

Appendix F

Biological Evaluation Report

Appendices

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LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

CLOVIS GENERAL PLAN UPDATE BIOLOGICAL EVALUATION CITY OF CLOVIS, CALIFORNIA

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EXECUTIVE SUMMARY

Live Oak Associates, Inc., conducted an investigation of the biological resources of the City of Clovis General Plan Update (GPU) Area (planning area) in Fresno County, California, and evaluated likely impacts to such resources resulting from implementation of the GPU. The site is generally described by Copper Ave alignment to the north, Academy Ave to the east, Shields Ave alignment to the south, and Willow Ave to the west, as well as portions of the noncontiguous Clovis landfill area to the north. In December 2012, Live Oak Associates, Inc. (LOA) surveyed the site for biotic habitats, the plants and animals occurring in those habitats, and significant habitat values that may be protected by state and federal law. Information gathered during this survey augmented LOA's previous knowledge of the planning area from numerous other investigations of project sites within the planning area.

The approximately 43,569-acre planning area consists of urban development within the existing city limits, the Clovis Sphere of Influence (SOI), and adjacent rural residential and agricultural lands. The biotic habitats/land uses of the planning area are characterized as urban, agriculture, rural residential, drainages/canals, artificial lakes/ponds, seasonal wetland, and grassland.

Rural zones of the planning area provide suitable habitat for a number of locally occurring special-status plant and animal species, some of which are protected by federal and/or state law. Additionally, jurisdictional waters, wildlife nursery sites, and sensitive habitats occur within the planning area. Since sensitive or protected biotic resources would be restricted to certain areas within the planning area, three habitat/land use zones have been distinguished within the planning area. Potential impacts to these biological resources within each habitat/land use zone from implementation of the GPU have been analyzed and a mitigation matrix has been developed that details a step by step process to assure future development will have a less than significant impact on biological resources. Future development is expected to have a less-than-significant effect on regional wildlife movements as well.

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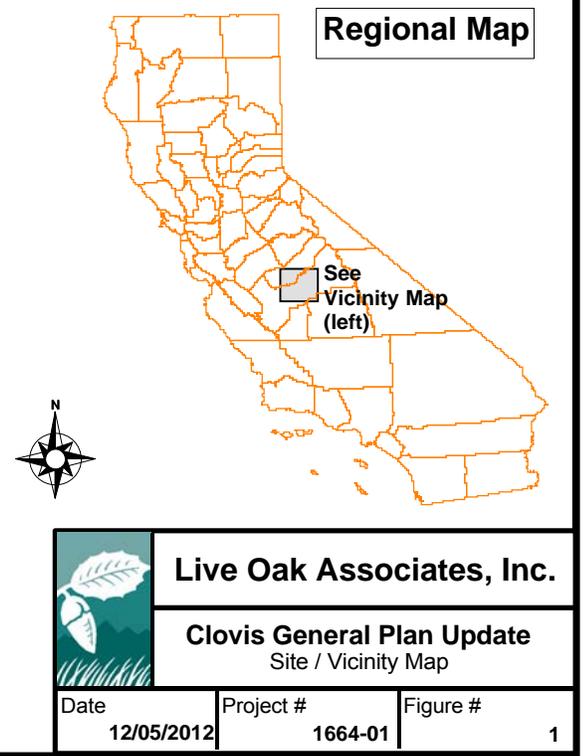
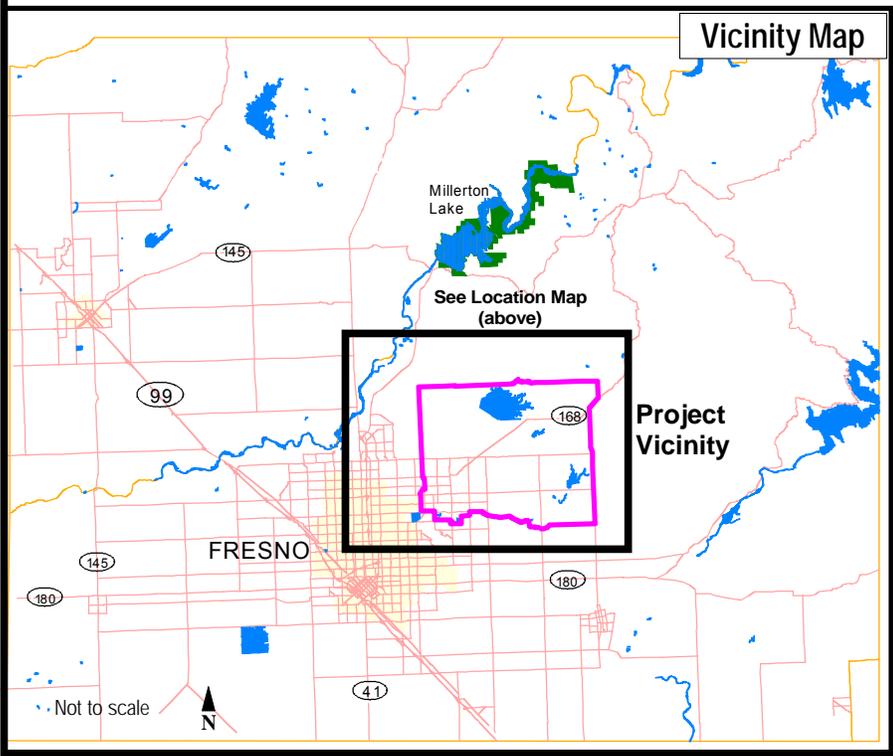
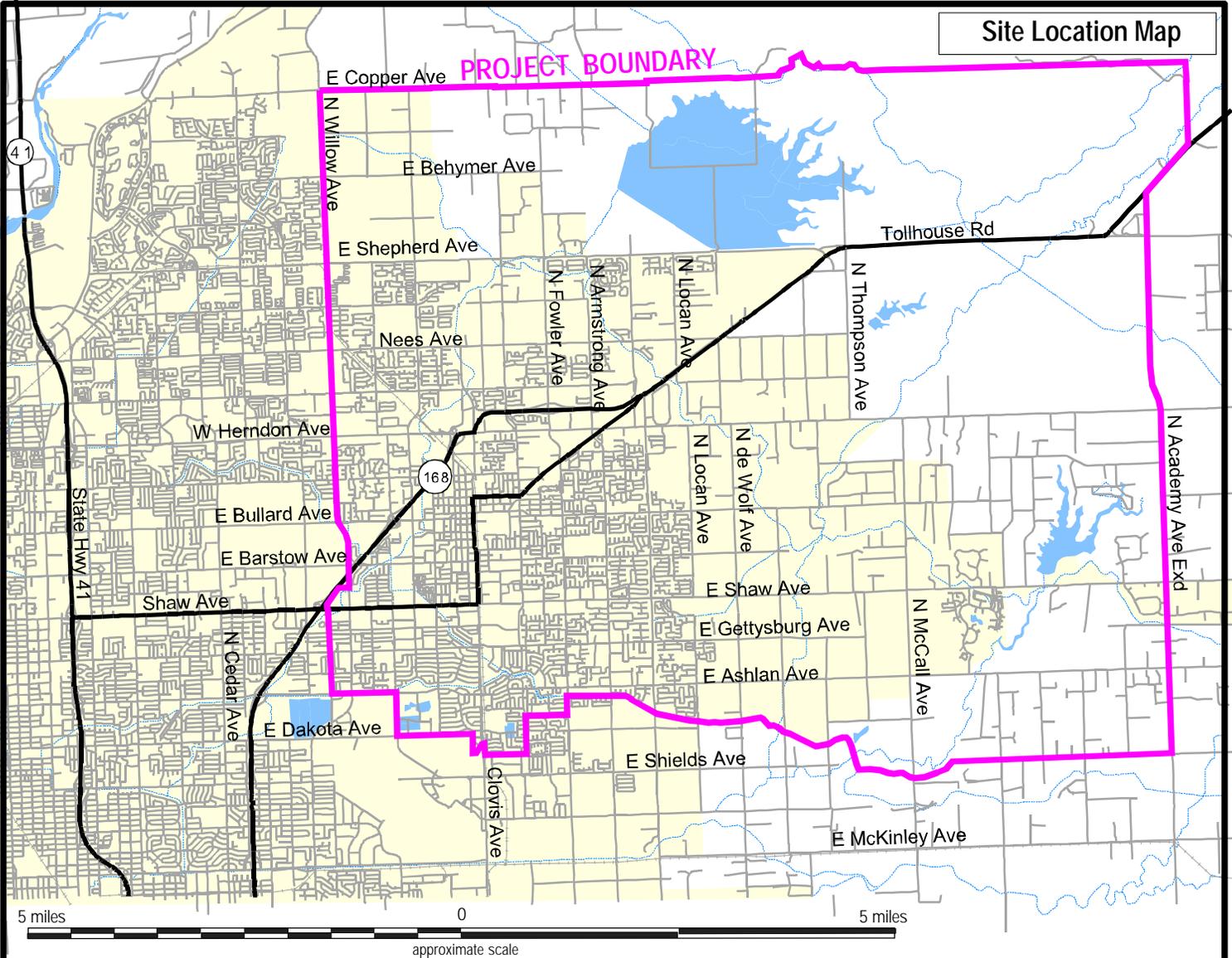
1.0 INTRODUCTION

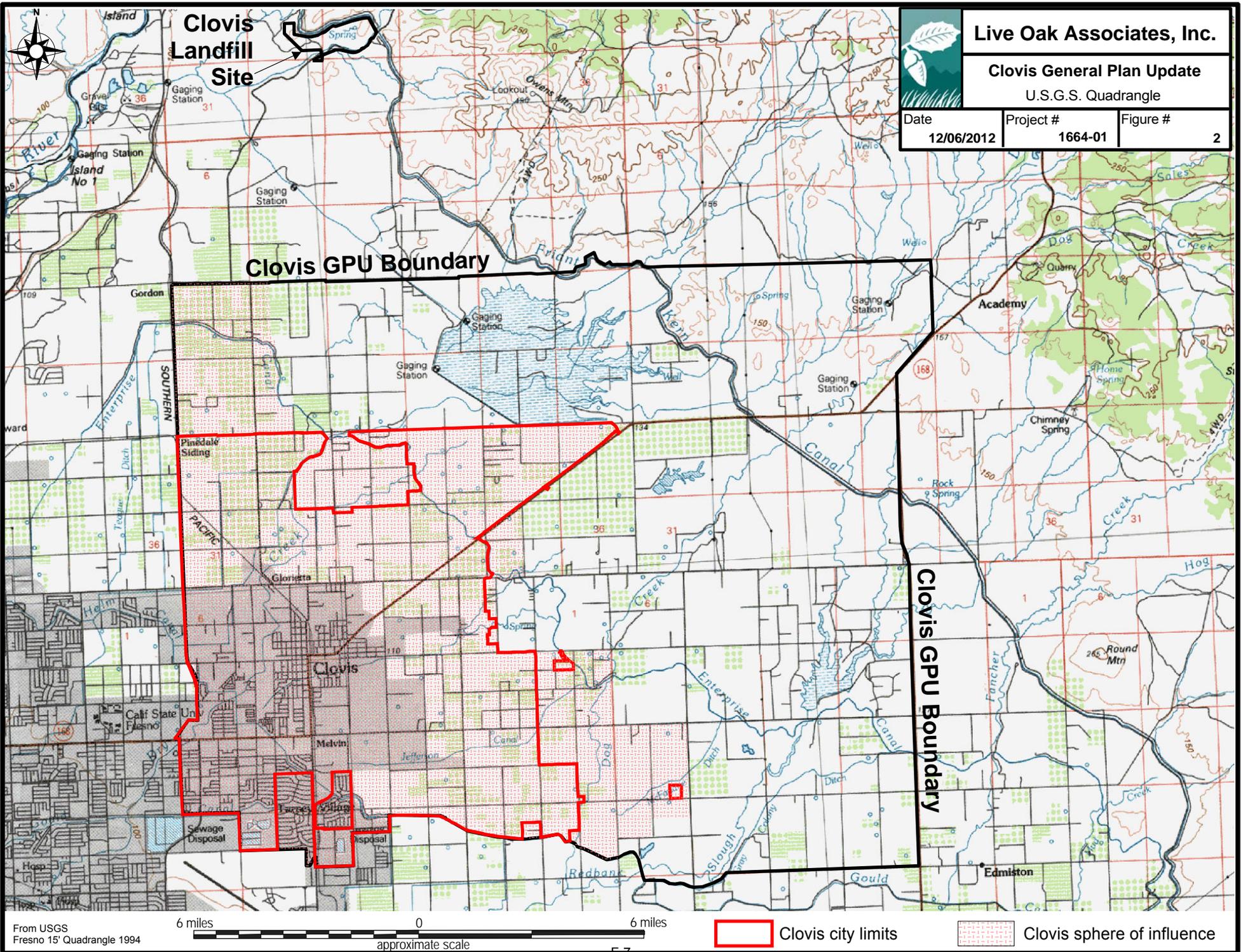
Live Oak Associates, Inc. (LOA) has prepared the following report, which describes the biotic resources located within the 43,569 acre City of Clovis General Plan Update (GPU) area (hereafter referred to as the “planning area”), and evaluates likely impacts to these resources resulting from implementation of the Clovis GPU. Clovis is located in western Fresno County, California, adjacent to the City of Fresno (Figure 1). Together these two cities form a relatively large metropolitan area. The planning area is located primarily in the Clovis and Round Mountain 7.5” U.S. Geological Survey (USGS) quadrangles with northern portions of the planning area in the Academy and Friant quadrangles; Townships 11, 12, and 13 south, Range 21 and 22 east.

1.1 REPORT OBJECTIVES

The development of parcels can damage or modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA), and/or covered by policies and ordinances of the City of Clovis and Fresno County. This report addresses issues related to: 1) sensitive biotic resources occurring in the planning area; 2) the federal, state, and local laws regulating such resources, and 3) mitigation measures which may be required to reduce the magnitude of anticipated impacts. As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources;
- Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species’ known range;
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development;
- Identify and discuss potential impacts to biological resources likely to occur in the planning area within the context of CEQA or any state or federal laws; and
- Identify avoidance and mitigation measures that would reduce impacts to a less-than-significant impact (as identified by CEQA) and are generally consistent with recommendations of the resource agencies for affected biological resources.



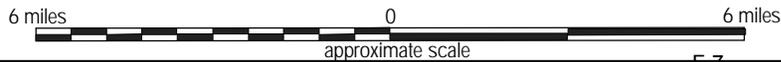


Live Oak Associates, Inc.

Clovis General Plan Update
U.S.G.S. Quadrangle

Date	Project #	Figure #
12/06/2012	1664-01	2

From USGS
Fresno 15' Quadrangle 1994



 Clovis city limits

 Clovis sphere of influence

1.2 OVERVIEW OF THE CLOVIS GENERAL PLAN UPDATE

Every city in the State of California has the authority to guide its future development (State of California Planning Law, Section 65300). Under this authority, the City of Clovis is updating their General Plan to facilitate the smooth and fluid development of the City to year 2035 and beyond. The objective of the Clovis GPU is to project future growth and make provisions for this growth. In the case of its biotic resources, its objective is to preserve natural resources, such as farmland, air and water quality, and native vegetation while facilitating growth of the community. The GPU area encompasses 43,569 acres and includes a non-contiguous area utilized as the Clovis landfill. Implementation of the GPU will require the conversion of existing agricultural lands to residential, commercial, and industrial development.

1.3 STUDY METHODOLOGY

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the planning area discussed in Section 2.0. Sources of information used in the preparation of this analysis included: (1) the *California Natural Diversity Data Base* (CDFG 2012); (2) the *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2012); (3) manuals and references related to plants and animals of the San Joaquin Valley region; and (4) numerous biological investigations conducted by LOA of properties within and proximate to the planning area. A reconnaissance-level field survey of the planning area was conducted on December 7, 2012, by LOA ecologist Jeff Gurule. Prior to the field survey, aerial imagery and the Citywide Draft Land Use Diagram, prepared by The Planning Center, were examined to target areas with potential sensitive or protected biological resources that could potentially be impacted by the implementation of the GPU. With the aid of aerial photography and binoculars, Mr. Gurule examined the planning area from public access roads and noted key habitat features and wildlife observations. Photographs of the planning area were taken with selected photos presented in Appendix A.

Detailed surveys for sensitive biological resources were not conducted for this study. The level of effort was sufficient to locate and establish the general extent of wetlands and special status species habitat that might be present, and to assess the need for more detailed investigations of

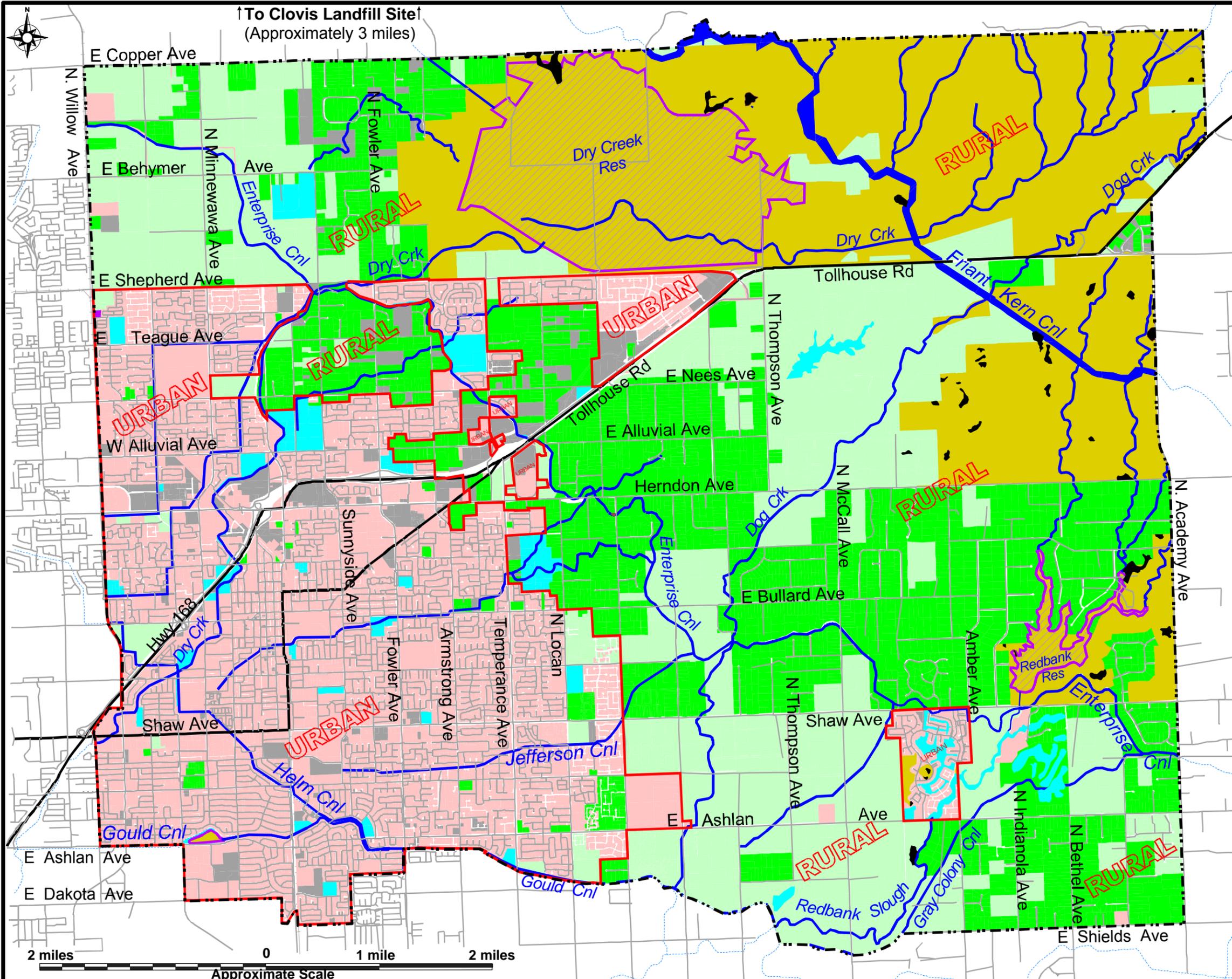
particular areas that may be affected by future development projects. Delineating all wetlands of the planning area, mapping the actual extent of all special status species habitat, and assessing use of such habitats by special status species were not within the scope of this effort.

2.0 EXISTING CONDITIONS

The approximately 43,569-acre planning area encompasses the existing City limits, sphere of influence (SOI), and adjacent agricultural, rural residential, and urban lands (Figure 2). Topographically, much of the site is relatively level, ranging in elevation from approximately 338 feet National Geodetic Vertical Datum (NGVD) at the southwest corner of the planning area to 600 feet NGVD at the isolated land fill portion of the planning area.

The soils on the site have nearly all been paved, in urban areas, or highly modified, in rural areas, through years of agricultural cultivation of the land or residential development and associated human activity. However, large areas of grassland habitat used as rangeland for cattle, primarily in the northeast portion of the planning area, contain relatively undisturbed soils. Due to the presence of vernal pools and other seasonal wetland features within much of this grassland area it is assumed that undisturbed hydric soils are prevalent within these areas. Hydric soils are soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part; under sufficiently wet conditions, they support the growth and regeneration of hydrophytic vegetation. Given the large size of the planning area and the fact that much of the native soils have been covered or highly modified through urban, agricultural, and rural residential development, a soils map and table has not been provided. However, the soil requirements of two edaphic rare plant species in the genus *Pseudobahia* that are known to occur in the region were examined. Soils for one of these plants, the San Joaquin golden sunburst (*Pseudobahia peirsonii*), were found within the planning area. These soils consisted of heavy clay soils of the Centerville and Mt. Olive series. Undisturbed areas containing these soils were mapped as potential habitat for the San Joaquin golden sunburst on Figure 3.

The Fresno/Clovis metropolitan area has a Mediterranean climate with warm to hot dry summers and cool winters. Summers are dry and typically quite warm, with daytime temperatures commonly exceeding 90° Fahrenheit. Winters are rainy and cool, with daytime temperatures rarely exceeding 70° Fahrenheit. Average annual precipitation in the general vicinity of the site is approximately 12 inches, 80% of which falls between November and March. In urban areas



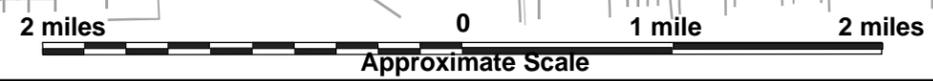
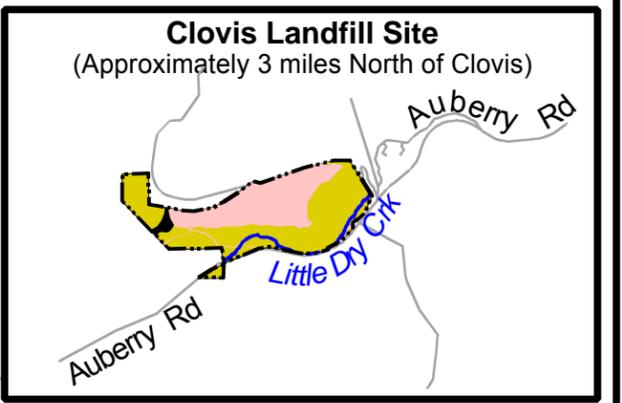
↑ To Clovis Landfill Site↑
(Approximately 3 miles)

LEGEND

- Project Boundary
- Urban / Rural Boundary
- Flood Zone

Habitats / Land Use

- Urban Developed
- Vacant
- Rural Residential
- Agriculture
- Grasslands / Seasonal Wetlands
- Heavy Clay Soils
- Artificial Ponds / Lakes
- Drainages / Canals



Live Oak Associates, Inc.

Clovis General Plan Update
Biotic Habitats and Land Use

Date	Project #	Figure #
12/21/2012	1664-01	3

stormwater runoff is diverted to a stormwater drainage system. In agricultural and rural residential areas stormwater readily infiltrates soils, but when field capacity has been reached, surface water flows off the planning area via onsite drainages. Four major natural drainages cross the planning area, Redbank Slough, Dog Creek, Dry Creek and Little Dry Creek. Dry Creek and Redbank Slough have been dammed for flood control. With the exception of Little Dry Creek, which is relatively undisturbed within the planning area, large portions of these drainages lack many of their native characteristics, having been channelized, realigned, dammed, and/or undergrounded.

Over the years, the Clovis area has been substantially disturbed by agricultural and residential activities, with lands within the City itself having primarily been converted to urban development. However, relatively undisturbed grasslands and associated drainages and wetlands, including vernal pools, represent remnant natural habitats within the planning area.

Outside the planning area to the east and south are rural lands similar to those found in the planning area that are a mix of rural residential and agriculture. To the west are urban lands associated with the City of Fresno. To the east are large parcels of foothill grasslands, the less steep portions of which contain similar wetland features as those found within grasslands of the planning area.

2.1 BIOTIC HABITATS AND LAND USES

The primary biotic habitats/land uses of the planning area are characterized as “urban”, “agriculture”, “rural residential”, “drainages/canals”, “artificial lakes/ponds”, “seasonal wetland”, and “grassland” (Figure 3).

2.1.1 Urban

The urban center of Clovis is developed with single- and multi-family residential units, commercial units, schools, industrial and manufacturing plants and warehouses, transportation corridors, city parks, and other developments and infrastructure associated with urbanized communities, as well as vacant lots. Small areas within the urban footprint that are zoned as rural residential or agriculture have been included in this discussion due to the overwhelming urban influence on these parcels.

Vegetation within urban areas is dominated by non-native ornamental trees, shrubs, forbs and grasses. Vacant lots within the urban footprint may contain naturalized non-native grasses and forbs such as horseweed (*Conyza canadensis*), prickly lettuce (*Lactuca serriola*), red-stemmed filaree (*Erodium cicutarium*), and foxtail barley (*Hordeum murinum* ssp. *leporinum*).

Animals typically occurring in urban environments are well adapted to the presence of humans with some species amassing large populations. These areas provide limited habitat for reptiles and amphibians. Pacific chorus frogs (*Pseudacris regilla*) may breed and forage in wet areas associated with residential areas or parks. Western fence lizards (*Sceloporus occidentalis*) likely occur within various portions of this area as well, foraging on invertebrates.

Various bird species are expected to use these areas. Birds known to occur in this portion of the planning area include house sparrows (*Passer domesticus*), rock pigeons (*Columba livia*), European starlings (*Sturnus vulgaris*), mourning doves (*Zenaida macroura*), western scrub jays (*Aphelocoma californica*), American robins (*Turdus migratorius*), American crows (*Corvus brachyrhynchos*), bushtits (*Psaltriparus minimus*), and northern mockingbirds (*Mimus polyglottos*), among others. Raptors such as red-tailed hawks (*Buteo jamaicensis*) and Cooper's hawks (*Accipiter cooperi*) are known to occur in this area as well.

Mammals occurring in these areas may include house mice (*Mus musculus*) and Norway rats (*Rattus norvegicus*) attracted to human generated food. The eastern fox squirrel (*Sciurus niger*) is known to occur in wooded portions of the Clovis urban zone such as city parks and residential areas. In addition, animals such as raccoons (*Procyon lotor*) and Virginia opossums (*Didelphis virginiana*) are common to urban environments and likely breed and forage within the urban area for human generated food.

2.1.2 Agriculture

A large portion of the planning area consists of actively farmed agricultural fields. Cultivated lands contain orchards, vineyards, row crops, or grain. Common weedy non-native grasses and forbs found in agricultural fields in the Clovis area include horseweed, prickly lettuce, slender wild oats (*Avena barbata*), foxtail barley, Russian thistle (*Salsola tragus*), shepherd's purse (*Capsella bursa-pastoris*), and stinging nettle (*Urtica dioica*). There may be small, isolated patches of seasonal wetlands in these fields; however, at the level of effort put forth for this study, none were identified.

Compared to natural habitats, managed agricultural lands provide relatively low habitat value for wildlife due to the lack of understory vegetation, upon which many wildlife species depend for food and cover. Annual management practices such as discing and harvesting would eliminate breeding and foraging habitat for many small birds and mammals native to the region. The application of chemical pesticides may also pose a threat to such species at various times of the year.

Although none were observed, reptiles may potentially occur in the agricultural fields. The sparse cover described above, the likelihood of rodent burrows to occur in this habitat, and the presence of fluctuating populations of invertebrate and rodent prey make the site suitable for at least one native species of lizard, the western fence lizard, and several species of snake, including the gopher snake (*Pituophis catenifer catenifer*) and California kingsnake (*Lampropeltis getulus californiae*).

Common resident avian species known to forage in agricultural lands in the Clovis area include the northern mockingbird, European starling, and western meadowlark (*Sturnella neglecta*), red-tailed hawk, northern harrier (*Circus cyaneus*), killdeer (*Charadrius vociferus*), and American crow. Winter migrants may include the ferruginous hawk (*Buteo regalis*), yellow-rumped warbler (*Setophaga coronata*), and white-crowned sparrow. A common summer visitor to these lands is the western kingbird (*Tyrannus verticalis*).

Small mammals occur in agricultural lands such as those of the planning area, but populations would be highly variable depending on the condition of the fields. Freshly plowed or cultivated

fields barren of vegetation provide little cover for most terrestrial vertebrates. Small mammals, such as California ground squirrels (*Spermophilus beecheyi*), Botta's pocket gophers (*Thomomys bottae*), deer mice, and California meadow voles (*Microtus californicus*) would occur in agricultural lands.

Common mammalian predators attracted to these small mammals would likely be limited to coyotes (*Canis latrans*) and red foxes (*Vulpes vulpes*), as these species are well-adapted to human disturbance. Various bat species, including the pallid bat (*Antrozous pallidus*) and Mexican free-tailed bat (*Tadarida brasiliensis*), may forage over the site for flying insects.

2.1.3 Rural Residential

Numerous residences, many on parcels of one to 5 acres (or more) are located within the planning area. Residential lots include homes, landscaping, disced areas supporting sparse weedy vegetation, small patches of annual grassland, irrigated pasture, ponds, animal paddocks, etc. As previously noted, given the scope of this investigation and the scale of the planning area, all the habitat types of each individual residential parcel could not be delineated. Landscaping observed around many homes was extensive and often comprised mature non-native trees and shrubs. Horticultural species include conifers such as coast redwood (*Sequoia sempervirens*), Canary Island pine (*Pinus canariensis*), Japanese black pine (*Pinus thunbergii*), and deodar cedar (*Cedrus deodora*); broad leaved trees such as sweet gum (*Liquidambar styraciflua*), fruitless mulberry (*Morus alba*), London plane trees (*Platanus acerifolia*), and European olive (*Olea europea*); and various shrubs such as oleander (*Nerium oleander*), crape myrtle (*Lagerstroemia* sp.), and low-growing junipers (*Juniperus* sp.).

Scrap piles near the buildings provide suitable cover for the same reptile species that would be found in the surrounding agricultural areas.

Avian species expected in this habitat include a mix of the same species that would be found in nearby urban and agricultural areas. Larger trees in this area provide nesting habitat for raptors such as red-tailed hawks, red-shouldered hawks (*Buteo lineatus*), and white-tailed kites (*Elanus caeruleus*).

Residences of the area attract a number of animal species that have become habituated to developed areas. Residential landscaping provides cover and nesting opportunities for resident birds such as western scrub jays, house finches (*Carpodacus mexicanus*), house sparrows, and northern mockingbirds. The cover provided by horticultural trees and shrubs can also be important to migrants passing through the area during spring and fall. Small mammals occurring in rural residential areas include California ground squirrels, deer mice (*Peromyscus maniculatus*), Norway rats, and house mice. Botta's pocket gophers and broad-footed moles (*Scapanus latimanus*) are common in garden beds and lawns. Bats of various species may roost in residential buildings and forage overhead. Mammalian predators in this area would include the coyote, raccoon, and striped skunk (*Mephitis mephitis*).

2.1.4 Grassland

Large tracts of land in the northeast section of the planning area contain non-native grassland used as rangeland for cattle. Grasslands represent the least disturbed portions of the planning area and, along with vernal pool habitat contained within, provide important habitat for a variety of native plants and animals, including a number of special status species.

Grasses and forbs of European origin dominate this habitat. Grass species common to this habitat include ripgut brome (*Bromus diandrus*), soft chess brome (*Bromus hordeaceus*), wild oats (*Avena fatua*), and rattail fescue (*Vulpia myuros*). Common forbs associated with these grass species include red-stem filaree, broad-leaf filaree (*Erodium botrys*), and smooth cat's-ear (*Hypochaeris glabra*). Grasslands of the planning area would also support a large variety of native spring-flowering annuals and perennials including rusty popcorn flower (*Plagiobothrys nothofulvus*), Eastwood's fiddleneck (*Amsinckia eastwoodeae*), blow-wives (*Achyrachaena mollis*), Ithuriel's spear (*Triteleia laxa*), and bi-color lupine (*Lupinus bicolor*), to name just a few. Annuals occurring on the planning area late in the summer and throughout the fall include Heerman's tarweed (*Holocarpha heermanii*), vinegar weed (*Trichostemma lanceolata*), and dove weed (*Eremocarpus setigerus*).

Annual grasslands of the planning area, like grasslands throughout the region, are productive biotic habitats supporting a large diversity of native terrestrial vertebrates. Grasslands of the region provide significant foraging habitat for a variety of resident and wintering raptors, as well

as large numbers of other birds. Furthermore, the dense cover of native and non-native grasses and forbs provide cover for large populations of small mammals that in turn attract a diversity of predatory species.

Grasslands of the planning area provide suitable habitat for a number of amphibian and reptile species. Rodent burrows in grassland areas provide suitable aestivation (oversummering) habitat for western toads (*Bufo borealis*), western spadefoot toads (*Scaphiopus hammandi*), and California tiger salamanders (*Ambystoma californiense*), all species that potentially breed in the numerous vernal pool wetlands located within these grasslands. Common reptile species likely to forage and seek cover in this habitat include common side-blotched lizards (*Uta stansburiana*), western whiptails (*Aspidoscelis tigris*), gopher snakes, common kingsnakes (*Lampropeltis getulus*), and western rattlesnakes (*Crotalus viridis*).

Raptors known to utilize grassland habitats within the planning area include species such as the golden eagle (*Aquila chrysaetos*), red-tailed hawk, American kestrel (*Falco sparverius*), ferruginous hawk, and burrowing owl (*Athene cunicularia*). Other raptor species expected in this habitat include the northern harrier, white-tailed kite, merlin (*Falco columbarius*), and barn owl (*Tyto alba*), among others. These species prey on the reptiles and small birds and mammals of the planning area. Other resident avian species observed included common ravens (*Corvus corax*), mourning doves, western meadowlarks, and rock wren (*Salpinctes obsoletus*). Spring and summer migrants that frequent these grasslands would include barn swallows (*Hirundo rustica*), California horned larks (*Eremophila alpestris actia*), and western kingbirds. Common winter migrants attracted to grasslands of the region include savannah sparrows (*Passerculus sandwichensis*), American pipits (*Anthus rebeszens*), and Say's phoebes (*Sayornis saya*).

A number of mammal species use grasslands of the planning area, as well, including California ground squirrels, Botta's pocket gophers, California voles (*Microtus californicus*), deer mice, and house mice. A number of large mammalian species may move through the planning area from time to time. These would include the coyote, gray fox (*Urocyon cinereoargenteus*), and bobcat (*Lynx rufus*). Various species of bats would forage over the grasslands.

2.1.5 Drainage/Canal

This habitat consists of seasonal drainages and canals and associated riparian habitat. The four major drainages running through the planning area are Dog Creek, Dry Creek, Redbank Slough, and Little Dry Creek. These drainages carry variable seasonal flows within natural and human altered sections of their channels. As described in Section 2.0, large sections of these creeks have been engineered to contain flood water. Nonetheless, portions of each of these creeks and the entire reach of Little Dry Creek through the planning area contain riparian vegetation. Riparian vegetation on Dry Creek above Dry Creek Reservoir and Little Dry Creek contain sycamore (*Platanus racemosa*) riparian woodland. Riparian vegetation occurs sporadically along Dog Creek, regularly along Redbank Slough below Redbank Reservoir, and for about 2.5 miles south of the Enterprise Canal on Dry Creek. Riparian trees across the planning area consist primarily of sycamores, Fremont cottonwoods (*Populus fremontii*), willows (*Salix sp.*), and valley oaks (*Quercus lobata*). Canals across the planning area range from large cemented lined canals such as the Friant-Kern Canal and Enterprise Canal to small earthen irrigation canals. Cement lined canals would lack vegetation and generally carry relatively swift currents and, therefore, provide little habitat value for native wildlife. Earthen canals, as well as engineered portions of natural drainages, may contain areas of shrubby riparian trees and understory vegetation such as Himalayan blackberry (*Rubus discolor*), pearly everlasting (*Gnaphalium californicum*), willowherb (*Epilobium ciliatum*), henbit (*Lamium amplexicaule*), lambs quarters (*Chenopodium alba*), panicled willowherb (*Epilobium bachycarpum*), and common groundsel (*Senecio vulgaris*); mugwort (*Artemisia douglasii*) and stinging nettles (*Urtica dioica*).

Portions of the onsite creeks and earthen canals provide potential breeding habitat for amphibians such as western toads, Pacific chorus frogs, and bullfrogs (*Rana catesbiana*) during the spring. These species, in turn, would attract common garter snakes (*Thamnophis sirtalis*) and aquatic garter snakes (*Thamnophis atratus*) to forage in this habitat. Other reptiles that may utilize this habitat include the western fence lizard and Gilbert skink (*Eumeces gilberti*).

The presence of amphibians may attract avian species that prey on them, such as the great egret (*Casmerodius albus*) and great blue heron (*Ardea herodias*). Dabbling ducks such as the mallard

(*Anas platyrhynchos*) would be attracted to areas of still water. A number of avian species may forage in the riparian canopy, such as house finches, western scrub jays, and in the winter, yellow-rumped warblers. Raptors such as the red-tailed hawk and red-shouldered hawk would nest in riparian trees in these areas.

Riparian habitat often facilitates the movement and persistence of small and large mammal populations. Muskrats (*Ondatra zibethicus*) often inhabit the aquatic habitat and creek banks within the riparian zone, and raccoons commonly forage along watercourses. A number of bat species frequently forage over aquatic areas. Larger mammal species such as the gray fox and coyote may drink from and forage in these areas.

2.1.6 Artificial Ponds and Lakes

Artificial waters in the planning area consist of stormwater detention basins, constructed lakes and ponds, and waste treatment ponds. These features occur in both rural and urban environments. While larger ponds and lakes have been identified in Figure 3, numerous small ponds within rural residential areas have not been adequately surveyed at the level of effort put forth in this investigation and therefore not mapped.

Vegetation characteristics within these areas are variable and dependent on the depth of the feature, the function of the feature, as well as the maintenance and management regime. Vegetation communities associated with ponds and lakes within the planning area consist of riparian vegetation described in Section 2.1.5 as well as wetland vegetation. Wetland vegetation associated with some ponds and lakes may include broadleaf cattail (*Typha latifolia*), tall flatsedge (*Cyperus eragrostis*), knotweed (*Persicaria lapathifolia*), and barnyard grass (*Echinochloa crus-gali*).

Various species of fish could use this habitat. Largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), and mosquito fish (*Gambusia affinis*) are commonly found in similar aquatic habitats throughout California.

The margins of the reservoir provide habitat for various amphibian and reptile species. Pacific chorus frogs, bullfrogs, and western toads would breed in such places, especially where emergent

vegetation would provide cover for both young and adults. These species would in turn attract common garter snakes and aquatic garter snakes to forage in this habitat.

Ponds and lakes also provide habitat for a number of avian species. Great egrets and great blue herons may occasionally forage along the shallows of the shoreline for the various fish and amphibian species mentioned above. A variety of waterbirds such as lesser scaup (*Aythya affinis*), greater yellow legs (*Tringa melanolueca*), American coot (*Fulica Americana*), ruddy duck (*Oxyara jamaicensis*), common sandpiper (*Califris minutilla*), avocet (*Recurvirostra californica*), northern shoveler (*Anas clypeata*), and cinnamon teal (*Anas cyanoptera*), mallards, and Canada geese (*Branta canadensis*) are expected to use this habitat within the planning area. Many of these species were observed during the field investigation of the site. Other avian species to be found in this habitat include the black phoebe (*Sayornis nigricans*), which often forages over the water's edge, and the barn swallow and American cliff swallow (*Petrochelidon pyrrhonota*), both of which forage over open water.

Relatively few mammals are found in such habitats, but several species may come here to drink and occasionally forage along the shallow portions of the shoreline. Muskrats often inhabit the aquatic habitat itself, and raccoons commonly forage along the shore. A number of bat species probably forage over these areas at various times of year.

2.1.7 Seasonal Wetland

Seasonal wetlands in the form of vernal pools and wetland swales occur throughout the grassland habitat within the planning area. Formed as a result of rolling terrain and soil characteristics, these wetlands support a variety of native plant and animal species, many of which are endemic to this habitat. Endemic vernal pool flora common to this habitat in the region includes the federally threatened succulent owl's-clover (*Castilleja campestris* spp. *succulenta*), hairgrass (*Deschampsia* sp.), Great Valley button celery (*Eryngium castrense*), and stalked popcornflower (*Plagiobothrys stipitatus*). Other species occurring in these areas that are often associated with wetlands include spikerush (*Eleocharis* sp.), nit grass (*Gastridium ventricosum*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), Baltic rush (*Juncus balticus*), Mexican rush (*Juncus mexicanus*), hyssop loosestrife (*Lythrum hyssopifolium*), rabbit's foot grass (*Polypogon monspeliensis*), and California canarygrass (*Phalaris californica*). When dry, these habitats

would be utilized by the same suite of wildlife species that are expected to occur in the grasslands.

When inundated, vernal pools occurring within the planning area may support a number of aquatic and terrestrial species, some of which would be unique to vernal pool habitats. Many of the vernal pools support invertebrate species such as the federally protected vernal pool fairy shrimp (*Branchinecta lynchi*), which has been documented in vernal pools within the planning area, the midvalley fairy shrimp (*Branchinecta mesovallensis*), and common aquatic insects.

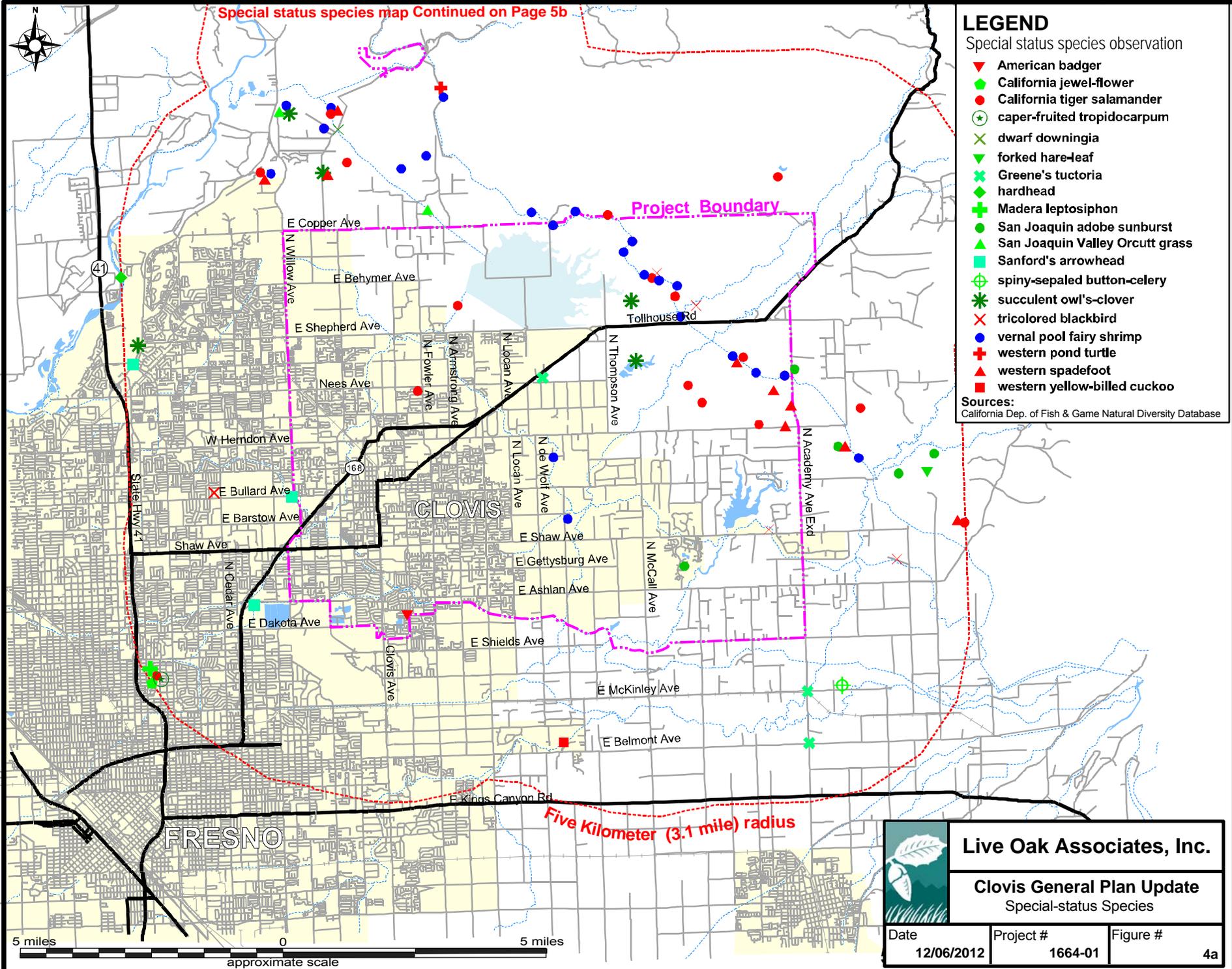
2.2 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered “rare” and are vulnerable to extirpation as the state’s human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as “threatened” or “endangered” under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as “species of special concern” by the CDFG. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2012). Collectively, these plants and animals are referred to as “special status species.”

A number of special status plants and animals occur in the vicinity of the planning area (Figures 4a, 4b, and 5). These species, and their potential to occur in the planning area, are listed in Table 2 in the following pages. Sources of information for this table included *California’s Wildlife, Volumes I, II, and III* (Zeiner et. al 1988-1990), *California Natural Diversity Data Base* (CDFG 2012), *Endangered and Threatened Wildlife and Plants* (USFWS 2011), *Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants* (CDFG 2011), and *The California Native Plant Society’s Inventory of Rare and Endangered Vascular Plants of*

California (CNPS 2012). This information was used to evaluate the potential for special status plant and animal species to occur onsite. It is important to note that the California Natural Diversity Data Base (CNDDDB) is a volunteer database; therefore, it may not contain all known or gray literature records. Additionally, species location information gathered during previous LOA investigations within the planning area was used in the following analysis.

The CNDDDB Rarefind 2012 was used to search nine USGS 7.5' quadrangles, including Lanes Bridge, Friant, Academy, Fresno North, Clovis, Round Mountain, Fresno South, Malaga, Piedra, and Sanger, for special status plant and animal species and natural communities of special concern.



LEGEND

Special status species observation

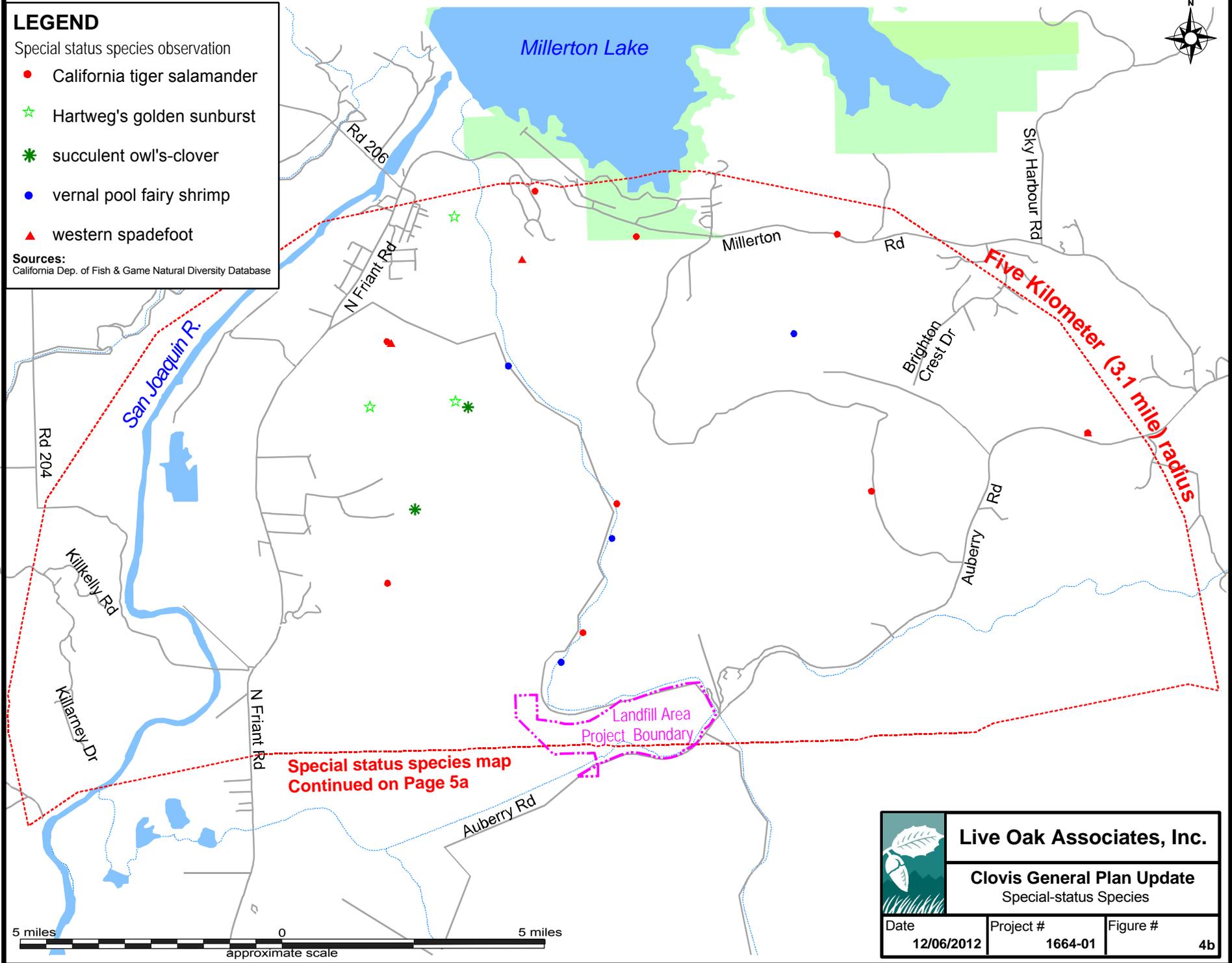
- ▼ American badger
- ◆ California jewel-flower
- California tiger salamander
- ⊙ caper-fruited tropidocarpum
- × dwarf downingia
- ▼ forked hare-leaf
- × Greene's tuctoria
- ◆ hardhead
- ⊕ Madera leptosiphon
- San Joaquin adobe sunburst
- San Joaquin Valley Orcutt grass
- Sanford's arrowhead
- ⊕ spiny-sepaed button-celery
- ✱ succulent owl's-clover
- × tricolored blackbird
- vernal pool fairy shrimp
- ⊕ western pond turtle
- ▲ western spadefoot
- western yellow-billed cuckoo

Sources:
California Dep. of Fish & Game Natural Diversity Database

Live Oak Associates, Inc.

Clovis General Plan Update
Special-status Species

Date	Project #	Figure #
12/06/2012	1664-01	4a



LEGEND

- Special status species observation
- California tiger salamander
- ☆ Hartweg's golden sunburst
- * succulent owl's-clover
- vernal pool fairy shrimp
- ▲ western spadefoot

Sources:
California Dep. of Fish & Game Natural Diversity Database

Special status species map
Continued on Page 5a

Live Oak Associates, Inc.

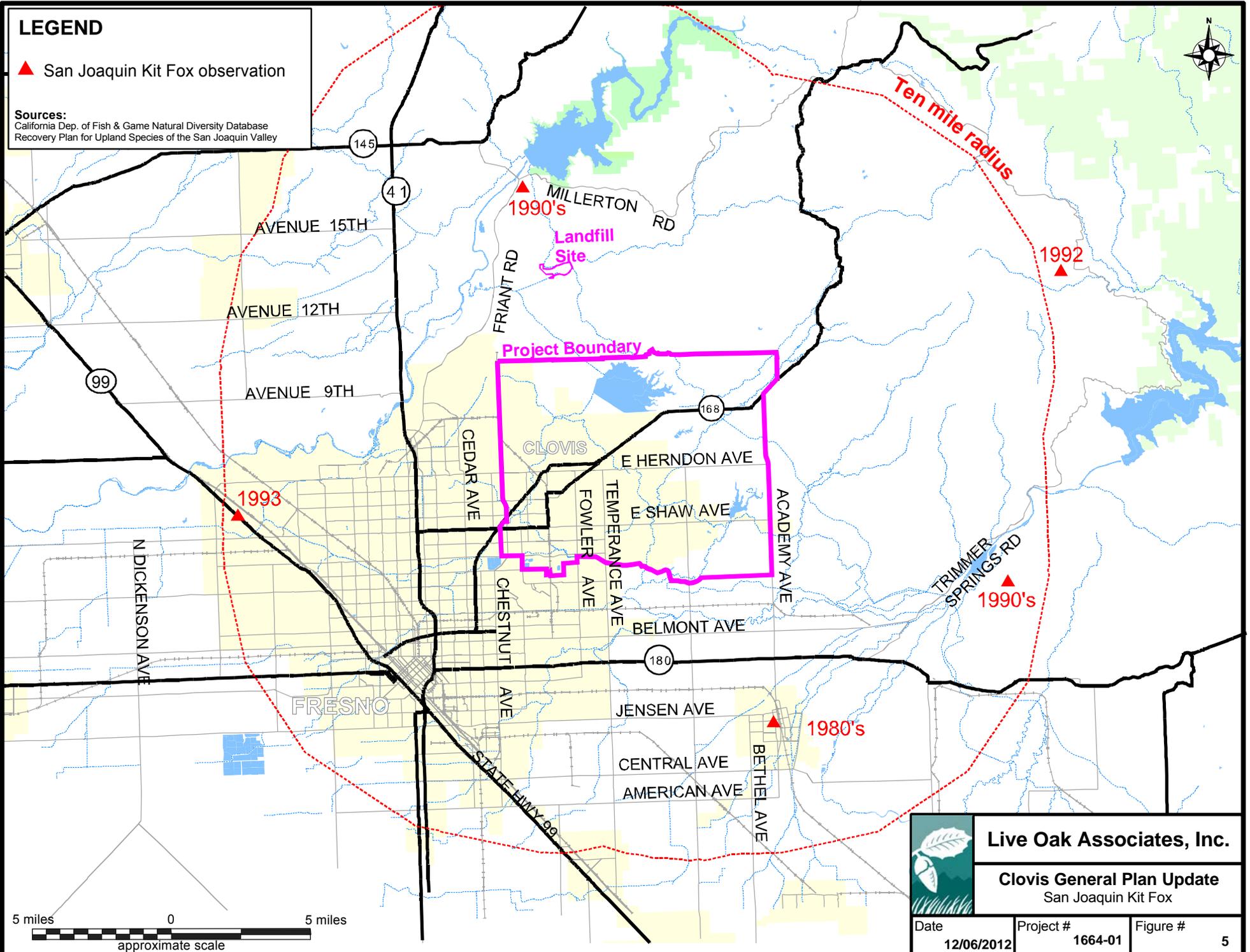
Clovis General Plan Update
Special-status Species

Date	Project #	Figure #
12/06/2012	1664-01	4b

LEGEND

▲ San Joaquin Kit Fox observation

Sources:
California Dep. of Fish & Game Natural Diversity Database
Recovery Plan for Upland Species of the San Joaquin Valley



Live Oak Associates, Inc.

Clovis General Plan Update
San Joaquin Kit Fox

Date	Project #	Figure #
12/06/2012	1664-01	5

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR MAY OCCUR IN THE VICINITY OF THE PLANNING AREA.

PLANTS (adapted from CNDDDB 2012 and CNPS 2012)

Species Listed as Threatened or Endangered

Species	Status	Habitat	Occurrence in the Planning area
California Jewel-flower (<i>Caulanthus californicus</i>)	FE, CE, CNPS 1B	Chenopod scrub, valley and foothills grassland, Pinyon-Juniper grassland. Blooms Feb-May.	Unlikely Although suitable habitat exists within grassland areas within the planning area, populations in the Fresno area are presumed extirpated (CNDDDB 2012).
Greene's Tuctoria (<i>Tuctoria greenei</i>)	FE, CR, CNPS 1B	Occurs in vernal pools of California's Central Valley; blooms May to September	Possible. Suitable habitat in the form of vernal pools is present within the planning area. This species has been historically documented within the planning area; however, the location of the sighting no longer supports vernal pool habitat and that particular population is considered extirpated (CNDDDB 2012).
Hartweg's Golden Sunburst (<i>Pseudobahia bahiifolia</i>)	FE, CE, CNPS 1B	Occurs in grasslands of the western foothills of the Sierra Nevada in volcanic pumice soils. Often found in soils of the Rocklin series; blooms March to April.	Absent. Suitable habitat in the form of Rocklin Sandy Loam, Pumiceous Variant (RiD) soil, the obligate soil type for Fresno and Madera County populations of this species, is absent from the planning area. This species has been observed in the Friant area approx. 4.0 air miles northeast of the planning area (CNDDDB 2012).
Hairy Orcutt Grass (<i>Orcuttia pilosa</i>)	FE, CE, CNPS 1B	California's Central Valley Pools. Requires deep pools with prolonged periods of inundation. Blooms May-September.	Possible. Suitable habitat in the form of vernal pools is present within the planning area. A number of occurrences of this species have been documented near the planning area (CNDDDB 2012).
San Joaquin Adobe Sunburst (<i>Pseudobahia peirsonii</i>)	FT, CE, CNPS 1B	Occurs in Centerville and Porterville heavy clay soils in valley and foothill grassland habitat; blooms March to April	Present. This species has been recently documented within the planning area (i.e. Quail Lakes development) (CNDDDB 2012). This species may occur elsewhere within the planning area in undisturbed heavy clay soils.
San Joaquin Valley Orcutt Grass (<i>Orcuttia inaequalis</i>)	FE, CE CNPS 1B	Vernal pools of California's Central Valley. Requires deep pools with prolonged periods of inundation. Blooms April-September.	Possible. Suitable habitat in the form of vernal pools is present within the planning area. A number of occurrences of this species have been documented near the planning area (CNDDDB 2012).
Succulent Owl's Clover (<i>Castilleja campestris succulenta</i>)	FT, CE CNPS 1B	Vernal pools of California's Central Valley. Blooms April-May.	Present. This species has been documented within the planning area, most recently in 2008. Vernal pool habitat within grassland areas provides suitable habitat for this species (CNDDDB 2012).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR MAY OCCUR IN THE VICINITY OF THE PLANNING AREA.

PLANTS (adapted from CNDDDB 2012 and CNPS 2012)

CNPS Listed Plants (cont.)

Species	Status	Habitat	Occurrence in the Planning area
Dwarf Downingia (<i>Downingia pssilla</i>)	CNPS 2.2	Occurs in vernal pools of California's Central Valley; blooms March to May.	Possible. Suitable habitat in the form of vernal pools is present within the planning area. This species has been observed in vernal pool habitat in the vicinity of the planning area (CNDDDB 2012).
Forked Hare-leaf (<i>Lagophylla dichotoma</i>)	CNPS 1B	Occurs in Valley Grassland and Foothill Woodland. Blooms April-June.	Possible. Suitable habitat exists within grassland areas within the planning area. The nearest documented occurrence is approximately 2.5 miles east of the planning area on the north slope of Round Mtn (CNDDDB 2012).
Madera Leptosiphon (<i>Leptosiphon serrulatus</i>)	CNPS 1B	Occurs in cismontane woodland, foothill grasslands, and lower montane forest from Madera County south through Kern County. Blooms April-May	Possible. This species may occur in grassland habitats within the planning area. The nearest known population of this species is approx. 7.5 air miles north of the planning area in oak woodland habitat (Jeff Gurule, Pers. Obs., CNDDDB 2012).
Spiny-sepaled Button Celery (<i>Eryngium spinosepalum</i>)	CNPS 1B	Found in vernal pools of Fresno and Tulare Counties. Blooms April to May.	Possible. Suitable habitat in the form of vernal pools is present within the planning area. This species has been observed within the vicinity of the planning area (CNDDDB 2012).
Sanford's Arrowhead (<i>Sagittaria sanfordii</i>)	CNPS 1B	Freshwater marshes, pond margins, slow moving rivers, irrigation canals of California's Central Valley and low Sierra Foothills. Blooms May-October.	Likely. This species has been observed by LOA biologist Jeff Gurule in Redbank Slough immediately downstream from the planning area's southern boundary. Other documented occurrences are reported in canals, ditches, and detention basins in and around the Fresno/Clovis area (CNDDDB 2012).
Caper-fruited Tropicocarpum (<i>Tropicocarpum capparideum</i>)	CNPS 1B	Valley and foothill grassland. Blooms March-April.	Unlikely. Although suitable habitat exists in grassland areas within the planning area, populations in the Fresno area are likely extirpated. The only record of this species in the vicinity of the planning area is an historic documentation of this species recorded in the 1930's in Fresno (CNDDDB 2012).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR MAY OCCUR IN THE VICINITY OF THE PLANNING AREA.

ANIMALS (adapted from CNDDDB 2012)

Species Listed as Threatened or Endangered Under the Federal or State Endangered Species Acts

Species	Status	Habitat	Occurrence in the Planning area
Vernal Pool Fairy Shrimp (<i>Branchinecta lynchi</i>)	FT	Found in ruderal pools and vernal pools of California Central Valley.	Present. This species has been documented in numerous vernal pools within grassland habitats of the planning area (LOA obsv. and CNDDDB 2012).
Vernal Pool Tadpole Shrimp (<i>Lepidurus packardii</i>)	FE	Primarily found in vernal pools of California's Central Valley.	Possible. Although no documented occurrences of this species have been recorded within the planning area, vernal pool habitat apparently suitable for this species is present. The nearest known population occurs on McKenzie Table approximately 10.5 miles to the north.
Valley Elderberry Longhorn Beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of California's Central Valley and Sierra Foothills.	Possible. Suitable habitat for this species in the form of elderberry shrubs occurs within the planning area. The distribution of elderberry shrubs across the site is unknown.
California Tiger Salamander (<i>Ambystoma californiense</i>)	FT, CT	Found primarily in annual grasslands; requires seasonal pools for breeding and rodent burrows for refuge.	Present. This species has been documented in vernal pools within grassland habitats of the planning area (LOA obsv. and CNDDDB 2012). Numerous vernal pools in the planning area provide suitable breeding habitat for this species. Ground squirrel and gopher burrows within surrounding grasslands provide suitable aestivation habitat for this species.
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	CE, CP	Winters near reservoirs of California's Central Valley. Mostly feeds on fish in large bodies of water or rivers.	Unlikely. Although bald eagles winter and occasionally nest at Millerton Lake, the planning area provides little to no foraging habitat and unsuitable nesting habitat. Therefore, this species, at most, would occasionally pass over the site.
Swainson's Hawk (<i>Buteo swainsoni</i>)	CT	Uncommon resident but increasingly common migrant in the Central Valley. Forages in grasslands and fields close to riparian areas.	Possible. This species has been observed in the vicinity of the project site numerous times by LOA biologist Jeff Gurule. Grassland and agricultural habitats provide suitable foraging habitat. Onsite trees in less developed areas provide potential nesting habitat. No records of Swainson's hawk nesting has been documented within the planning area.
Western Yellow-billed Cuckoo (<i>Coccyzus americanus occidentalis</i>)	FC, CE	Occurs in valley foothill and desert riparian habitats in scattered locations in California Requires extensive gallery riparian forests for nesting.	Absent. The remnant riparian woodland is not nearly extensive enough to fulfill nesting requirements of this species. This species has not been observed in the Fresno area for over 100 years (CNDDDB 2012).

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR MAY OCCUR IN THE VICINITY OF THE PLANNING AREA.

ANIMALS (adapted from CNDDDB 2012)

Species Listed as Threatened or Endangered Under the Federal or State Endangered Species Acts (cont.)

Species	Status	Habitat	Occurrence in the Planning area
Fresno Kangaroo Rat (<i>Dipodomys nitratoides exilis</i>)	FE, CE	Occurs in alkali scrub and herbaceous habitats with scattered shrubs in the southwestern San Joaquin Valley.	Absent. Suitable habitat is absent from the planning area.
San Joaquin Kit Fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Occurs in desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats.	Unlikely. Numerous surveys conducted by LOA within and adjacent to the planning area have found no evidence of kit fox.

ANIMALS (adapted from CNDDDB 2012)

State Species of Special Concern

Hardhead (<i>Mylopharodon conocephalus</i>)	CSC	Prefer clear, deep pools and runs with sand-gravel-boulder substrates in undisturbed areas of larger low to mid elevation streams.	Absent. Historically abundant in larger perennial waters of central California. Habitat required by this species is absent from creeks and waters within the planning area.
Western Spadefoot Toad (<i>Scaphiopus hammondi</i>)	CSC	Frequents annual grasslands and foothill hardwood woodlands; requires vernal pools or other temporary wetlands for breeding.	Present. This species has been documented in vernal pools within grassland habitats of the planning area (LOA obsv. and CNDDDB 2012). Numerous vernal pools in the planning area provide suitable breeding habitat for this species. Ground squirrel and gopher burrows within surrounding grasslands provide suitable aestivation habitat for this species.
Western Pond Turtle (<i>Clemmys marmorata</i>)	CSC	Occurs in suitable aquatic habitats such as ponds and rivers throughout California.	Possible. This species may occur in natural or constructed aquatic environments within the planning area.
Golden Eagle (<i>Aquila chrysaetos</i>)	CSC, CP	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	Present. A golden eagle was observed foraging within the planning by LOA biologist Jeff Gurule in 2009. Suitable foraging habitat is present, but nesting habitat is absent.
Northern Harrier (<i>Circus cyaneus</i>)	CSC	Frequents grasslands, open rangelands, and emergent wetlands.	Likely. This species likely forages over the site, and may breed in marsh habitat associated with Dry Creek Reservoir.
White-tailed Kite (<i>Elanus caeruleus</i>)	CSC, CP	Open grasslands and agricultural areas throughout central California.	Possible. Grassland and agricultural habitats provide suitable foraging habitat. Onsite trees in less developed areas provide potential nesting habitat.
Burrowing Owl (<i>Athene cunicularia</i>)	CSC	Frequents open, dry grasslands, deserts and ruderal areas; requires rodent burrows for nesting and roosting cover.	Present. Burrowing owls have been observed by LOA biologists in grassland habitat east of Herndon Avenue. Grassland habitat within the planning area provides suitable foraging and nesting habitat for this species.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR MAY OCCUR IN THE VICINITY OF THE PLANNING AREA.

ANIMALS (adapted from CNDDB 2012)

State Species of Special Concern

Species	Status	Habitat	Occurrence in the Planning area
Long-eared Owl (<i>Asio otus</i>)	CSC	Frequents riparian woodlands and forests of California.	Possible. Possible nesting and roosting habitat is present in riparian trees associated with creeks within the planning area. Dave Hartesveldt of LOA has observed long-eared owls in riparian trees adjacent to agricultural land in Madera County.
Short-eared Owl (<i>Asio flammeus</i>)	CSC	Frequents marshes, grasslands, irrigated lands, dunes and other treeless habitats of the Central Valley and western Sierra Nevada foothills.	Possible. This species is not known to breed in this portion of Fresno County. Grasslands within the planning area provide suitable foraging habitat for this species. LOA biologists have observed short-eared owls within the vicinity of the planning area.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Can often be found in cropland.	Present. LOA biologists have observed this species in less developed areas of the planning area. Less developed portions of the planning area provide potential foraging habitat and nesting habitat.
Tricolored Blackbird (<i>Agelaius tricolor</i>)	CSC	Frequents grassland and cropland habitats; requires proximity to fresh water and emergent wetland vegetation with dense cattails and thickets of willow for nesting.	Possible. This species nests in large colonies. Historic records of nesting colonies within the planning area have been documented. Habitat suitable to support a breeding colony potentially occurs along Redbank Slough, Dry Creek Reservoir, and in ponds supporting suitable emergent wetland vegetation. This species would potentially forage within the planning area with mixed flocks of red-winged blackbirds and Brewer's blackbirds.
Spotted Bat (<i>Euderma maculatum</i>)	CSC	Typically associated with prominent rocky habitats where it roosts in crevices, but is known to occur in a wide range of habitats.	Possible. The planning area provides suitable foraging habitat for this species, but the site provides no suitable roosting habitat for this species.
Townsend's Western Big-eared Bat (<i>Corynorhinus townsendii townsendii</i>)	CSC	Frequents all but subalpine and alpine habitats; requires buildings, mines, caves or tunnels for roosting and nesting.	Possible. The planning area provides possible foraging habitat for this species; potential roosting may occur in abandoned or little-used buildings.
Pallid Bat (<i>Antrozous pallidus</i>)	CSC	Frequents grasslands, shrub lands, woodlands and forests habitats; requires mines, caves or crevices for roosting and nesting.	Possible. The planning area provides possible foraging habitat for this species; potential roosting may occur in hollows of large trees or abandoned or little-used buildings.

TABLE 1. LIST OF SPECIAL STATUS SPECIES THAT OCCUR OR MAY OCCUR IN THE VICINITY OF THE PLANNING AREA.

ANIMALS (adapted from CNDDDB 2012)

State Species of Special Concern

Species	Status	Habitat	Occurrence in the Planning area
Western Mastiff Bat (<i>Eumops perotis</i>)	CSC	Frequents grasslands to woodland habitats along the central and southern coast and the Central Valley; requires high buildings, cliff faces, or tunnels for roosting and nesting.	Possible. The planning area provides suitable foraging habitat for this species, but suitable roosting habitat is absent.
American Badger (<i>Taxidea taxus</i>)	CSC	Found in drier open stages of most shrub, forest and herbaceous habitats with friable soils.	Possible. Grassland habitats in the planning area provide suitable foraging and breeding habitat for this species.

* Explanation of Occurrence Designations and Status Codes

Present: Species observed on the site at time of field surveys or during recent past.

Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.

Possible: Species not observed on the site, but it could occur there from time to time.

Unlikely: Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient

Absent: Species not observed on the site, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CR	California Rare
FC	Federal Candidate	CSC	California Species of Special Concern
		CP	California Fully Protected
		CNPS 1B	Plant is threatened or endangered

2.3 ENDANGERED, THREATENED, OR SPECIAL STATUS PLANT AND ANIMAL SPECIES MERITING FURTHER DISCUSSION

An expanded discussion of a few special status species listed in Table 2 is in order due to the ultimate influence the GPU could have on them. Omitted from this expanded discussion are special status species that may be present on the planning area from time to time (or even regularly), but that will not be appreciably affected in any way by the implementation of the Clovis GPU.

2.3.1 Special Status Vernal Pool Plants

As noted in Section 2.1 of this report, numerous vernal pools occur within the planning area. These pools, most of which occur in grassland areas north of Herndon Ave., provide habitat suitable for four federally and state listed plant species endemic (native) to vernal pools. These include the succulent owl's-clover, San Joaquin Valley orcutt grass, hairy orcutt grass, and Greene's tuctoria. In addition, these pools provide suitable habitat for the spiny-sepaled button celery and dwarf downingia, species listed as rare by the CNPS. All of these species have been documented in vernal pools located within five miles of the planning area. An historic record of Greene's tuctoria has been documented within the planning area, but the species is considered extirpated from that location. The succulent owl's-clover has been documented within the planning area and populations are presumed extant.

2.3.2 San Joaquin Adobe Sunburst

The federally endangered San Joaquin adobe sunburst has a very limited range within California, occurring from Fresno County on the north to Kern County on the south. This annual member of the sunflower family occurs as widely scattered populations in heavy clay soils of the Centerville, Cibo, Porterville, and Mt. Olive series, where it is part of a sparse annual grassland plant association. Almost all populations have been documented within the interface of the eastern end of the San Joaquin Valley and the lowest foothills of the Sierra Nevada Range.

This species is documented within the planning area in avoided grassland habitat containing Centerville clay soils within the Quail Lakes development (CNDDDB 2012). Undeveloped Centerville and Mt. Olive clay soils within the planning area may support additional populations of this species (see Heavy Clay Soils on Figure 3).

2.3.3 Madera Leptosiphon

The non-native grassland habitat of the planning area provides suitable habitat for the Madera leptosiphon. This species has been placed by the California Native Plant Society on its List 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere). The Madera leptosiphon is a species occurring in non-native grasslands and oak woodlands of the Sierra Nevada foothills from Madera County on the north to Kern County on the south. Although most documented

occurrences of this species are at elevations greater than 1,000 feet, an extant population has been observed by LOA biologists in Millerton Lake State Park 7.5 miles north of the planning area at an elevation of approximately 600 ft NGVD. The proximity of the Planning area to the Millerton Lake State Park where this species occurs suggests that grassland areas within the planning area could provide habitat for this species.

2.3.4 Vernal Pool Fairy Shrimp

The vernal pools within the planning area provide habitat for the federally threatened vernal pool fairy shrimp, an invertebrate species occurring in vernal pools (and other seasonal aquatic habitat throughout most of California west of the Sierra Nevada). This species has been identified in vernal pools north of Herndon Ave. by LOA biologists, with additional sightings within the planning area occurring in the CNDDDB (LOA 2007, CNDDDB 2012). Due to the documented presence of this species in the planning area and its widespread distribution in vernal pools of the region, it is reasonable to conclude that many of the vernal pools in the planning area are occupied by vernal pool fairy shrimp.

2.3.5 Vernal Pool Tadpole Shrimp

The federally endangered vernal pool tadpole shrimp inhabits seasonal pools of the San Joaquin and Sacramento Valleys and adjoining basalt tabletops of the lower Sierra Nevada foothills. This species is known to inhabit vernal pools ranging in size from two square meters to the 89-acre Olcott Lake at Jepson Prairie. Vernal pool tadpole shrimp have been documented on the McKenzie Table seven miles northeast of the planning area.

This species has not been documented within the planning area. However, the planning area offers suitable habitat for this species in the form of vernal pools of various sizes, and in the absence of comprehensive branchiopod surveys, this species may be assumed to occur in some of the planning area vernal pools.

2.3.6 California Tiger Salamander

The California tiger salamander (CTS) is listed as state and federally threatened. The CTS occurs in areas within Madera and Fresno Counties where vernal pool complexes are located

within extensive grassland habitats. Vernal pools that hold water for 3-4 months of the winter and spring provide likely breeding habitat for the CTS. The CTS larvae mature in these vernal pools as they begin to dry in April and May. The young adult CTS leave the drying pools to find the burrows of California ground squirrels and pocket gophers in which to aestivate (oversummer). While CTS may wander a mile or more from the biological evaluation breeding habitat in search of aestivation habitat, studies of CTS aestivation indicate that 95% of all postbreeding adult salamanders aestivate within 0.4 mile of breeding habitat (Trenham and Shaffer 2005).

Although systematic surveys consistent with USFWS survey protocols have not been conducted for the CTS within the planning area, a number of vernal pools scattered throughout grassland habitats in the planning area provide suitable breeding habitat for the CTS. CTS presence has been documented by LOA biologists in vernal pools north of Herndon Ave., with additional sightings within the planning area occurring in the CNDDDB (LOA 2007, CNDDDB 2012). The surrounding grasslands provide suitable aestivation habitat for this species. Where the CTS occurs on a site, it is generally assumed that CTS breed in all accessible pools that hold water for a duration sufficient for its larvae to mature into young adults. In the absence of systematic and focused surveys for the CTS across suitable habitats in the planning area, the many large deep vernal pools scattered throughout planning area grasslands are presumed to harbor breeding populations.

2.3.7 Western Spadefoot

The California Department of Fish and Game has listed the western spadefoot as a California Species of Special Concern. The western spadefoot typically breeds between January and May in seasonal ponds occurring in chaparral, short grass plains or coastal sage scrub. For the larvae to survive, development must be complete before the ponds dry. Mostly active at night, the spadefoot has adapted to digging in sandy soils and finding refugia in small rodent burrows, creating aestivation habitat that protects it from hot, arid daytime conditions.

Vernal pools in the planning area provide suitable breeding habitat for the western spadefoot. Rodent burrows within surrounding grasslands provide suitable aestivation habitat. Western

spadefoot have been documented within the boundaries of the planning area (LOA 2007, CNDDDB 2012) and are presumed present throughout grassland habitats within the planning area.

2.3.8 Western Pond Turtle

The western pond turtle is the only native aquatic, freshwater turtle in California and normally associates with permanent or nearly permanent aquatic habitats, including streams, lakes, and ponds. Historically, this species occurred in Pacific Coast drainages from Washington to Mexico. This species occurs in aquatic habitats with 1) basking sites such as rocks and logs, 2) dense stands of submergent or emergent vegetation, 3) abundant aquatic invertebrate resources, 4) suitable nearby nesting sites, and 5) a lack of native and exotic predators (Bury 1972; Jennings and Hayes 1994; Bury and Holland, in press). This species can move along streams up to 3.1 miles (5 kilometers) in a short period of time, and they can tolerate at least 7 days without water (Jennings and Hayes 1994; Bury and Holland, in press).

The many ponds and small lakes within rural areas of the planning area provide suitable habitat for this species.

2.3.9 Swainson's Hawk

The California threatened Swainson's hawk is a migrant species that spends much of the spring, summer, and early fall in California's Central Valley. Preferred nesting habitat consists of valley oaks, cottonwoods, and other tall trees adjacent to agricultural fields and grasslands. Swainson's hawks are becoming increasingly common within the Central Valley and have been observed in grassland and agricultural habitats adjacent to the Fresno/Clovis Metropolitan Area numerous times in the last five years by LOA biologist Jeff Gurule. Given recent expansion of the Central Valley Swainson's hawk population, it is possible that agricultural, grassland, and rural residential areas may support foraging and possibly nesting Swainson's hawks.

2.3.10 Burrowing Owl

The burrowing owl, a California species of concern, is a small owl occurring in grassland habitats of the Central Valley that support California ground squirrels. This owl seeks shelter in ground squirrel burrows throughout the year and breeds in these burrows from February through

July. Owl populations have declined sharply in some portions of California during the past two decades (i.e. the San Francisco Bay Area, Sacramento County, San Joaquin County, etc.), but they have increased greatly in some agricultural counties (particularly Imperial). In Fresno and Madera Counties, these owls most commonly occur on the valley floor. They are not as common in foothill habitats, and are entirely absent from areas of oak woodlands and chaparral.

Grassland habitats of the planning area provide suitable foraging and nesting habitat for the burrowing owl. Burrowing owls have been observed in grasslands north of Herndon Ave. by LOA biologists. Burrowing owls could be distributed widely over grasslands of the planning area.

2.3.11 San Joaquin Kit Fox

The federally endangered and California threatened San Joaquin kit fox once occurred throughout much of the San Joaquin Valley, but this species favored areas of alkali sink scrub and alkali grassland in the trough of the San Joaquin Valley and Tulare Basin, as well as areas further west. The low foothills of the Sierra Nevada found at the eastern edge of the San Joaquin Valley must at best be considered at the margin of this species' natural range. In fact, there is no record of anyone ever having seen a kit fox east of Highway 99 in Madera County. The nearest confirmed record of a small kit fox population to the planning area is western Madera County approximately 40 miles away.

There are a number of mostly unverified sightings of kit fox in Fresno County from just south of the San Joaquin River south to Piedra (USFWS 1998). Two of these sightings are highly unlikely, since they appear to be at elevations of 1,000 to 2,000 feet in oak woodland habitat with a known brushy understory. This type of habitat is not known to be used by kit foxes. These two records must almost certainly be gray foxes. One sighting that is now 13 years old was from a location just east of Friant Road (Figure 11). The fact that no one has reported any kit fox sightings before or since that 1994 sighting suggests that this individual, if indeed a kit fox, was a transient that had strayed far from known populations.

A number of kit fox surveys conducted in recent years have failed to turn up any evidence of this species in the Millerton and Friant area (approximately 7 miles north of the planning area's

northern boundary). Curt Uptain of the San Joaquin Valley Endangered Species Recovery team conducted a 3-day survey of the Millerton Specific Plan Area in 1997. He concluded at that time that the site did not constitute good habitat for kit foxes, due to lack of suitable denning habitat and the presence of predators (i.e. coyotes, bobcats, raptors, etc.). He reiterated his opinions during a reconnaissance field survey of the area in March of 2002 (Curt Uptain, pers. commun.). LOA conducted den surveys on portions of the Millerton Specific Plan Area in the spring of 2002, as well as on lands just north of the San Joaquin River in Madera County. These surveys included the use of camera stations and track plates wherever burrows were arguably of a size suitable for kit foxes. No evidence of kit foxes was detected during these surveys. In October of 2003, LOA conducted an extensive survey for the San Joaquin kit fox on lands fronting Friant Road in Fresno County. This study involved den surveys, photo stations, track plates, and night spotlighting. The results of these surveys persuaded the Federal Highway Administration that a kit fox population was absent from the area. LOA also conducted den surveys in open habitats north of Herndon Ave. without detecting any sign of kit foxes.

Based on the available evidence, it appears that a kit fox population is absent from the planning area and surrounding lands.

2.4 SENSITIVE HABITATS

Sensitive habitats are those that are of limited distribution, distinguished by significant biological diversity, home to special status plant and animal species, of importance in maintaining water quality or sustaining flows, etc. Examples of sensitive habitats in the vicinity of the planning area would include vernal pools and various types of riparian forest.

The planning area supports several large areas of vernal pool habitat (including vernal swales), also known as “Northern Hardpan Vernal Pools” as defined by the CDFG (CNDDDB 2012). CDFG recognizes this habitat supports native flora and fauna endemic to such habitats, many of which have been designated as threatened or endangered by the state and/or federal government. This habitat type has been eliminated throughout much of its former range and is now relatively uncommon in the San Joaquin Valley.

While not extensive, the planning area supports some areas of riparian forest associated with portions of Little Dry Creek, Dry Creek, Dog Creek, and Redbank Slough. Riparian areas are also recognized by CDFG as having special value for a diversity of native flora and fauna. Riparian habitat, once extensive throughout the San Joaquin Valley has been eliminated throughout much of its former range and is now relatively uncommon.

2.5 MOVEMENT CORRIDORS

Many terrestrial animals need more than one biotic habitat in order to perform all of their biological activities. With increasing encroachment of humans on wildlife habitats, it has become important to establish and maintain linkages, or movement corridors, for animals to be able to access locations containing different biotic resources that are essential to maintaining their life cycles. Terrestrial animals use ridges, canyons, riparian areas, and open spaces to travel between their required habitats.

The importance of an area as a “movement corridor” depends on the species in question and its consistent use patterns. Animal movements generally can be divided into three major behavioral categories:

- Movements within a home range or territory;
- Movements during migration; and
- Movements during dispersal.

While no detailed study of animal movements has been conducted for the planning area, knowledge of the site, its habitats, and the ecology of the species potentially occurring onsite permits reasonable predictions about the types of movements occurring in the region and whether or not proposed development would constitute a significant impact to animal movements.

The natural drainages occurring within the planning area provide movement corridors, though often broken by urban development, for local wildlife species. However, these drainages are expected to facilitate regional movements of only some wildlife species, as the natural

characteristics of these drainages such as developed riparian vegetation, associated wetlands, and natural banks have been significantly altered through human urban and agricultural development within the planning area. Moreover, with the exception of the very small portion of Little Dry Creek that flows through the planning area, these drainages lead to the Fresno/Clovis Metropolitan Area which serves neither as a source of significant wildlife movement or a preferable destination for wildlife.

As noted in Section 2.1, a number of reptiles, birds, and mammals may use the planning area itself as part of their home range and dispersal movements. The movements of these species, however, do not indicate that any portion of the planning area outside of the Clovis landfill section functions as a significant movement corridor. Given the linkage provided by Little Dry Creek between the San Joaquin River and foothill environments, this feature is a potentially important movement corridor to native wildlife.

2.6 WATERS OF THE U.S. AND OTHER JURISDICTIONAL WATERS

Waters of the U.S. and other jurisdictional waters (hereafter referred to as “jurisdictional waters”) include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (CDFG), and the California Regional Water Quality Control Board (RWQCB). See Section 3.2.4 of this report for additional information.

Dog Creek, Dry Creek, Redbank Slough, and Little Dry Creek (and their tributaries, impoundments, and adjacent wetlands) have all been claimed as Waters of the United States and Waters of California by the USACE and RWQCB, respectively. These drainages are characterized as having a defined bed and bank and are hydrologically connected to other waters of the U.S., as they are tributary to the San Joaquin River. The limit of USACE jurisdiction, as well as that of the RWQCB, would be the ordinary high water (OHW) level. The creeks are also subject to the jurisdiction of the CDFG up to the top of bank or the edge of associated riparian vegetation, whichever is greater.

Three major irrigation canals—Friant-Kern Canal, Enterprise Canal, and Gould Canal—run through the site. While artificial waterways such as canals are typically not claimed by the agencies, these canals are connected on both ends to Waters of the U.S. and, thus, have been claimed as jurisdictional by the USACE. The jurisdictional status of other minor canals, while likely not jurisdictional, would have to be determined on a case by case basis.

Constructed lakes and ponds adjacent to or hydrologically connected to jurisdictional drainages and canals may, themselves, be considered jurisdictional by the USACE and RWQCB as well as the CDFG. Areas meeting the three wetland criteria (i.e., vegetation, hydrology, and soils) such as vernal pools and wetland swales adjacent or hydrologically connected to jurisdictional drainages or canals may, themselves, be considered jurisdictional by the USACE and RWQCB. If wetland features can be demonstrated to be hydrologically isolated from jurisdictional drainages the USACE may not exert jurisdiction over them. However, the RWQCB would still likely regulate activities affecting these features. The CDFG typically only claims jurisdiction over natural drainages and, therefore, is unlikely to regulate wetlands or manmade irrigation features such as the canals mentioned above. However, CDFG would likely claim jurisdiction over constructed ponds that supported aquatic life and/or riparian vegetation.

At the level of effort put forth for this study and limited access to private lands within the planning area, a map has been prepared that identifies known jurisdictional waters and identifies undeveloped grassland areas containing likely jurisdictional waters. This information is based on LOA's knowledge of the area, a USGS blue-line GIS layer, past correspondence with the above agencies regarding jurisdictional status of hydrologic features within the planning area, and the presence of vernal pool or seasonal wetland signatures within undeveloped grassland areas on high resolution aerial photography. However, because the planning area was not comprehensively assessed for the presence of jurisdictional waters, many small wetland areas and ponds within developed lands, primarily within rural residential areas, have not been included in Figure 3. The jurisdictional status of these areas is unknown at this time and would need to be evaluated on a case-by-case basis to determine if these features would be regulated by the USACE, CDFG, and/or RWQCB.

Functioning wastewater treatment ponds and constructed stormwater detention basins would not be regulated by the USACE, RWQCB, or CDFG. However, it is important to note that these three agencies are the final arbiters and reserve the right to claim or disclaim jurisdiction over any hydrologic feature.

3.0 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

Approval of general plans, area plans, and specific projects is subject to the provisions of CEQA. The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are carried out. CEQA is concerned with the significance of a proposed project's impacts. For example, a proposed development project may require the removal of some or all of a site's existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on the site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed.

Whenever possible, public agencies are required to avoid or minimize environmental impacts by implementing practical alternatives or mitigation measures. According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest."

Specific project impacts to biological resources may be considered "significant" if they would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make a “mandatory finding of significance” if the project has the potential to

Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory.

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 Threatened and Endangered Species

State and federal “endangered species” legislation has provided the CDFG and the USFWS with a mechanism for conserving and protecting plant and animal species of limited distribution and/or low or declining populations. Species listed as threatened or endangered under provisions of the state and federal endangered species acts, candidate species for such listing, state species of special concern, and some plants listed as endangered by the California Native Plant Society are collectively referred to as “species of special status.” Permits may be required from both the CDFG and USFWS if activities associated with a proposed project will result in the “take” of a listed species. “Take” is defined by the state of California as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill” (California Fish and Game Code, Section 86). “Take” is more broadly defined by the federal Endangered Species Act to include “harm” (16 USC, Section 1532(19), 50 CFR, Section 17.3). Furthermore, the CDFG and the USFWS are responding agencies under CEQA. Both agencies review CEQA documents in order to determine the adequacy of their treatment of endangered species issues and to make project-specific recommendations for their conservation.

3.2.2 Migratory Birds

State and federal laws also protect most birds. The Federal Migratory Bird Treaty Act (16 U.S.C., sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

3.2.3 Birds of Prey

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, which states that it is “unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered “taking” by the CDFG.

3.2.4 Waters of the U.S. and Other Jurisdictional Waters

Natural drainage channels and adjacent wetlands may be considered “Waters of the United States” (hereafter referred to as “jurisdictional waters”) subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE). The extent of jurisdiction has been defined in the Code of Federal Regulations but has also been subject to interpretation of the federal courts. Jurisdictional waters generally include:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundments of waters otherwise defined as waters of the United States under the definition;
- Tributaries of waters identified in paragraphs (a)(1)-(4) (i.e. the bulleted items above).

As recently determined by the United States Supreme Court in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (the SWANCC decision), channels and wetlands isolated from other jurisdictional waters cannot be considered jurisdictional on the basis of their use, hypothetical or observed, by migratory birds.

The USACE regulates the filling or grading of such waters under the authority of Section 404 of the Clean Water Act. The extent of jurisdiction within drainage channels is defined by “ordinary high water marks” on opposing channel banks. Wetlands are habitats with soils that are intermittently or permanently saturated, or inundated. The resulting anaerobic conditions select for plant species known as hydrophytes that show a high degree of fidelity to such soils. Wetlands are identified by the presence of hydrophytic vegetation, hydric soils (soils saturated intermittently or permanently saturated by water), and wetland hydrology according to methodologies outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987).

All activities that involve the discharge of fill into jurisdictional waters are subject to the permit requirements of the USACE (Wetland Training Institute, Inc. 1991). Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board (RWQCB) issues a certification (or waiver of such certification) that the proposed activity will meet state water quality standards. The filling of isolated wetlands, over which the USACE has disclaimed jurisdiction, is regulated by the RWQCB. It is unlawful to fill isolated wetlands without filing a Notice of Intent with the RWQCB. The RWQCB is also responsible for enforcing National Pollution Discharge Elimination System (NPDES) permits, including the General Construction Activity Storm Water Permit. All projects requiring federal money must also comply with Executive Order 11990 (Protection of Wetlands).

The California Department of Fish and Game has jurisdiction over the bed and bank of natural drainages according to provisions of Section 1601 and 1602 of the California Fish and Game Code (2003). Activities that would disturb these drainages are regulated by the CDFG via a Streambed Alteration Agreement. Such an agreement typically stipulates that certain measures will be implemented which protect the habitat values of the drainage in question.

3.2.5 Local Policies or Habitat Conservation Plans

It is assumed that the City of Clovis will be concurrently updating existing general plan policies related to the protection of biological resources. Proposed land uses within the GPU area should be in compliance with these policies, wherever possible. No habitat conservation plans are known to be in effect for the City of Clovis and surrounding areas.

3.3 IMPACTS AND MITIGATIONS SPECIFIC TO THE PROJECT SITE

The City of Clovis has established a GPU area of 43,569 acres for which an overall precedent will be set for future land use. The GPU establishes growth lines for the City of Clovis to the year 2035. Over time, development or land use changes will extend into these areas to accommodate new growth. However, projected growth beyond the 2035 boundary is also incorporated into the GPU. The sensitive or protected biotic resources in and around the Clovis area will likely be impacted by future development as a result of the conversion of agricultural and undeveloped lands to residential, commercial, and industrial development.

Although potentially suitable habitat is present within the GPU area for a number of sensitive species and habitats, these resources would be restricted to certain areas within the planning area. Therefore, habitat zones have been identified within the planning area consisting of Urban, Rural, and Drainage/Canal. Urban lands include all highly developed lands associated with commercial, industrial, single and multifamily residential areas, and associated infrastructure such as detention basins, and other land uses under significant influence of the urban environment. Rural areas include rural residential, agriculture, and grassland/seasonal wetland areas. Drainage/canals include all natural, altered-natural, and manmade water conveyance features and associated riparian habitat. Impacts to specific biological resources have been evaluated for each of these three zones. Evaluation of impacts by zones was established to aid City planners in their consideration of potential impacts to sensitive or protected biological resources when considering certain areas for future projects and growth.

Specific projects have not been proposed at this time. However, the following subsections evaluate the impact such development may have on sensitive or protected biological resources

and provide a mitigation matrix to be followed to ensure impacts to these resources from future projects are reduced to a less than significant level (see Table 3).

<p>Step 1: Biological Resource/Habitat Assessment</p>	<p>A qualified biologist will conduct a reconnaissance level field survey of individual project sites for the presence and quality of biological resources potentially affected by project development. These resources include, but are not limited to, special status species or their habitat, sensitive habitats such as wetlands or riparian areas, and jurisdictional waters. If sensitive or protected biological resources are absent from the project site and adjacent lands potentially affected by the project, the biologist shall submit a written report stating such to the City of Clovis, and the project may proceed without any further biological investigation. If sensitive or protected biological resources are present on the project site or may be potentially affected by the project, proceed to Step 2.</p>
<p>Step 2: Impact Assessment</p>	<p>A qualified biologist will evaluate impacts to sensitive or protected biological resources from project development. The impact assessment may require focused surveys that determine absence or presence and distribution of biological resources on the site. These surveys may include, but are not limited to: 1) focused special status animal surveys if suitable habitat is present; 2) appropriately timed focused special status plant surveys that will maximize detection and accurate identification of target plant species; 3) a delineation of jurisdictional boundaries around potential waters of the U.S. or State. The results of these surveys will assist in assessing actual project impacts. Alternatively, the project applicant may forgo focused plant and animal surveys and assume presence of special status species in all suitable habitats on the project site. Once project related impacts have been evaluated, proceed to Step 3.</p>
<p>Step 3: Avoidance Mitigation</p>	<p>The project should avoid potential impacts to sensitive or protected biological resources. Depending on the resources potentially present on the project site avoidance may include: 1) establishing appropriate no-disturbance buffers around on-site or adjacent resources and/or 2) initiating construction at a time when special status or protected animal species will not be vulnerable to project related mortality (e.g.. outside the avian nesting season or bat maternal or wintering roosting season). Consultation with relevant regulatory agencies may be required in order to establish suitable buffer areas. If the project avoids all sensitive or protected biological resources, no further action is required. If resource avoidance is not feasible, proceed to Step 4.</p>
<p>Step 4: Minimization Mitigation</p>	<p>Project proponents should design the project to minimize potential impacts to sensitive or protected biological resources, in consultation with a qualified biologist and/or appropriate regulatory agency staff. In addition to an environmentally sensitive project design, other minimization measures may include 1) exclusion and/or silt fencing; 2) relocation of impacted resources; 3) construction monitoring by a qualified biologist; and 4) an informative training program conducted by a qualified biologist for construction personnel on sensitive biological resources that may be impacted by project construction. Proceed to Step 5. If project minimization is not practicable or adequate, proceed to Step 5.</p>

Table 3 (cont.). Clovis GPU Mitigation Matrix	
Step 5: Compensatory Mitigation	A qualified biologist will develop appropriate mitigations that will reduce project impacts to sensitive or protected biological resources to a less than significant level. The type and amount of mitigation will depend on the resources impacted, the extent of the impacts, and the quality of habitats to be impacted. Mitigations may include, but are not limited to: 1) Compensation for lost habitat or waters in the form of preservation or creation of in-kind habitat or waters, either onsite or offsite, protected by conservation easement; 2) Purchase of appropriate credits from an approved mitigation bank servicing the Clovis GPU area; 3) Payment of in lieu fees. If jurisdictional waters or state or federally threatened or endangered species will be impacted, appropriate permits will be required; proceed to Step 6.
Step 6: Permitting	<p>Individual project impacts to waters of the U.S. and other jurisdictional waters will require compliance with the federal Clean Water Act, California Water Code, and/or California Fish and Game Code. Accordingly, project applicants should obtain appropriate permit authorization for such impacts. The types of permits potentially required for impacts to jurisdictional waters are a Clean Water Act permit issued by the USACE, a California Water Certificate or Waste Discharge Order issued by the RWQCB, and Stream Alteration Agreement issued by the CDFG.</p> <p>Individual project impacts to federally or state listed species will require compliance with the federal and state Endangered Species Acts. Accordingly, project applicants should obtain appropriate permit authorization for such impacts. The types of permits potentially required for impacts to state or federally listed species are a Biological Opinion issued by the USFWS and/or an Incidental Take Permit issued by the CDFG.</p> <p>In issuing these permits, each responsible agency is required to ensure that the proposed mitigation meets the standards for mitigation requirements under each Act and/or Code. Consultation with the agencies regarding mitigation strategy is recommended.</p>

Less than Significant Impacts

3.3.1 Impacts to Special Status Plant Species Absent or Unlikely within the Planning Area

Potential Impacts. Of the 13 special status plant species potentially occurring in the region, 10 have either been documented on the site or have the potential to occur within the planning area. The remaining three species, California jewel flower, Hartweg’s golden sunburst, and caper-fruited tropidocarpum are either absent or unlikely to occur in the planning area due to the absence of suitable habitat and/or that the planning area is well outside the species current known range. Possible impacts to regional populations of these three species from eventual site development will not occur due to their absence from the site.

Mitigation. None warranted.

3.3.2 Impacts to Special Status Animal Species Absent or Unlikely within the Planning Area

Potential Impacts. Of the 25 special status animal species potentially occurring in the region, a total of 20 may utilize or reside within the planning area. Five of the remaining species, the western yellow-billed cuckoo, Fresno kangaroo rat, San Joaquin kit fox, hardhead, and bald eagle would not occur or would be unlikely to occur on the site due to the absence of suitable habitat or because the planning area is outside the known range for the species. Possible impacts to regional populations of these five species from implementation of the GPU will not be significant as none of these special status animals would be impacted.

Mitigation. None warranted.

3.3.3 Impacts from Loss of Foraging Habitat to Special Status Animal Species Potentially Foraging within the Planning Area

Potential Impacts. Three species would occur on the site as foragers, only, and breed/nest/roost elsewhere. These include the short-eared owl, California mastiff bat, and spotted bat. Full implementation of the GPU would result in the loss of some foraging habitat for these three species. However, the planning area does not represent unique foraging habitat for these species and similar abundant foraging habitat would continue to exist within the region after implementation of the GPU. Therefore, the loss of foraging habitat from GPU implementation would not significantly impact regional populations of these species.

Mitigation. None warranted.

3.3.4 Impacts to Movement Corridors

Impact. Although drainages may facilitate the movement of local, common wildlife species occurring in the planning area, the planning area does not appear to contain significant “movement corridors” for native wildlife. As described in detail in Section 2.5, with the exception of Little Dry Creek through the Clovis landfill area, these features lead to the urban environments of the Fresno/Clovis metropolitan area and therefore do not provide any linkage between significant or necessary habitats for native wildlife species. A considerable amount of

open space lands in the planning area and surrounding lands will continue to be used by native species for home range and dispersal movements. It is understood that the implementation of the GPU will not facilitate development within the Little Dry Creek corridor. Therefore, implementation of the GPU will have a less than significant effect on movement corridors.

Mitigation. None warranted.

3.3.5 Local Policies or Habitat Conservation Plans

Potential Impacts. It is assumed that all future development within the GPU area would be in compliance with the provisions of the City of Clovis General Plan policies. No known Habitat Conservation Plans are in effect for the Clovis area.

Mitigation. None warranted.

Potentially Significant Impacts

3.3.6 Impacts to Special Status Vernal Pool Plants

Urban and Drainage/Canal Zones

Impact. Vernal pool habitat required by these species is absent from these zones. Impacts to these species within these zones would be absent.

Mitigation. None warranted.

Rural Zone

Impact. Special status vernal pool plants described in Section 2.3.1 occur or potentially occur in seasonal wetlands associated with grassland habitats in the planning area. Seasonal wetland areas in rural residential areas offer marginal habitat for special status plant species due to the high level of human activity in these areas. Given the historic and ongoing loss of vernal pool habitat required by these species in this portion of Fresno and Madera Counties, any impacts to this species or occupied habitat are considered significant.

Mitigation. To reduce impacts to these species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.7 Impacts to the San Joaquin Golden Sunburst

Urban and Drainage/Canal Zones

Impact. Undisturbed heavy clay soils required by this species are absent from these zones. Impacts to this species within these zones would be absent.

Mitigation. None warranted.

Rural Zone

Impact. The San Joaquin adobe sunburst is known to occur in the planning area (Figure 3). A population of San Joaquin adobe sunburst occurs on approximately 7.5 acres of preserved land within the Quail Lakes residential development. As discussed in Section 2.3.1, this species requires undisturbed heavy clay soils of the Centerville, Cibo, Porterville, or Mt. Olive series. Of these four soil series, only two are found within the planning area, Centerville clays and Mt. Olive clays. Undisturbed areas containing these soils have been mapped as heavy clay soils on Figure 3. Development of lands containing these soils would have the potential to eliminate an as-yet-unknown population of this sensitive plant species. Impacts to San Joaquin adobe sunburst are therefore considered potentially significant.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.8 Impacts to the Madera Leptosiphon

Urban and Drainage/Canal Zones

Impact. Grassland or suitable woodland habitats required by this species are absent from these zones. Impacts to this species within these zones would be absent.

Mitigation. None warranted.

Rural Zone

Impact. As discussed in Section 2.3.3, Madera leptosiphon is known to occur in oak woodland habitat within the project vicinity (Figure 5). Other populations have been documented in grassland habitats. Undisturbed grassland areas within the planning area provide potential habitat for this species. Development of lands within these grassland areas would have the potential to eliminate an as-yet-unknown population of this sensitive plant species. Impacts to Madera leptosiphon are therefore considered potentially significant.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.9 Impacts to Sanford's Arrowhead

Urban, Rural, and Drainage/Canal Zones

Impact. This species is known to occur in slow moving creeks, earthen canals and detention basins within the project vicinity, including an offsite, downstream reach of Redbank Slough, and likely occurs within the planning area proper. Similar habitats occurring within all zones of the planning area potentially support populations of Sanford's arrowhead. Projects resulting from the implementation of the GPU that impact these habitats either directly or through altering the hydrology of these features may eliminate an as-yet-unknown population of this sensitive plant species. Impacts to Sanford's arrowhead are therefore considered potentially significant.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.10 Impacts to Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp

Urban and Drainage/Canal Zones

Impact. Vernal pool habitat required by these species is absent from these zones. Impacts to these species within these zones would be absent.

Mitigation. None warranted.

Rural Zone

Impact. The federally threatened vernal pool fairy shrimp has been documented within the planning area in vernal pools within grassland habitat and seasonally inundated areas within rural residential habitat. Although the federally endangered vernal pool tadpole shrimp has not been documented within the planning area, it may occupy similar or the same habitat as the vernal pool fairy shrimp. These species may be present in vernal pools or seasonally inundated areas across this zone. Given the historic and ongoing loss of habitat for this species in this portion of Fresno and Madera Counties any impacts to these species or occupied habitat would be considered significant.

Mitigation. To reduce impacts to these species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.11 Impacts to California Tiger Salamander

Urban and Drainage/Canal Zones

Impact. Vernal pool habitat required for breeding and grassland habitat required for aestivation by this species is absent from these zones. Impacts to this species within these zones would be absent.

Mitigation. None warranted.

Rural Zone

Impact. As discussed in Section 2.3.6 the California and federally threatened California tiger salamander is known to breed and aestivate in the planning area in grasslands containing suitable breeding habitat in the form of large vernal pools. While not the typical habitat for this species, seasonal ponds within less dense rural residential areas could provide breeding opportunity for

CTS and rodent burrows on surrounding lands could provide potential aestivation habitat. Given the historic and ongoing loss of habitat for this species in this portion of Fresno and Madera Counties any impacts to this species or occupied habitat would be considered significant.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.12 Impacts to Western Spadefoot Toad

Urban and Drainage/Canal Zones

Impact. Vernal pool habitat required for breeding and grassland habitat required for aestivation by these species is absent from these zones. Impacts to this species within these zones would be absent.

Mitigation. None warranted.

Rural Zones

Impact. As discussed in Section 2.3.7 the western spadefoot toad is known to breed and aestivate in grasslands containing suitable breeding habitat in the form of vernal pools within the planning area). While not the typical habitat for this species, seasonal ponds within less dense rural residential areas could provide breeding opportunity for this species and rodent burrows in surrounding lands could provide potential aestivation habitat. Given the historic and ongoing loss of habitat for this species in this portion of Fresno and Madera Counties impacts to this species or occupied habitat may be considered significant.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.13 Impacts to Western Pond Turtles

Urban Zone

Impact. Developed lands in urban areas provide unsuitable habitat for the western pond turtle due to the high level of human activity and lack of suitable aquatic habitat.

Mitigation. None warranted.

Drainage/Canal Zone

Impact. Most drainages within the planning area provide unsuitable habitat for the western pond turtle due to the low seasonal flows within these drainages that produce inadequate aquatic habitat for this species. However, the stretch of Redbank Slough in the vicinity of the Quail Lakes development and the stretch of Little Dry Creek through the City landfill area provide suitable aquatic habitat for western pond turtles. Canals provide extremely marginal habitat for the pond turtle due to the lack of vegetation within the canal and swift currents.

Mitigation. To reduce impacts to this species from future projects resulting from the implementation of the GPU that may impact the hydrology or lands adjacent to Little Dry Creek or Redbank Slough, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

Rural Zone

Impact. The western pond turtle may inhabit ponds and small lakes within the planning area. The loss or degradation of aquatic habitats across the state has greatly reduced pond turtle populations. Therefore, impacts to this species may be considered significant.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.14 Impacts to Swainson's Hawks

Urban Zone

Impact. Developed lands in urban areas provide unsuitable habitat for the Swainson's hawk due to the high level of human activity and lack of suitable foraging habitat.

Mitigation. None warranted.

Drainage/Canal and Rural Zones

Impact. Swainson's hawk may utilize grassland and agricultural lands used for annual crops in rural zones for foraging, and trees in rural areas or riparian trees associated with natural drainages for nesting. While this species is known to occur in the vicinity of the planning area, no individuals or nest sites have been documented within the planning area. Therefore, while potentially occurring in the planning area, this area does not appear to offer important or unique habitat value. However, should a nesting pair occur within the area impacted by a future project, construction activities may adversely affect nesting success or result in mortality of individual birds; such an impact would constitute a violation of state and federal laws (see Section 3.2.3) and would be considered a significant impact under CEQA.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.15 Impacts to Burrowing Owl

Urban Zone

Impact. Developed lands in urban areas provide unsuitable habitat for the burrowing owl due to the high level of human activity and lack of suitable foraging habitat.

Mitigation. None warranted.

Drainage/Canal and Rural Zones

Impact. As discussed in Section 2.3.10, burrowing owls have been observed in grassland habitat within the planning area. Grasslands and adjoining levee banks associated with canals and drainages provide the best burrowing owl habitat within the planning area. Other areas of the planning area providing potential, but less suitable, habitat for burrowing owls are open agricultural lands such as disced fields or row crops and adjacent levee banks. Should burrowing owls occur within the area impacted by a future project, construction activities may adversely affect nesting success or result in mortality of individual birds; such an impact would constitute a violation of state and federal laws (see Section 3.2.3) and would be considered a significant

impact under CEQA. Loss of occupied habitat from project development may also be considered a potentially significant impact.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.16 Impacts to American Badger

Urban Zone

Impact. Developed lands in urban areas provide unsuitable habitat for badgers due to the high level of human activity and lack of suitable foraging habitat.

Mitigation. None warranted.

Drainage/Canal and Rural Zones

Impact. The American badger has been documented within the planning area. This species potentially occurs within rural zones of the planning area. Grasslands provide the best habitat for this species. Riparian areas and levee banks associated drainages and canals within rural areas also provide suitable habitat for badgers. Rural residential and agriculture areas provide potential but much less suitable habitat for the badger due to regular soil disturbance, human activity, and/or the presence of domestic dogs. Should this species occur within the area impacted by a future project, construction activities may result in mortality of individual badgers. Such an impact would be considered a potentially significant impact under CEQA. Loss of occupied habitat from project development may not be considered a significant impact due to the abundance of similar habitat in the region.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.17 Impacts to Migratory Birds

Urban, Rural, and Drainage/Canal Zones

Impact. In addition to the Swainson's hawk, numerous other avian species such as northern harriers, red-tailed hawks, loggerhead shrike, and many other migratory bird species occur within various portions of the planning area. Projects resulting from the implementation of the GPU have the potential to cause nest abandonment or mortality of individual birds across the planning area. Such impacts constitute a violation of state and federal laws (see Sections 3.2.2 and 3.2.3) and may be considered a significant impact under CEQA.

Mitigation. To reduce impacts to this species from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.18 Impacts to Native Wildlife Nursery Sites

Urban, Rural, and Drainage/Canal Zones

Impact. A number of features within the planning area provide nursery sites for wildlife species. Vernal pools provide potential nursery sites for vernal pool fairy shrimp, vernal pool tadpole shrimp, western spadefoot toads, and CTS. Impacts to these species have been addressed above. Vehicular passes over canals and creeks provide potential nesting habitat for cliff swallows. In fact cliff swallow nests have been monitored by LOA biologist Austin Pearson at the Shepherd and Fowler intersection overpass of Dry Creek as part of a City improvement project to that area. Emergent wetland vegetation or blackberry thickets associated with drainages and ponds on the site provide potential habitat for nesting colonies of tri-colored blackbirds, a California species of concern. Impacts to cliff swallows and tri-colored blackbirds are covered in Section 3.3.16. Cavities in large trees and abandoned or dilapidated structures in rural areas provide potential roosting habitat for bats. Bats are vulnerable to mortality during the summer maternal roosting season when juvenile bats have not developed the ability to fly and fend for themselves and the winter roosting season when bats may be hibernating and unable to escape from disturbed roosting sites. Projects resulting from the implementation of the GPU that require the demolition of abandoned or dilapidated buildings or removal of large trees may result in the mortality of large numbers of bats. Such impacts would be considered a significant impact under CEQA.

Mitigation. To reduce impacts to native wildlife nursery sites from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.19 Impacts to Sensitive Habitats: Riparian Forest, Vernal Pools, Jurisdictional Waters

Urban Zone

Impact. Developed lands in urban areas contain no sensitive habitats due to the high level of human disturbance and activity.

Mitigation. None warranted.

Rural and Drainage/Canal Zones

Impact. As discussed in Section 2.4 and 2.6, sensitive habitats and jurisdictional waters occur within the planning area. Riparian habitat is present along portions of all onsite named creeks. Vernal pool habitat is present throughout most of the grasslands areas. Jurisdictional waters include all named creeks and their tributaries in the planning area and possibly many of the vernal pools on the site. Jurisdictional waters would also include major canals in the planning area such as the Friant Kern Canal, Enterprise Canal, and Gould Canal. Projects resulting from the implementation of the GPU that may impact these areas may constitute a significant impact on these resources depending on the extent and nature of the impact.

Mitigation. To reduce impacts to sensitive habitats and jurisdictional waters from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

3.3.20 Degradation of Water Quality in Seasonal Drainages, Stock Ponds, and Downstream Waters

Urban Zone

Impact. Infill development is expected to have a less than significant impact on water quality to downstream waters relative to background contaminant levels common in urban areas.

Furthermore, the flat topography in this zone would lead to little to no erosion of any exposed soils.

Mitigation. None warranted.

Rural and Drainage/Canal Zones

Impact. Extensive grading often leaves the soils of construction zones barren of vegetation and, therefore, vulnerable to erosion. Eroded soil is generally carried as sediment in surface runoff to be deposited in natural creek beds, canals, and adjacent wetlands. Furthermore, runoff is often polluted with grease, oil, pesticide and herbicide residues, heavy metals, etc. Although lands in and around Clovis are nearly level, lands with rolling topography or proximate to natural drainages have the potential to contribute silt and pollutants to downstream waters. Therefore, the potential for erosion and the degradation of water quality in downstream waters is potentially significant.

It should be noted that projects involving the grading of large tracts of land must be in compliance with provisions of a General Construction permit (a type of NPDES permit) available from the RWQCB.

Mitigation. To reduce impacts to downstream waters from future projects that result from the implementation of the GPU, project applicants will follow the mitigation matrix presented in Table 3 prior to development or project approval.

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APPENDIX A: SELECTED PHOTOGRAPHS



Photo 1: Urban environment of Clovis.



Photo 2: Agricultural land.



Photo 3: Agricultural land.



Photo 4: Rural residential area.



Photo 5: One of many unmapped ponds within the rural residential area.



Photo 6: Grassland north of Herndon Ave with vernal pool in foreground.



Photo 7: Grassland within Dry Creek reservoir flood zone; riparian trees along Dry Creek in background.



Photo 8: Little Dry Creek in Clovis landfill section of the planning area.



Photo 9: Dry Creek within rural residential area between Dry Creek Reservoir and the Enterprise Canal.



Photo 10: Friant-Kern Canal.



Photo 11: Manmade Quail Lakes.



Photo 12: Detention basin managed by the Fresno Metropolitan Flood Control District.