernal pools inside the USB. Based on the USFWS target, approximately 500 acres of vernal pools could be conserved under the current SSHCP scenario. Approximately 500 acres of vernal pools are present in the 2030 Study Area.

Habitat	Northern Portion (acres)	Southern Portion (acres)	Total (acres)
Vernal pool grassland	8,470	5,310	13,780
Vernal pools	320	160	480
Pasture grassland	50	2,910	2,960
Cropland	110	7,800	7,910
Open water	60	340	400
Note: Numbers have been rounded.			
Sources: Sacramento County 2003, MWH 2003			

Under the SSHCP, it is not yet clear what mitigation would be required for vernal pool losses resulting from development; however, current programmatic recommendations by USFWS under Section 7 could require a ratio of 2:1 preservation plus a ratio of 1:1 creation for a total of 3 mitigation acres to 1 affected acre. With the coordinated habitat protection approach envisioned by the SSHCP, it is possible that a ratio somewhat less than the current standards in the USFWS Section 7 permit process could be approved.

It is not known where preservation and conservation efforts would be directed, but a portion of the restoration and preservation requirements could be satisfied through dedication of land outside the UPA but inside the USB, including portions of the 2030 Study Area that lie outside the UPA. Some vernal pools are already protected in habitat conservation sites within the USB (Exhibit 4.6-4). Although approximately 8,400 acres of the 2030 Study Area lie outside the UPA, these areas do not contain high concentrations of sensitive resources and have not been identified as feasible preservation or conservation sites (Radmacher, pers. comm., 2003). Land where habitat restoration could occur includes the eastern edge of the Sacramento Prairie area (Exhibit 4.6-1). Land areas with potential preservation opportunities include a portion of Sacramento Prairie area, the Morrison Creek drainage area within the Sunrise Douglas planning area, and the area directly east of the Sunrise Douglas planning area.

4.6.2 REGULATORY BACKGROUND

Certain biological resources in Zone 40 are protected by federal, state, and county policies and regulations. Important regulations that protect biological resources and are applicable to the proposed project are discussed below.

FEDERAL REGULATORY ISSUES

Federal Endangered Species Act

USFWS and NOAA Fisheries have authority over projects that may affect the continued existence of a federally listed (threatened or endangered) species. Section 9 of the ESA prohibits the take of federally listed species, where “take” is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Under federal regulations, “take” is further defined to include the modification or

degradation of habitat where such activity results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Section 7 of ESA outlines procedures for federal interagency cooperation to protect and conserve federally listed species and designated critical habitat. Critical habitat identifies specific areas that have the physical and biological features that are essential to the conservation of a listed species and that may require special management considerations or protection. Section 7(a)(2) requires federal agencies to consult with USFWS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek an incidental take permit under Section 10(a) of the ESA. Section 10(a) of ESA allows USFWS to permit the incidental take of listed species if such take is accompanied by a HCP that includes components to minimize and mitigate impacts associated with the take.

Clean Water Act

The USACE regulates discharges of fill or dredged materials into waters of the United States under Section 404 of the CWA. Waters of the United States include lakes; rivers, streams, and their tributaries; and adjacent or hydrologically connected wetlands. Wetlands are defined under Section 404 as areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Activities that require a permit under Section 404 include placing fill or riprap, grading, mechanized land clearing, and dredging. Activities that result in the deposit of dredged or fill material below the ordinary high-water mark (OHWM) of waters of the United States or within a jurisdictional wetland typically require a Section 404 permit, even if the area is dry at the time the activity takes place.

The CWA and the associated guidelines outlined in a memorandum of agreement (MOA) between EPA and USACE dated November 15, 1989, set forth a goal of restoring and maintaining existing aquatic resources. This MOA directed USACE to strive to avoid adverse impacts and to offset unavoidable adverse impacts on existing aquatic resources, and for wetlands, to strive to achieve a goal of an overall net loss of values and functions. While focusing the no-net-loss policy on wetlands, the MOA also noted the value of other waters of the United States, such as streams, rivers, and lakes. Under the guidelines, all waters of the United States are afforded protection, including requirements for appropriate and practicable mitigation based on values and functions of the aquatic resource that will be affected.

In 2001, the U.S. Supreme Court ruled, in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, that USACE has jurisdiction only over wetlands that are adjacent to navigable waters of the United States, interstate waters, all other waters where use, degradation, or destruction could affect interstate or foreign commerce, or tributaries to any of

these waters. This ruling reversed roughly two decades of USACE claims of jurisdiction over “isolated” waters under the interstate commerce clause of the U.S. Constitution based on use by migratory waterfowl. USACE is currently evaluating its jurisdiction over isolated wetlands on a case-by-case basis.

STATE REGULATORY ISSUES

California Endangered Species Act

DFG regulates the take of state-listed threatened and endangered species under CESA. CESA recognizes the ecological, educational, historical, recreational, esthetic, economic, and scientific value of threatened and endangered fish, wildlife, and plant species and declares “that it is the policy of the state to conserve, protect, restore, and enhance” threatened and endangered species and their habitats. Accordingly, the unauthorized take, possession, purchase, or sale of any listed species is prohibited under CESA. However, the state can authorize the take of state-listed species, incidental to otherwise lawful activities, pursuant to Section 2081(b) of CESA. The state has the authority to issue an incidental take permit under Section 2081 of the Fish and Game Code, or to coordinate with USFWS during the Section 10(a) process to make the federal permit also apply to state-listed species.

Section 1600 of the California Fish and Game Code

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream or lake in California that supports wildlife resources is subject to regulation by DFG, pursuant to Sections 1600 through 1603 of the California Fish and Game Code. Section 1601 states that it is unlawful for any agency to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream or lake designated by DFG, or use any material from the streambeds, without first notifying DFG of such activity. The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. DFG’s jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. Accordingly, a DFG Streambed Alteration Agreement must be obtained for any project that would result in diversions of surface flow or other alterations to the bed or bank of a river, stream, or lake.

Sections 3503 and 3503.5 of the California Fish and Game Code

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the Fish and Game Code specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of §3503.5 could also include failure of active raptor nests resulting

from disturbance of nesting pairs by nearby project construction. A distinction between the codes is the use of the term “needlessly” when referring to destruction of bird nests in §3503.

County Regulatory Issues

Sacramento County General Plan Policies

The biological resources policies from the Conservation Element of the County of Sacramento General Plan (Sacramento County 1993) that are most relevant to the proposed project are identified in Table 4.6-4.

Table 4.6-4 Sacramento County General Plan Biological Resources Policies	
Element	Policy
CO-62	Ensure no net loss of marsh and riparian woodland acreage, values or functions.
CO-68	Consistent with overall land use policies, the County shall support and facilitate the creation and biological enhancement of large natural preserves or wildlife refuges by other government entities or by private individuals or organizations. Such areas may, but need not necessarily, function as mitigation banks for other impacts on biological resources due to development.
CO-83	Ensure no net loss of vernal pool acreage, and/or values and functions, and mitigate any loss in relation to the values of quality of habitat.
CO-84	Evaluate feasible on site alternatives in the environmental review process that reduce impacts on vernal pools and provide effective on site preservation in terms of minimum management requirements, effective size, and evaluation criteria identified in the report “Sacramento County Vernal Pools” (1990).
CO-117	Provide a transition zone adjacent to stream corridors (refer to policy text for description of how appropriate extent of transition zones would be determined).
CO-130	Make every effort to protect and preserve non oak native, excluding cottonwoods, and landmark trees and protect and preserve native oak trees measuring 6 inches in diameter at 4.5 feet above ground in urban and rural areas, excluding parcels zoned exclusively for agriculture.
CO-133	For discretionary projects involving native oaks, ensure no net loss of canopy area.
CO-143	Control human access to critical habitat areas on public lands to minimize impact upon and disturbance of threatened and endangered species.
CO-151	Provide unobstructed water flows throughout the network of natural waterways by prohibiting blockage, tunneling, or obstruction of contiguous stream channels.
CO-152	Protect and preserve migratory routes for anadromous species.
CO-153	Reduce mortality of migrating fish by requiring screens or similar bypass apparatus on diversion pumps.

Biological Opinion Requirements, Public Law 101-514

In addition to the policies listed above, USFWS released a Biological Opinion (BO) in 1999 that conditioned new water delivery from the U.S. Bureau of Reclamation (USBR) to the SCWA. The BO requires conservation of special-status habitat areas both inside and outside of the 2030 Study Area as a condition for new water delivery to SCWA. This water is for use only in Zone 40. The WSMP identifies the facilities and financing mechanisms to deliver this water and other water supply sources. The BO identified the effects the new water delivery would have on seven special-status species and conservation measures to address those effects. The species addressed in the BO that have been documented or could occur in the 2030 Study Area and/or the Sacramento River are Sacramento Orcutt grass, slender Orcutt grass, Sacramento splittail, valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, and giant garter snake. A copy of the BO is included in Appendix E. Progress has been made toward complying with the conditions of the BO. The status of implementation of the conditions is presented at the end of Appendix E. Several conditions of the BO relate to implementation of conservation measures for vernal pool species and implementation of measures to pursue the completion of the SSHCP. In meeting its commitments to satisfying the conditions of the BO, SCWA has committed \$400,000 in funding toward completion of the SSHCP, the biological resources evaluation for Mather Field has been completed and is a key component to the development of a vernal pool mitigation plan, and the bufferlands at Kiefer Landfill are being evaluated pursuant to Section 404 permit regulations.

As a requirement of the Central Valley Project Improvement Act, SCWA is negotiating the renewal of its Public Law 101-514 Central Valley Project (CVP) water supply contract with the USBR. The USBR will consult separately with USFWS and NOAA under the ESA and will pass any additional conditions on this water supply to the SCWA independent of this CEQA review.

4.6.3 ENVIRONMENTAL IMPACTS

METHODOLOGY AND ASSUMPTIONS

This biological resources impact analysis is programmatic and is not based on site-specific information. Subsequent, environmental analyses will be conducted to determine project-specific impacts to biological resources and identify appropriate mitigation, as necessary.

THRESHOLDS OF SIGNIFICANCE

The potential for the proposed project to result in significant environmental effects was analyzed using information and criteria provided in the State CEQA Guidelines. Pursuant to the suggested thresholds in Appendix G, the proposed project would have a significant impact on biological resources if it would:

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

- ▶ have a substantial adverse effect on any riparian or other sensitive natural community identified in local or regional plans, policies, or regulations or by DFG or USFWS;
- ▶ have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh and vernal pools) through direct removal, filling, hydrological interruption, or other means;
- ▶ interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- ▶ conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- ▶ conflict with the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

IMPACT ANALYSIS

Impact 4.6-1: Special-Status Species. A total of 8 special-status plants and 26 special-status wildlife species have been recorded, or have the potential to occur, in the vicinity of the 2030 Study Area. Construction and maintenance of project facilities could result in loss and/or disturbance of special-status plants and animals and their habitat. Additional impacts could result from development facilitated by adoption of the WSMP. This is considered a potentially significant impact.

Construction, operation, and maintenance of Zone 40 facilities could affect a number of special-status plant and wildlife species. Facilities, such as groundwater treatment and storage facilities, main transmission pipelines, groundwater injection wells, infiltration galleries, and recharge ponds, could be located throughout the study area. The project would also include construction of a diversion structure on the Sacramento River. Therefore, the Sacramento River is included in this analysis despite its location outside of the study area.

A total of 8 special-status plants and 26 special-status wildlife species could be affected by the proposed project. Three plant species known to occur in the 2030 Study Area are state and/or federally listed as threatened or endangered: Bogg's Lake hedge-hyssop, Sacramento Orcutt grass, and slender Orcutt grass. All of the special-status plants are associated with wetland habitats, which are scattered throughout much of the 2030 Study Area. Nine wildlife species known or with potential to occur in the vicinity of the 2030 Study Area are state and/or federally listed as threatened or endangered: winter-run chinook salmon, spring-run chinook salmon, Central Valley steelhead, vernal pool fairy shrimp, vernal pool tadpole shrimp, valley elderberry longhorn beetle, giant garter snake, Swainson's hawk, and greater sandhill crane. The Sacramento River and its accessible tributaries are designated as Critical Habitat for Central Valley steelhead. These and other special-status wildlife species are expected to occur

in a variety of habitats in the 2030 Study Area, though many of them are restricted to wetland habitats.

Depending on their location, construction of project facilities could result in loss and/or disturbance of special-status species and their habitat. Indirect impacts on species associated with wetland habitats could result from increased siltation from runoff, changes in hydrology, and other effects that may alter their habitat. Such impacts could result even when facilities are not located in the immediate vicinity of wetlands. Habitat could also be temporarily affected by installation of pipelines and other facilities that would not necessarily result in permanent loss or alteration of habitat. Construction-related disturbance, such as vehicular and construction noise, could disrupt nesting raptors, potentially resulting in nest abandonment. Construction and operation of the diversion structure could affect special-status fish and Critical Habitat for winter-run chinook salmon.

In addition to these potential impacts related to construction of project facilities, implementation of the WSMP would facilitate development that could result in additional impacts to special-status species, including potential loss of habitat and individuals. Potential impacts to special-status species from subsequent development would be similar to those described above.

Several Sacramento County General Plan policies relate to protection of special-status species, and an overall goal of the Plan is to increase populations of threatened and endangered species found in Sacramento County. Policy CO-143 seeks to control human access to critical habitat areas and on public lands to minimize impact on and disturbance of threatened and endangered species. Policies CO-151 through CO-153 are applicable to steelhead and salmon. These policies address issues such as promoting anadromous fish propagation and migration by providing unobstructed water flows, protecting and preserving migratory routes, and minimizing mortality by requiring screens or similar bypass apparatus on diversion pumps. Construction and operation of project facilities would need to be designed to comply with or mitigated to reduce impacts consistent with the above General Plan policies.

The specific location of the future project facilities has not yet been determined. SCWA will comply with County General Plan policies by making every effort to avoid special-status species habitat when siting project facilities. Through careful consideration of known occurrences and locations of suitable habitat, most project facilities could be constructed in areas that do not support special-status species. However, complete avoidance of impacts may be difficult in some cases, particularly with construction of larger project facilities (e.g., groundwater storage ponds) and linear facilities (e.g., transmission pipelines). As described in the draft EIR/EIS prepared for the FRWA surface water project, the diversion structure on the Sacramento River would be constructed in a manner that avoids impacts on special-status fish, including winter-run chinook salmon. Fish screens also would be used to ensure that special-status fish are not killed or displaced by operation of the diversion. Because of the above assumptions regarding siting of the facilities and implementation of protective measures, construction and operation of project facilities would not interfere substantially with the movement of fish or wildlife or impede use of nursery sites in the 2030 Study Area or the Sacramento River.

Generally, any impact that results in death or injury of a species state or federally listed as threatened or endangered would be considered significant. The loss of habitat for listed species is also generally considered significant. Impacts to nonlisted special-status species could be significant, depending on the numbers of individuals affected, the amount of habitat lost (including conversion of agricultural land), and the degree to which the species is threatened, locally and statewide. Impacts could also be significant if construction and operation of project facilities conflicts with General Plan policies relevant to special-status species. For these reasons, impacts on special-status species from implementation of the 2002 Zone 40 WSMP are considered potentially significant.

Impact 4.6-2: Sensitive Habitats. The 2030 Study Area and nearby locations support a number of several sensitive habitats. Construction and maintenance of project facilities could result in loss, alteration, and/or temporary disturbance of sensitive habitats. Additional impacts could result from development facilitated by adoption of the WSMP. This would be considered a potentially significant impact.

Implementation of the proposed project could affect sensitive habitats. Sensitive habitats in the 2030 Study Area include: vernal pool grasslands (specifically the interspersed vernal pools and other seasonal wetlands), freshwater marsh, creeks, and riparian habitat. In most cases, these habitats are protected by state and/or federal regulations. Creeks and adjacent wetland habitats in the 2030 Study Area are expected to qualify as jurisdictional waters of the United States, as defined by Section 404 of the CWA. Riparian vegetation associated with these habitats is also expected to qualify for DFG jurisdiction under Sections 1600 through 1603 of the California Fish and Game Code. Habitat in the 2,000-acre Sacramento Prairie Vernal Pool Area is considered sensitive because of its role as a preserve for vernal pools and associated species.

Depending on their location, construction of project facilities could result in loss of sensitive habitat. Degradation of wetland habitats, including creeks, vernal pools, seasonal wetlands, and freshwater marsh, could also result from increased siltation from runoff, changes in hydrology, and other indirect effects that may alter habitat conditions. Sensitive habitats could also be temporarily affected by installation of pipelines and other facilities that would not necessarily result in permanent loss or alteration of habitat.

In addition to these potential impacts related to construction of project facilities, implementation of the WSMP would facilitate development that could result in additional impacts to sensitive habitats. Potential impacts from subsequent development would be similar to those described above.

Protection of sensitive habitats is specifically addressed by several policies in the Sacramento County General Plan Conservation Element. Policy CO-62 requires no net loss of marsh and riparian woodland acreage, value or function. Policy CO-83 requires no net loss of vernal pool acreage and mitigation for any loss in relation to the values of quality of vernal pool habitat. Policy CO-84 directs the County to evaluate feasible onsite alternatives in the environmental

review process that reduce impacts on vernal pools and provide effective onsite preservation. Policy CO-117 directs the County to protect natural buffers for stream corridors. The County Tree Preservation Ordinance and Policies CO-130 and CO-133 describe protection requirements prescribed by the County for oaks and landmark trees. Construction and operation of project facilities would need to be designed to comply with or mitigated to reduce impacts consistent with the above General Plan policies.

As with special-status species, SCWA will make every effort to avoid sensitive habitats when siting project facilities and that most project facilities could be constructed in areas that do not support sensitive habitats. Complete avoidance of impacts on sensitive habitats may not be feasible, but it is assumed that direct impacts would be relatively small. Construction of the Sacramento River diversion is expected to require in-water work below the OHWM, thereby resulting in impacts on jurisdictional waters. Groundwater pumping could potentially lower surface elevations or alter surface flows of some creeks and other wetland habitats in the 2030 Study Area. Stone Lakes National Wildlife Refuge and the Bufferlands are not expected to be affected by groundwater extraction, because they are assumed to be isolated from the groundwater level under existing conditions, and further lowering of groundwater levels would have no effect on these areas. Sensitive habitats located outside of the 2030 Study Area, generally, and the Cosumnes River, specifically, are not expected to be affected by groundwater extraction (discussed in detail under Impact 4.6-3).

Impacts that would result in loss of habitat under USACE or DFG jurisdiction could be considered significant, requiring mitigation under existing regulatory programs. Impacts on nonjurisdictional sensitive habitats could be significant, depending on the amount of habitat lost and the degree to which the habitat is threatened, locally and statewide. Impacts on the Sacramento Prairie Vernal Pool Area would be considered significant because of its importance as a conservation area. Impacts could also be significant if construction and operation of project facilities conflicts with General Plan policies relevant to sensitive habitats. For these reasons, impacts on sensitive habitats from implementation of the 2002 Zone 40 WSMP are considered potentially significant.

Impact 4.6-3: Biological Resources Associated with the Cosumnes River and Deer Creek.

The Cosumnes River/Deer Creek corridor is an important ecological area. Increased groundwater pumping from operation of the proposed project could result in some reduction of mean monthly surface and subsurface flows on portions of these waterways. Results of the IGSM surface water and groundwater modeling, however, show no significant effect on groundwater levels or surface flow. Therefore, this would be a less-than-significant impact.

Evidence suggests that current and historic groundwater pumping has adversely affected biological resources associated with the Cosumnes River /Deer Creek corridor. Field and modeling efforts conducted by the University of California, Davis (UCD) indicate that extensive regional and local groundwater withdrawals over the past 50 years have substantially lowered groundwater tables and reduced the Cosumnes River and Deer Creek baseflow (USFWS

2001a). TNC, along with its cooperators who are responsible for managing the Cosumnes River Preserve, is concerned that groundwater withdrawal is adversely affecting sensitive biological resources along the Cosumnes River corridor (TNC 2001). TNC also noted that, historically, the Cosumnes River received input from groundwater. However, with the development of the Elk Grove and Galt area groundwater cones of depression, the Cosumnes River now loses surface flow to the underlying groundwater basin (TNC 2001).

TNC is concerned that as a consequence of groundwater withdrawal, the Cosumnes River now ceases to flow earlier in the year, stays dry longer into the fall, and dries over an increasingly long reach, compared to historic conditions. Because the number of days that the river is dry each year has increased over time, it requires more surface flow from the upper watershed to rewet the channel and connect the Cosumnes River to the Delta. Consequently, Cosumnes River surface flows supporting aquatic and riparian habitats and species have been reduced, thereby reducing the quality and quantity of those habitats and associated species. Research has shown that although mature streamside vegetation often has root systems that penetrate to groundwater sources below surface waters, smaller streamside vegetation appear to use surface flows as their primary water source (Dawson and Ehleringer 1991). Furthermore, even small changes in water level and surface flow may induce detectable changes in riparian vegetation structure along the river, making riparian areas less biologically active (Nilsson and Svedmark 2002). In addition to loss and/or degradation of riparian vegetation, impairment of oak forest regeneration and loss of seasonal wetlands could result from reduction of surface flows and associated affects on shallow (perched) aquifers (TNC 2001).

In addition to these more direct effects of reduced groundwater levels on habitat, TNC is concerned about the economic viability of farming adjacent to the Cosumnes River corridor as it relates to groundwater pumping and preservation of wildlife habitat and special-status species (TNC 2001). TNC's habitat conservation strategies along the Cosumnes River rely heavily upon long-term partnerships with farmers and ranchers. Farmed habitat is important for a range of species, including special-status wildlife, such as sandhill crane and Swainson's hawk. For this reason, much of the land within the Cosumnes River Preserve is protected through partnerships that leave land ownership in the hands of private farmers, with permanent protective easements held by TNC, BLM, or other cooperative entities. The long-term effectiveness of this partnership depends on the economic viability of farming operations. Farmers, as groundwater users, have been economically affected (through higher pumping costs) as groundwater levels have fallen (TNC 2001). Higher costs could eventually lead to a reduction in farming and subsequent adverse impacts on special-status wildlife from loss of habitat.

The effects of the proposed project on hydrology and its relation to biological resources of the Cosumnes River/Deer Creek corridor are difficult to assess and cannot be precisely determined by field studies. Questions regarding the ability of the Integrated Groundwater and Surface Water Model for Sacramento County (IGSM) to accurately predict depletions and accretions to the Cosumnes River have been raised by UCD hydrologist, Dr. Graham Fogg, Professor of Hydrogeology and Vice Chair of Hydrology at UCD (UCD 2001). He expressed concern that

the IGSM does not appear to accurately represent interaction between groundwater and surface water along certain reaches of the Cosumnes, could show no impact on surface flows where some degree of impact could occur, and is neither sufficiently calibrated nor reliable to accurately represent surface water-groundwater interactions. In addition, he contended that the IGSM is more appropriate for regional applications and is best used as a comparative model, not a predictive tool. However, the appropriateness of the IGSM for use in analyzing the proposed project was addressed in the Technical Memorandum on Application of Existing Sacramento County IGSM to Hydrologic Analysis of Zone 40 Master Water Plan Update (WRIME 2002). The model was considered to be an appropriate tool for analyzing the proposed WSMP for several reasons:

- ▶ The IGSM has a history of successful field application in Sacramento County as well as in many other basins in California.
- ▶ IGSM code has been reviewed by various agencies, including USBR, DWR, and USGS, as well as independent consultants and researchers and has been updated in response to their comments.
- ▶ IGSM uses a unique locally iterative technique to address the non-linearities associated with stream-aquifer interaction. The literature of non-linear numerical mathematics abounds in different iterative and non-iterative techniques to approximate the non-linear problems. The method used in the IGSM did not result in any divergence as shown in the calibration of wells near the streams.
- ▶ The model represents the historical hydrologic response of the groundwater basin as well as the streamflow conditions in the American River and Cosumnes River in Sacramento County appropriately, based on the results of calibration to the historical physical conditions.
- ▶ The results of the sensitivity analysis of pumping at wells near the American River and Cosumnes River also indicate that the IGSM is appropriately simulating the stream-aquifer responses.
- ▶ For purposes of the 2002 Zone 40 WSMP, the IGSM was used to conduct a comparative analysis of regional groundwater effects.

Results of IGSM modeling indicate that project implementation would not result in a substantial decrease in average groundwater elevations beneath the Cosumnes River/Deer Creek corridor. The upper reaches of the Cosumnes River, however, where surface water and groundwater can often be seasonally connected, are near the edges of the IGSM model grid. Because of the uncertainties with respect to boundary flows, as well as lack of extensive calibration wells in that area, the model results for these reaches are more prone to error. Therefore, although the modeling results indicate otherwise, project operation has the potential, but low probability, to result in some degree of reduction in surface flows in the

Cosumnes River and Deer Creek. A detailed discussion of model results is provided in Appendix F, Hydrologic and Modeling Analysis for Zone 40 Water Supply Master Plan.

In addition to the results of IGSM modeling, some assumptions can be made based on topographic data regarding groundwater depletion in the vicinity of the Cosumnes River/Deer Creek. Most notably, investigations of groundwater-surface water interactions along the Cosumnes River demonstrate a loss of baseflow contributions to the river in some locations as a result of groundwater extraction (USFWS 2001b). Analysis of historical data and results from scenario simulations of regional groundwater flow suggest that the Cosumnes River received base flows along its entire lower reach (river mile 0 to river mile 36) prior to the early 1940s, but increased use of groundwater since the 1950s has substantially lowered groundwater levels throughout the County (USFWS 2001b).

Groundwater levels are currently as much as 55 feet below the middle reach of the Cosumnes River channel, resulting in a hydraulic disconnect between much of the river and the regional aquifer. In fact, most of the lower river does not receive baseflow contributions, and the majority of the river is in a losing condition (USFWS 2001b). This hydraulic disconnect is most pronounced in the middle reaches of the lower river between Meiss Road (river mile 24.8) and State Route 99 (river mile 11). Because of the disconnect, further reductions in groundwater levels would not result in direct losses of surface flows in these already disconnected reaches of the river.

The regional water table is closer to the channel surface in the eastern portion of the County, upstream of Dillard Road (river mile 27.3), and in the western portion of the County, downstream of Twin Cities Road (river mile 5). Groundwater in portions of these reaches seasonally reconnects with the river. In addition, groundwater in the western reaches is in close proximity to the Delta and is under tidal influence. River flow in the reaches that remain hydraulically connected to the regional aquifer could be sensitive to further lowering of groundwater levels (USFWS 2001b). Consequently, by lowering groundwater levels in connected areas, water would be drawn from surface flows into groundwater aquifers, reducing surface flows in the river. Potential impacts associated with decreased length of flows on the Cosumnes River resulting from the project include impediment of salmon migration. However, results of the IGSM indicate that none of the project alternatives would result in a significant change in the average groundwater level but greater deviations from the mean would have greater adverse and beneficial impacts in some years. Recent studies by UCD have indicated that the Cosumnes River is in hydraulic connection with perched aquifers located under the river. However, these are seasonal conditions that occur only when groundwater levels are high in the perched zones. Because the Sacramento County IGSM simulates groundwater operations in the main aquifer system, including groundwater pumping and flow fields, and the interaction between streams and the main aquifer system, perched conditions are not directly taken into consideration.

In addition, surface flows support valuable biological resources, including sensitive species and habitats, within the Cosumnes River/Deer Creek corridor, directly and through recharge of

shallow aquifers. Shallow aquifers are often required as a source of moisture to maintain wetland and riparian ecosystems (Dawson and Ehleringer 1991, Flanagan et al. 1992). Decreases in the duration and amount of surface flows could reduce moisture levels in the soil along the river channel, and could lower perched water tables, causing loss or degradation of riparian, valley oak woodland, and wetland habitats. However, results of the IGSM modeling indicate that there will be no significant effect on surface flow (see Section 4.7, Water Resources).

In summary, implementation of the 2002 Zone 40 WSMP would not deplete groundwater underlying the Cosumnes River and Deer Creek. The groundwater and streamflow hydrographs comparing the 2000 Baseline and various project alternative scenarios show virtually no change in surface water flows or groundwater levels beneath the Cosumnes River as a result of the project. Similarly, cumulative scenarios show virtually no change. For these reasons, impacts on biological resources associated with the Cosumnes River/Deer Creek corridor would be less than significant.

Impact 4.6-4: Potential Impact on the South Sacramento Habitat Conservation Plan.

Construction of 2002 WSMP water facilities would facilitate development that could, in turn, result in the potential loss of important habitat areas inside the USB that are potentially critical components of the SSHCP. It is anticipated that the area in the UPA would be developed and thus that little or no habitat mitigation associated with the SSHCP would occur in the UPA. In addition, the 8,400 acres of land inside the 2030 Study Area (as analyzed in this EIR) but outside the UPA contains no resources critical to the success of the SSHCP. If land use authorities direct development of these 8,400 acres consistent with the 2030 Study Area, implementation of the 2002 Zone 40 WSMP would not significantly affect the SSHCP. However, at this point, it is unknown if land use authorities would direct development in the aforementioned 8,400-acre study area or would direct development elsewhere within the USB, which could potentially affect the viability of the SSHCP. Therefore, this would be a potentially significant impact.

Construction of the WSMP facilities would facilitate development approved by land use authorities inside the 2030 Study Area, which includes the entire UPA. Additionally, as discussed in Section 4.1, Land Use and Growth-Inducing Impacts, water is available to serve 8,400 acres outside the current UPA. The 2030 Study Area depicts, diagrammatically, where urban expansion could take place; however, the decision on where to allocate water rests with the appropriate local land use authorities, not SCWA. The rationale for identifying areas outside the UPA is the likelihood that the UPA will expand, consistent with policy LU-57 (Section 4.1, Land Use, page 4.1-16), during the nearly 30-year timeframe of this WSMP.

County General Plan policy CO-68 directs the County to facilitate large-scale habitat planning efforts. In accordance with that policy, efforts are underway to develop the SSHCP. From discussions with County staff members responsible for the SSHCP process, implementation of the 2002 Zone 40 WSMP could potentially affect development of the SSHCP (Radmacher, pers. comm., 2003). Areas in the UPA are considered slated for development by SSHCP planners. As currently shown, the 2030 Study Area, with the inclusion of the 8,400 acres

beyond the current UPA, would generally have only limited effect on the SSHCP. Although there are habitat areas of potential concern in three of the proposed areas outside the UPA, the potential impact of these habitat areas does not materially affect the SSHCP planning process or its implementation. The three areas are the vernal pool habitat north of Douglas Road in the proposed Rio del Oro area, the grasslands northwest of the Vineyard planning area, and the habitat area north of the Elk Grove Triangle Comprehensive Plan. The area north of Douglas Road contains a considerable amount of vernal pool habitat, although the area to the south is slated for development and the area to the north is mostly mine tailings. Because of the relative isolation of this vernal pool complex, it is unlikely that development of this area would affect implementation of the SSHCP. The area northwest of the Vineyard planning area has few vernal pool resources but has had populations of tricolored blackbird, a species identified by both state and federal regulators as a species of concern. However, according to SSHCP staff, if the protection of these populations becomes a component of the SSHCP, it would most likely be no more than 100 or 200 acres of habitat protected, and such protection would be temporary until any existing populations could be transferred to larger landscape-level sites, such as Sacramento Valley Conservancy's Sacramento Prairie Vernal Pool Preserve. Thus, it is unlikely that development of this area would affect implementation of the SSHCP. The area north of the Elk Grove Triangle Comprehensive Plan area contains two finger-shaped vernal pool areas, which straddle a small section of the Sacramento Prairie Preserve's southwest boundary. However, given that much of the land uses in this small area are identified as agricultural-residential, which typically divide habitat into small 1- to 5-acre lots, it is unlikely that development of this area would affect implementation of the SSHCP.

As noted, it is possible for development to occur outside the 2030 Study Area analyzed in this EIR. The local land use authorities, either Sacramento County or the City of Rancho Cordova, could decide to develop in areas not included as part of this analysis. If that were to occur, the impact on the SSHCP is unknown. The viability of the SSHCP depends, in part, on being able to conserve approximately 50% of the existing vernal pools inside the USB. The 50% figure is dictated by USFWS. If development occurs somewhere outside the 2030 Study Area where vernal pool concentrations are greater, it could potentially be difficult for the HCP to reach this level of 50% protection.

Water allocation to the 8,400 acres beyond the UPA inserts a level of uncertainty into the WSMP as it relates to the SSHCP. If development occurs in the 2030 Study Area, the impact on the SSHCP would be less than significant. However, it is possible that the land use authorities could allocate water to other areas inside the USB but not identified in the WSMP 2030 Study Area. If over the life of this plan, areas are identified to receive water outside the 2030 Study Area, the impact on the SSHCP is unknown and is best described as potentially significant.

4.6.4 ENVIRONMENTAL MITIGATION GUIDELINES

No mitigation is necessary for the following less-than-significant impact.

4.6-3: Biological Resources Associated with the Cosumnes River and Deer Creek.

Environmental mitigation guidelines are recommended for the following significant impacts:

4.6-1: Special-Status Species. Project-specific CEQA review shall be conducted before construction of any project facilities. As part of that review, the CNDDDB shall be consulted and surveys shall be conducted to identify the potential presence of any special-status species. If special-status species are identified in the project area and have the potential to be affected by project construction, operation, or maintenance, project-specific mitigation measures shall be identified to reduce potential impacts. Such measures may include:

- ▶ avoiding known occurrences of populations of special-status species and constructing project facilities in areas that do not substantially affect special-status species;
- ▶ establishing appropriate buffers around sensitive habitat;
- ▶ avoiding construction activities during sensitive life stages of special-status species (e.g., nesting, spawning);
- ▶ transplanting or relocating individual special-status plants or animals; and
- ▶ compensating for unavoidable impacts through restoration, enhancement, or preservation of special-status species habitat.

If project activities would affect species that are federally or state listed as threatened or endangered, SCWA shall obtain appropriate permits and clearance through the applicable regulatory program (e.g., Section 7 consultation or Section 10a permit pursuant to the federal ESA, Section 2081 permit pursuant to the California ESA).

Indirect effects of regional growth on special-status species would also require mitigation through environmental review of specific projects. Potential effects would be reviewed by the decision-making body and mitigation measures, including avoidance, minimization, and compensation, may be imposed, and regulatory program permits may be required. At such time that the SSHCP is adopted and implemented, it would become the mechanism through which impacts in the SSHCP area would be mitigated.

Because of the uncertainty of environmental effects associated with facilities that have not yet been designed or sited, impacts on special-status species are potentially significant.

4.6-2: Sensitive Habitats. The SCWA shall avoid habitats considered sensitive when siting project facilities. Sensitive habitats in the 2030 Study Area include vernal pool grasslands (particularly interspersed vernal pools and other seasonal wetlands), creeks, freshwater marsh, and riparian habitat. Trees protected by General Plan policies and under the County Tree Ordinance are also considered sensitive biological resources; all facilities should be sited to avoid impacts on protected trees.

Project-specific CEQA review shall be conducted before construction of any project facilities. Surveys shall be conducted by a qualified biologist to identify the potential presence of any sensitive habitats. These surveys may include the preparation of a formal delineation to determine the extent of jurisdictional waters of the United States that would be filled under the proposed project. If sensitive habitats are identified in the project area and have the potential to be affected by project construction, project-specific mitigation measures shall be identified to reduce potential impacts. Such measures may include:

- ▶ avoiding sensitive habitat;
- ▶ establishing appropriate buffers around sensitive habitat;
- ▶ compensating for unavoidable impacts on sensitive habitat through in-kind replacement, restoration, enhancement, or preservation at a minimum 1:1 ratio to ensure no loss in acreage and/or values and functions.

Indirect effects of regional growth on sensitive habitats would also require mitigation through environmental review of specific projects. Potential effects would be reviewed by the decision-making body and mitigation measures, including avoidance, minimization, and compensation, may be imposed, and regulatory program permits may be required. At such time that the SSHCP is adopted and implemented, it would become the mechanism through which impacts in the SSHCP area would be mitigated.

Because of the uncertainty of environmental effects associated with facilities that have not yet been designed or sited, impacts on sensitive habitat are potentially significant.

4.6-4: Potential Impact on the South Sacramento Habitat Conservation Plan.

Implementation of the WSMP and subsequent development of the 2030 Study Area would not significantly affect the SSHCP planning process or implementation. However, if land use authorities seek to provide water to other areas outside the 2030 Study Area, the impact on the SSHCP is uncertain and thus potentially significant.

Under the agreement approved by the SCWA Board of Directors, SCWA will provide funding to facilitate and expedite completion and implementation of the SSHCP. The agreement, approved on July 15, 2003, provides funding to complete the SSHCP with \$200,000 per year for 2 years. As a component of the approved agreement, a work plan for completing the SSHCP, which identifies milestones and defines a timetable, will be submitted to SCWA before release of approved funding. Implementation of this measure is intended to expedite the development of the SSHCP, which would further define the areas to be protected. Early identification of these protected areas would reduce the potential for impact; however, because of the uncertainty of future land use decisions that could result in development of land outside the 2030 Study Area, the impact is potentially significant and unavoidable.

4.6.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Adherence to the above mitigation would reduce the project's impacts to special-status species and sensitive habitats. However, because of the uncertainty of environmental effects associated with facilities that have not yet been designed or sited, impacts to special-status species and sensitive habitat would remain potentially significant and unavoidable. Further, because of the uncertainty of future land use decisions that could result in development of land outside the 2030 Study Area, the impact is potentially significant and unavoidable.