



LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

RESEARCH AND TECHNOLOGY BUSINESS PARK EXPANSION BIOLOGICAL EVALUATION CITY OF CLOVIS, FRESNO COUNTY, CALIFORNIA

Prepared by

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EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) conducted an investigation of the biological resources of an area known as the Technology and Business Park Expansion Area located in the City of Clovis in Fresno County, California, and evaluated likely impacts to such resources resulting from development consistent with the General Plan. The site is generally inclusive within N. Sanders Avenue to the east, Highway 168 to the southeast, Enterprise Canal and N. Temperance Avenue to the west, and Portland Avenue to the north. In October 2007, LOA ecologists Davinna Ohlson and Nathan Hale surveyed the site for biotic habitats, noted the plants and animals occurring in those habitats, and significant habitat values that may be protected by state and federal law.

The approximately 160-acre study area is located in the northeastern portion of the City of Clovis, Fresno, California, which includes low-density residential development, remnant orchard lands, and disturbed open space. The area also includes associated detention basins, a man-made pond, and an irrigation canal named Enterprise Canal, which carries water through portions of the Central Valley.

The study area does not provide suitable habitat for special status plant species. A number of special status animal species could occur onsite. California species of special concern that have a chance of occurring as residents within the study area include the western pond turtle, and burrowing owl; in addition, several raptor species and the hoary bat may occasionally forage over the site (see Table 2). Pre-construction surveys would be required for these species for individual projects. We do not believe that the California tiger salamander or the San Joaquin kit fox would occur within the study area due to the highly disturbed nature of the habitat, the fact that it is isolated from more suitable habitat, the fact that there are no current (within last 10 years) sightings for either species in close proximity to the site, and the fact that LOA has conducted focused kit fox studies in the general vicinity of the site without detecting the species. It should be noted, however, that the U.S. Fish and Wildlife Service has shown considerable interest in the protection of kit fox in the general region of the study area.

Development of individual projects could also result in direct mortality to bats, other tree-nesting raptors, and swallows, should any of these species roost or nest within the study area, though

none were directly observed during the reconnaissance visit in October 2007. Such mortality may be considered a significant impact and would also constitute a violation of state and federal laws. Should pre-demolition surveys for bats and swallows and pre-construction surveys for raptors determine that these species are roosting or nesting on or near a site, mitigations have been provided that would reduce impacts to these species to a less-than-significant level and that would ensure that the project is in compliance with state and federal laws.

Due to the apparent isolation and manmade nature of all water features within the study area, even if portions of these features meet the three technical criteria for jurisdictional wetlands, the USACE would not be expected to exert jurisdiction over them. However, the RWQCB may still regulate these features, especially the pond since it supports hydrophilic plants. The CDFG typically only claims jurisdiction over natural drainages and, therefore, is unlikely to regulate the manmade features mentioned above. It is not expected that any of the agencies would claim jurisdiction over any water feature within the study area. However, it is important to note that these three agencies are the final arbiters and could claim jurisdiction over some or all of these features. Therefore, these features should be evaluated further on a case-by-case basis as to each agency's position regarding their jurisdiction.

Future development is expected to have a less-than-significant effect on habitat for native wildlife and regional wildlife movements.

1 INTRODUCTION

Live Oak Associates, Inc. (LOA) has prepared the following report, which describes the biotic resources of approximately 160 acres in Clovis, California, and evaluates likely impacts to these resources resulting from the proposed build out of the Clovis Tech Park. Clovis is located in north central Fresno County, approximately 7 miles northeast of the center of Fresno (Figure 1). The study area is located in the Clovis 7.5" U.S. Geological Survey (USGS) quadrangle in the NW corner of the NW ¼ of Section 35, Township 12.0S, Range 21E and the NW corner of the SE ¼ of Section 26, Township 12.0S, Range 21E (north of State Highway 168).

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 within the study 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:

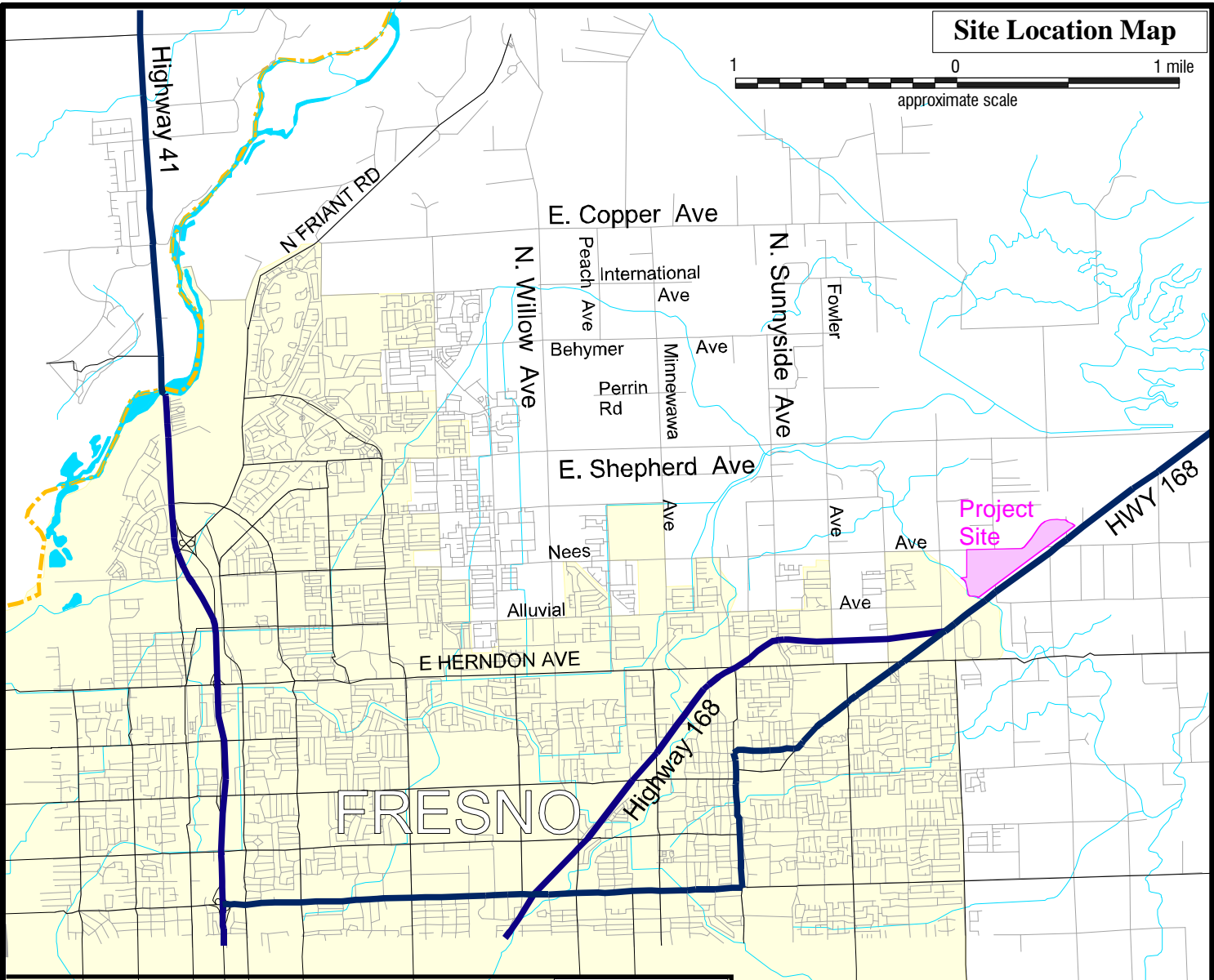
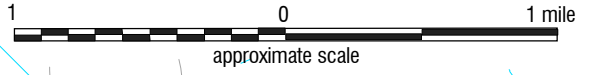
- Summarize all site-specific information related to existing biological resources;
- Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the site to a species' known range;
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development;
- Identify and discuss project impacts to biological resources likely to occur on the site 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.

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the study 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 2007), (2) the *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001), and (3) manuals and references related to plants and animals of the San Joaquin Valley

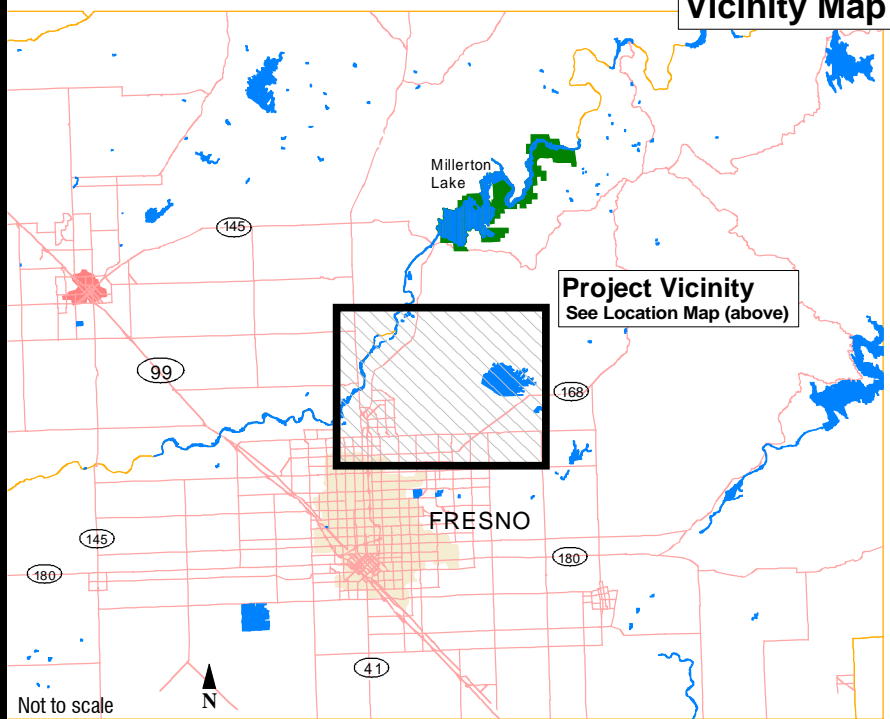
region. A reconnaissance-level field survey of the study area was conducted on 5 October 2007, by LOA ecologists Nathan Hale and Davinna Ohlson, at which time the principal land uses of the site were identified and the constituent plants and animals of each were noted.

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 wetland and special status species habitat that might be present but was not sufficient to establish wetland boundaries or the extent of actual use of onsite habitats by special status species. Field surveys conducted for this study were sufficient to assess the significance of biological constraints associated with the site and to assess the need for more detailed studies that could be warranted if sensitive biotic resources were identified in this first round of surveys. Delineating all wetlands that may be present or mapping the extent of all endangered species habitat present would only be warranted preliminary to detailed site planning.

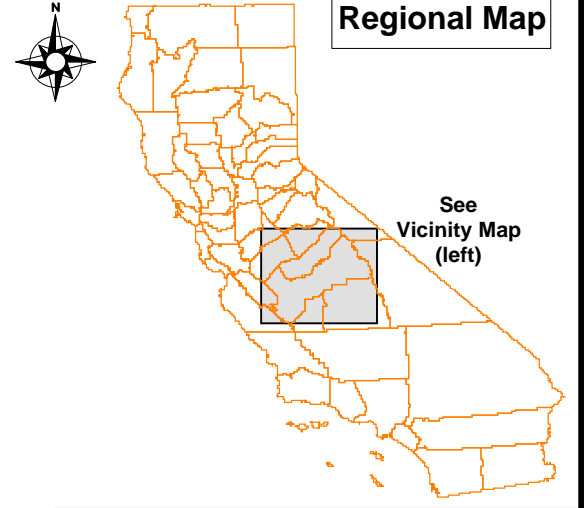
Site Location Map




Vicinity Map



Regional Map



	Live Oak Associates, Inc.		
	Clovis Tech Park Site / Vicinity Map		
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2 EXISTING CONDITIONS

The approximately 160-acre study area is located in the northeastern portion of the City of Clovis, Fresno County, California. The site falls within the existing city limits and is bounded by agricultural lands, urban development, and State Highway 168. The study area is generally inclusive within East Shepard Avenue to the north, State Highway 168 to the southeast and Enterprise Canal to the west. Topographically, the project site is located as a relatively level elevation ranging from approximately 390 to 410 feet (119 to 125 meters) National Geodetic Vertical Datum. It consists of active and abandoned agricultural fields as well as residential development associated with the City of Clovis. Areas immediately surrounding the site also consist of agricultural fields as well as residential and commercial development.

Five soil units from three soil series—Ramona, Rocklin, and San Joaquin—were identified within the 160-acre study area (NRCS 1999) (Table 1; Figure 2). Ramona soils are deep, well-drained soils weathered from igneous rock. Due to the permeability of various horizons within this soil series it does not support ponding. Rocklin soils are well drained or moderately-well drained soils formed in old alluvium, and are known to feature a duripan or hardpan layer 20 to 40 inches deep. San Joaquin soils are moderately deep and moderately well drained soils, derived from granitic rock sources. San Joaquin soils are considered to be hydric and have a duripan or hardpan layer at 26 to 60 inches deep. Hydric soils, like San Joaquin soils, often experience saturation, flooding, or ponding for periods that are long enough during the growing season to develop anaerobic conditions in the upper soil layers; under sufficiently wet conditions, they support the growth and regeneration of hydrophytic vegetation. In undisturbed soils, duripan restricts the downward movement of water, thereby causing water to perch near the surface during the winter rainy months. Hogwallow terrain (i.e., hummock and swale topography) is common in undisturbed areas of California's Central Valley where the soils are underlain with a duripan layer. The hogwallows, or topographic depressions, fill with water to form seasonal pools or vernal pools.

TABLE 1. SOILS OF THE STUDY AREA (from NRCS 1999).

Soil Series/Soil	Map Unit Symbol	Parent Material	Drainage Class	Surface Permeability	Hardpan/Duripan	Hydric
RAMONA SERIES Ramona sandy loam	Ra	Alluvium of granitic and related rocks	Well drained	Moderately slow	No	No
ROCKLIN SERIES Rocklin sandy loam, 3 to 9% slopes	RkB	Old alluvium of granitic rock sources	Well drained	Moderate above pan	Yes	No
SAN JOAQUIN SERIES San Joaquin sandy loam, 0 to 3% slopes	ScA	Alluvium of mixed but dominantly granitic rocks	Well and moderately well drained	Slow to very slow	Yes	Yes
SAN JOAQUIN SERIES San Joaquin sandy loam, shallow, 0 to 3% slopes	SdA	Alluvium of mixed but dominantly granitic rocks	Well and moderately well drained	Slow to very slow	Yes	Yes
SAN JOAQUIN SERIES San Joaquin loam, 0 to 3% slopes	SeA	Alluvium from basic igneous rocks	Well and moderately well drained	Slow to very slow	Yes	No

The subject property is located in a region of California having a Mediterranean climate. In such a climate, the summers are dry and typically quite warm with daytime temperatures commonly exceeding 95° Fahrenheit (°F). Winters are rainy and cool, with daytime temperatures rarely exceeding 65° F. Annual precipitation in the general vicinity of the site is highly variable from year to year, with an average annual rainfall of 10 to 15 inches, most of which falls between October and March. Stormwater readily infiltrates the soils of and surrounding the site, but when field capacity has been reached, gravitational water flows off the site or into storm water detention basins located along the margin of State Highway 168 in the form of shallow groundwater or surface sheet flow.

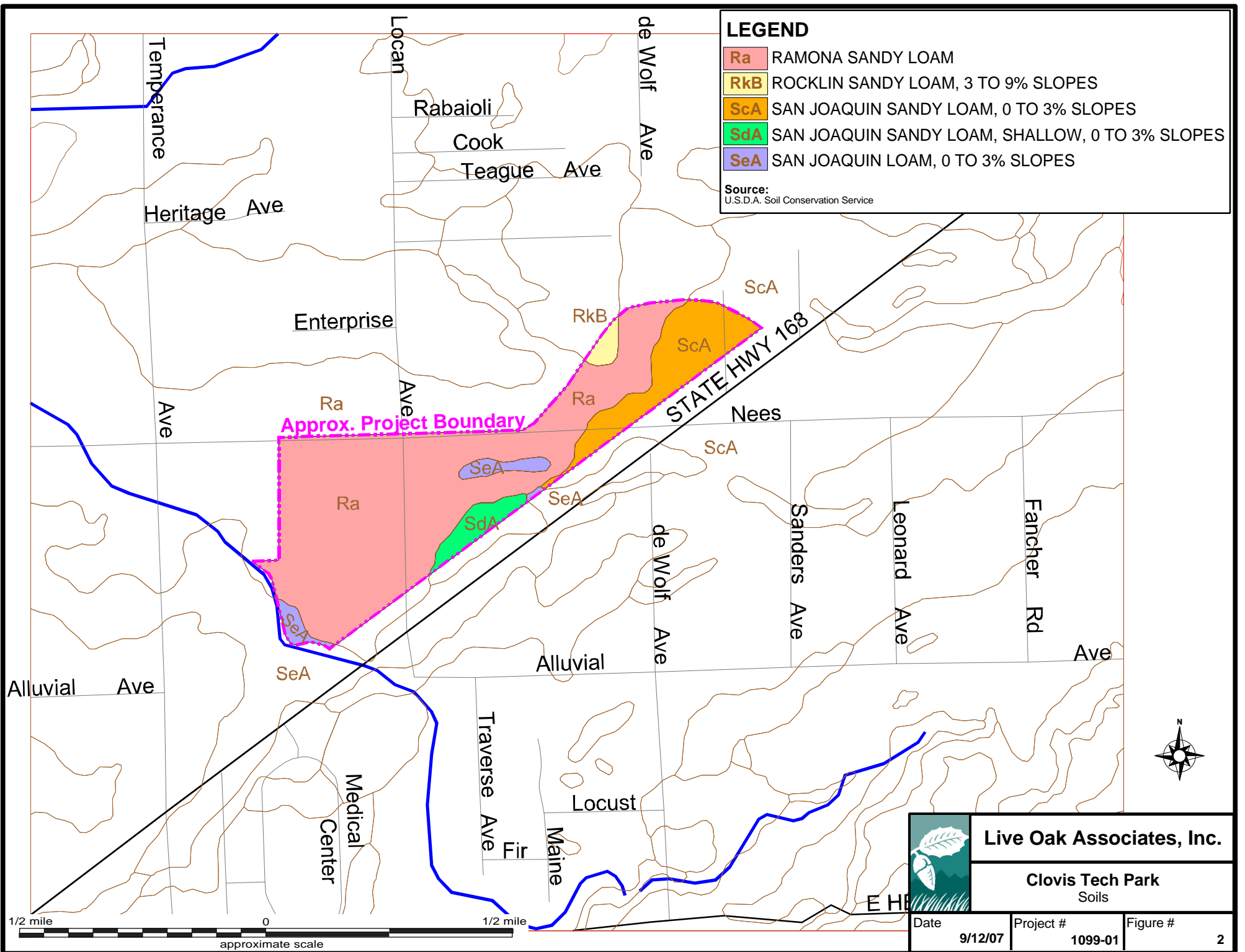
2.1 BIOTIC HABITATS AND LAND USES

Historically, the study area likely supported an open bunch grass community (pre-European settlement); however, more recently, the site has been greatly modified by anthropogenic landscape changes. There are currently no naturally occurring habitats within the study area. For the purposes of this report, four general land uses /habitats have been identified. All of these are recognized as being highly modified. They include residential/developed, orchards, ruderal, and detention basins/Enterprise Canal. The area of the site is semi-rural, and as such, many of the residences are on large parcels with mixed use (e.g., residential, orchard and ruderal). A list of the vascular plant species observed within the study area and the terrestrial vertebrates using, or potentially using, the area are provided in Appendices A and B, respectively.

LEGEND

- Ra** RAMONA SANDY LOAM
- RkB** ROCKLIN SANDY LOAM, 3 TO 9% SLOPES
- ScA** SAN JOAQUIN SANDY LOAM, 0 TO 3% SLOPES
- SdA** SAN JOAQUIN SANDY LOAM, SHALLOW, 0 TO 3% SLOPES
- SeA** SAN JOAQUIN LOAM, 0 TO 3% SLOPES

Source:
U.S.D.A. Soil Conservation Service



Live Oak Associates, Inc.

Clovis Tech Park
Soils

Date	9/12/07	Project #	1099-01	Figure #	2
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2.1.1 Residential/Developed

Of the 38 parcels comprising the study area, 18 include low-density residential dwellings supporting open spaces in the form of large yard areas. Many of the plant species observed on these residential parcels are ornamental and fruit bearing trees, and shrubs. Species observed in these areas of the project site include weeping willow (*Salix babylonica*), pine (*Pinus* sp.), fan palm (*Washingtonia* sp.), blue gum (*Eucalyptus globulus*), juniper (*Juniperus* sp.), magnolia (*Magnolia grandiflora*), crapemyrtle (*Lagerstroemia indica*), oleander (*Nerium oleander*), English walnut (*Juglans regia*), orange (*Citrus sinensis cultivar*), grapefruit (*Citrus paradisi*), almonds (*Prunus* sp.), valley oak (*Quercus lobata*), oak (*Quercus* sp.), blue spruce (*Picea pungens*), redwood (*Sequoia sempervirens*), cypress (*Cupressus* sp.), Peruvian pepper tree (*Schinus molle*), olive (*Olea europaea*), bearded sprangletop (*Leptochloa* sp.), and puncture vine (*Tribulus terrestris*).

Additionally, a man-made, plastic-lined, aesthetic pond was observed on one of the southernmost residential parcels of the study area. The approximately 0.25 acre pond supports cattails (*Typha* sp.) and other hydrophytic plant species. Several red willow (*Salix laevigata*) trees were observed on the top of the bank. Two bird species were observed utilizing this habitat at the time of the survey, a pair of mallards (*Anas platyrhynchos*) and a belted kingfisher (*Ceryle alcyon*). LOA wildlife biologist Michele Korpos spoke with the landowner of the pond-bearing property, Mr. Jackson, and was informed that the pond is stocked with blue gill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), channel catfish (*Ictalurus punctatus*), and mosquito fish (*Gambusia affinis*) for recreational and mosquito abatement purposes. Ms. Korpos was also told that two turtles, species unknown to Mr. Jackson, utilized the pond. Furthermore, Mr. Jackson described blackbirds with red shoulders that regularly utilize the vegetation associated with the pond. The birds described are likely to be red-wing blackbirds (*Agelaius phoeniceus*) but could also be tricolored blackbirds (*A. tricolor*).

Wildlife species observed in the residential areas include mourning dove (*Zenaida macroura*), rock dove (*Columba livia*), red-shafted flicker (*Colaptes auratus*), western scrub-jay (*Aphelocoma californica*), white-crowned sparrow (*Zonotrichia leucophrys*), and ground squirrel (*Spermophilus beecheyi*). In addition to wildlife species, domesticated dogs, sheep, and horses were also found occurring on the residential parcels.

Due to the presence of suitable roosting habitat, in the form of building overhangs, large-leafed trees, and untrimmed fan palms, several species of bat would likely utilize the residential habitats of the study area. These could include Yuma myotis (*Myotis yumanensis*), California myotis (*Myotis californicus*), pale big-eared bat (*Corynorhinus townsendii pallescens*), Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*), western pipistrelle (*Pipistrellus hesperus*), big brown bat (*Eptesicus fuscus*), western red bat (*Lasiurus borealis*), and pallid bat (*Antrozous pallidus*).

2.1.2 Orchards

Several orchards are also located within the study area. These orchards are spatially associated with residential development and support orange, almond, and persimmon (*Diospyros virginiana*) production. Though the areas between the orchard trees are heavily managed for irrigation and equipment access, some non-native species were observed growing in this habitat, including barnyard grass (*Echinochloa crus-galli*) and sprangletop. No amphibians or reptiles were observed within the orchard; however, several reptilian species are expected to occur in this habitat including western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), southern alligator lizard (*Elgaria multicarinata*), gopher snake (*Pituophis catenifer catenifer*), common kingsnake (*Lampropeltis getula*), and common garter snake (*Thamnophis sirtalis*). Two avian species observed within the orchards included mourning dove and scrub jay; and burrows associated with one mammalian species, the California ground squirrel, was observed within the orchard.

2.1.3 Ruderal Non-native Grasslands

The majority of the ruderal parcels occurring on the project site had been previously disced and may have once been used for hay production. Currently, these areas lay fallow or are used for recreational off-road vehicle uses. These parcels are dominated by non-native grasses, mainly of European descent, including Bermuda grass (*Cynodon dactylon*), oat grass (*Avena* sp.), ripgut brome (*Bromus diandrus*), prickly wild lettuce (*Lactuca serriola*), common wheat (*Triticum aestivum*), knotweed (*Polygonum arenastrum*), Mediterranean hoary mustard (*Hirschfeldia incana*), black mustard (*Brassica nigra*), yellow star thistle (*Centaurea solstitialis*), barley (*Hordeum marinum*), farmer's foxtail (*H. murinum*), English plantain (*Plantago lanceolata*), curly dock (*Rumex crispus*), fiddle dock (*R. pulcher*), chicory (*Chicorium intybus*), Western

Jimsonweed (*Datura wrightii*), bindweed (*Convolvulus arvensis*), cut leaved geranium (*Geranium dissectum*), clover (*Trifolium* sp.), and a nightshade (*Solanum* sp.).

Native plants, interspersed throughout the ruderal grasslands, include annual fireweed (*Epilobium brachycarpum*), fiddleneck (*Amsinkia menziesii*), Berlandier's goosefoot (*Chenopodium berlandieri*), Spanish lotus (*Lotus purshianus*), vinegarweed (*Trichostema lanceolatum*), doveweed (*Eremocarpus setigerus*), narrow leaf milkweed (*Asclepias fascicularis*), mat amaranth (*Amaranthus blitoides*), horseweed (*Conyza Canadensis*), and sunflower (*Helianthus annuus*). There were also several trees and shrubs associated with the ruderal areas including knobcone pine (*Pinus attenuata*), mulberry (*Morus alba*), edible fig (*Ficus carica*), almond, crapemyrtle, olive, and persimmon.

Avian species observed within the grasslands included rock dove, scrub jay, American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), yellow-rumped warbler (*Dendroica coronata*), and white-crowned sparrow. Several small fossorial burrows were also observed that were likely those of the California vole (*Microtus californicus*) and Botta's pocket gophers (*Thomomys bottae*). Also, California ground squirrels and their burrows were observed during the October survey.

Other wildlife occurring in the ruderal habitats of the site would include all wildlife species potentially occurring in the orchards and residential/developed areas of the project site (excluding species that exclusively utilize the man-made pond) as the habitat types occur in a patchwork configuration without significant obstruction between each type. Other small mammals that could reasonably be expected to occur onsite include, deer mice (*Peromyscus maniculatus*), and black-tailed jackrabbits (*Lepus californicus*).

Although not observed in the study area during the reconnaissance-level survey conducted in October 2007, it is expected that turkey vultures (*Cathartes aura*), and several common raptor species including red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*) would forage throughout the site. Also, suitable roosting and foraging habitat for bat species listed above was observed in the ruderal portions of the project site in the form of non-manicured palms.

Larger mammalian species adapted to disturbed habitats, such as Virginia opossum (*Didelphis virginiana*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*), may also forage for the insects and small mammals occupying the study area.

2.1.4 Detention Basins/Enterprise Canal

Several manmade water features occur within the study area. Three detention basins are located along the southern boundary of the site (adjacent to State Highway 168). The two westernmost detention basins are under the ownership of the State of California and the third basin, the largest of the three, is under the ownership of the City of Clovis. Also, an approximately 0.25 mile (0.4 kilometers) section of Enterprise Canal, managed by the Fresno Irrigation District, occurs in the southwestern most portion of the study area (also adjacent to State Highway 168).

Plant species associated with the detention basins included non-native species such as jimsonweed, prickly lettuce, ripgut brome, barley, Italian rye grass (*Lolium multiflorum*), blue gum, and tree of heaven (*Ailanthus altissima*); as well as native species such as horseweed, telegraph weed (*Heterotheca grandiflora*), California poppy (*Eschscholzia californica*), cottonwood (*Populus fremontii*) and valley oak. No wildlife species were directly or indirectly (e.g., burrows, scat, prints, etc.) observed within these detention basins.

At the time of the October 2007 survey the irrigation ditch was largely devoid of vegetation. The southern edge of the canal was lined with concrete. However several plant species were observed growing within the earthen lined western edge of the canal, including rabbit's foot grass (*Polypogon monspeliensis*), a non-native annual grass, and several native plant species including common horse tail (*Equisetum* sp.), everlastings (*Gnaphalium* sp.), and slender willowherb (*Epilobium ciliatum*). Wildlife observed along the irrigation ditch was limited to burrows belonging to California ground squirrels.

2.2 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 study area, knowledge of the site, its habitats, and the ecology of the species potentially occurring onsite permits sufficient predictions about the types of movements occurring in the region and whether or not proposed development would constitute a significant impact to animal movements.

As noted in Section 2.1, a number of reptiles, birds, and mammals may use the site as part of their home range and dispersal movements. However, the site would not facilitate regional wildlife movements in a disproportionate way as to function as a movement corridor, since animals would have to travel through miles of marginal to poor habitat (i.e., agricultural fields, and urban and rural development) before reaching the site.

2.3 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 2001). 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 study area (Figure 3). These species, and their potential to occur in the study 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 2007), *Endangered and Threatened Wildlife and Plants* (USFWS 2007), *Annual Report on the Status of California State Listed Threatened and Endangered Animals and Plants* (CDFG 2007), and *The California Native Plant Society’s Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2001) and the *Draft Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1997). This information was used to evaluate the potential for special status plant and animal species that 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. Furthermore, there may be occurrences of species that have no special status (e.g., great blue heron (*Ardea herodias*) and others) assigned to them.

A search of published accounts for all of the relevant special status plant and animal species was conducted for the Clovis USGS 7.5-minute quadrangle in which the project site occurs, and for the 8 surrounding quadrangles (Academy, Fresno North, Fresno South, Friant, Lanes Bridge, Malaga, Round Mountain, Sanger) using the California Natural Diversity Data Base Rarefind 2007. All species listed as occurring in these quadrangles on CNPS Lists 1A, 1B, 2, or 4 were also reviewed.

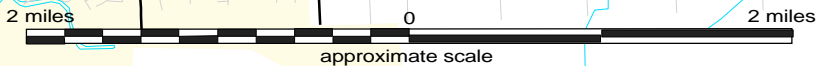
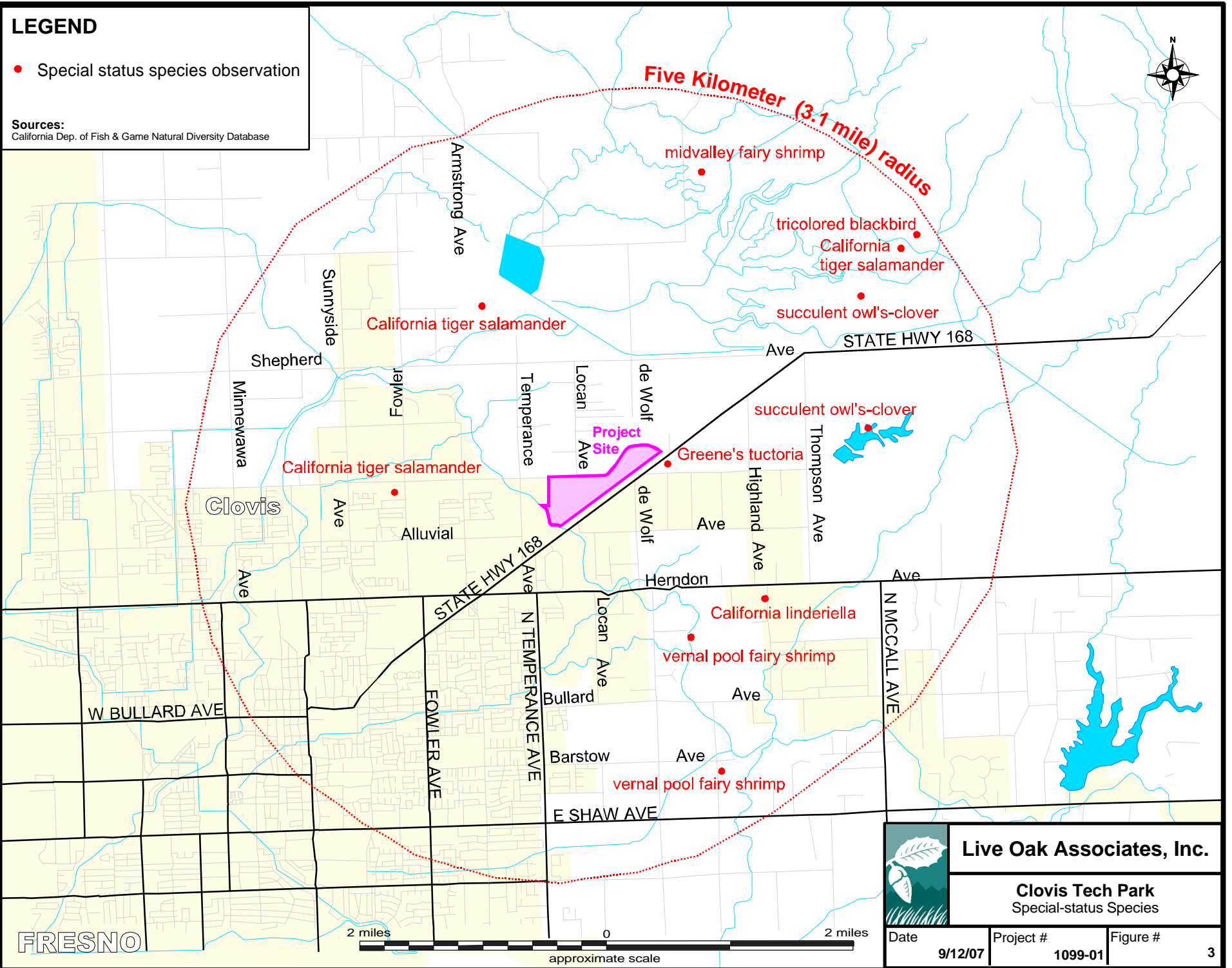
LEGEND

- Special status species observation

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



Five Kilometer (3.1 mile) radius



Live Oak Associates, Inc.

Clovis Tech Park
Special-status Species

Date	9/12/07	Project #	1099-01	Figure #	3
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TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFG 2007 and CNPS 2001)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence in the Study Area
Succulent owl's-clover (<i>Castilleja campestris</i> ssp. <i>succulenta</i>)	FT, CE, CNPS 1B	Vernal pools that are often on acidic soils; between 50 and 750 meters elevation; blooms April-May (CNPS 2001).	Absent. The study area does not support appropriate habitat for succulent owl's clover
California jewel flower (<i>Caulanthus californicus</i>)	FE, CE, CNPS 1B	Chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland on sandy soils; between 70 and 1000 meters elevation; blooms February-May (CNPS 2001).	Absent. Although the site falls within the elevation range for California jewel flower, the disturbed nature of the site and prevalence of non-native plant species render the study area unlikely to support this species.
San Joaquin Valley orcutt grass (<i>Orcuttia inaequalis</i>)	FT, CE CNPS 1B	Vernal pools of California's Central Valley; between 10 and 755 meters elevation; blooms April-September (CNPS 2001).	Absent. The study area does not support appropriate habitat for San Joaquin Valley orcutt grass.
Hairy orcutt grass (<i>Orcuttia pilosa</i>)	FE, CE CNPS 1B	Vernal pools of California's Central Valley; between 55 and 200 meters elevation; blooms May-September (CNPS 2001).	Absent. The study area does not support appropriate habitat for hairy orcutt grass.
Hartweg's golden sunburst (<i>Pseudobahia bahiifolia</i>)	FE, CE, CNPS 1B	Cismontane woodland and valley and foothill grassland on clay soils that are often acidic between 15 and 150 meters elevation; blooms March-April (CNPS 2001).	Absent. The study area does not support appropriate habitat for Hartweg's golden sunburst.
San Joaquin adobe sunburst (<i>Pseudobahia peirsonii</i>)	FT, CE, CNPS 1B	Cismontane woodland and valley and foothill grassland on adobe clay soils between 90 and 800 meters elevation; blooms March-April (CNPS 2001).	Absent. The study area does not support appropriate habitat for San Joaquin adobe sunburst.
Greene's tuctoria (<i>Tuctoria greenei</i>)	FE, CR CNPS 1B	Vernal pools of California's Central Valley; between 30 and 1070 meters elevation; blooms May-September (CNPS 2001).	Absent. The study area does not support appropriate habitat for Greene's tuctoria.

Other special status plants listed by CNPS

Species	Status	Habitat	*Occurrence in the Study Area
Dwarf downingia (<i>Downingia pusilla</i>)	CNPS 2	Valley and foothill grassland on mesic soils and in vernal pool habitats; between 1 and 445 meters elevation; blooms March-May (CNPS 2001).	Absent. The study area does not support appropriate habitat for dwarf downingia.
Spiny-sepaed button-celery (<i>Eryngium spinosepalum</i>)	CNPS 1B	Valley and foothill grassland and vernal pools; between 80 and 255 meters elevation; blooms April-May (CNPS 2001).	Absent. The study area does not support appropriate habitat for spiny-sepaed button celery.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS – cont’d

Other special status plants listed by CNPS.

Species	Status	Habitat	*Occurrence in the Study Area
California satintail (<i>Inperata brevifolia</i>)	CNPS 2	Chaparral, coastal scrub, desert scrub, alkaline meadows and seeps, and riparian scrub on mesic soils; between 0 and 500 meters elevation; blooms September-May (CNPS 2001).	Absent. Suitable habitat for the California satintail is completely lacking from the study area.
Madera leptosiphon (<i>Leptosiphon serrulatus</i>)	CNPS 1B	Cismontane woodland and lower montane coniferous forest; between 300 and 1300 meters elevation; blooms April-May (CNPS 2001)	Absent. Suitable habitat for the Madera leptosiphon is completely lacking from the study area.
Sanford’s arrowhead (<i>Sagittaria sanfordii</i>)	CNPS 1B	Marshes and swamps; between 0 and 650 meters elevation; blooms May-October (CNPS 2001).	Absent. Suitable habitat for the Sanford’s arrowhead is completely lacking from the study area.
Caper-fruited tropidocarpum (<i>Tropidocarpum capparideum</i>)	CNPS 1B	Valley and foothill grassland, occasionally in alkaline hills; between 1 and 455 meters elevation; blooms March-April (CNPS 2001).	Absent. Although the site falls within the elevation range for caper-fruited tropidocarpum, the disturbed nature of the site and prevalence of non-native plant species render the study area unlikely to support this species.

ANIMALS (adapted from CDFG 2007 and USFWS 2007)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	*Occurrence in the Study Area
Vernal pool fairy shrimp (<i>Brachinecta lynchi</i>)	FT	Vernal pools with clear to tea-colored water in grass or mud-bottomed swales, basalt depression pools, or sandstone rock outcrops	Absent. Although critical habitat for VPFS occurs on the east side of Highway 168, no vernal pools were detected within the boundaries of the study area during reconnaissance surveys. Therefore, the study area does not support suitable habitat for VPFS.
Vernal pool tadpole shrimp (<i>Lepidurus packardi</i>)	FE	Primarily found in vernal pools, but may use other seasonal wetlands in mesic valley and foothill grasslands.	Absent. No vernal pools were detected within the boundaries of the study area during reconnaissance surveys. Therefore, the study area does not support suitable habitat for VPTS.
Valley elderberry longhorn beetle (<i>Desmocerus californicus dimorphus</i>)	FT	Lives in mature elderberry shrubs of California’s Central Valley and Sierra foothills.	Absent. No elderberry shrubs were observed within the study area. Therefore, the area does not support suitable habitat for VELB.
California Tiger Salamander (<i>Ambystoma californiense</i>)	FT, CSC	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for refuge.	Absent. The study area does not support typically suitable breeding habitat for CTS. The pond onsite is stocked with a variety of predacious fish, and CTS have not been known from the immediate vicinity (within 3 miles) since 1974.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY**ANIMALS – cont’d.***Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act*

Species	Status	Habitat	*Occurrence in the Study Area
Swainson’s hawk (<i>Buteo swainsonii</i>)	CT	Occurs in grasslands and agricultural lands of California’s Central Valley during the spring and summer. Breeds in Juniper-sage flats, riparian areas and oak savannahs.	Unlikely. Although an occasional Swainson’s hawk may forage over the study area, breeding is absent. Furthermore, this species has not been documented to occur within ten miles of the site. Therefore no further discussion is warranted.
Western yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	FC, CE	Breed in large blocks of riparian habitats, particularly woodlands with cottonwoods and willows.	Absent. This species has not been documented in the vicinity of this project site since 1902. Furthermore, nesting habitat is absent from the site.
Fresno kangaroo rat (<i>Dipodomys nitratooides exilis</i>)	FE, CE	Inhabits grassland on gentle slopes of generally less than 10°, with friable, sandy-loam soils.	Absent. Habitats required by this species are absent from the site. Additionally, the only documented occurrence of this species within Fresno County occurred in 1898, more than ten miles from the project site, and is presumed to be extirpated.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	FE, CT	Frequents desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats. Utilizes enlarged (4 to 10 inches in diameter) ground squirrel burrows as denning habitat.	Absent. Although there are 3 historic sightings within 10 miles of the site (1990-1993), it is generally agreed that Clovis is east of known kit fox populations. See Section 2.4.4 for further discussion.

State Species of Special Concern

Species	Status	Habitat	*Occurrence in the Study Area
Western spadefoot (<i>Scaphiopus hammondi</i>)	CSC	Primarily occurs in grasslands, but also occurs in valley and foothill hardwood woodlands. Requires vernal pools or other temporary wetlands for breeding.	Absent. There are no vernal pools or wetlands within the study area. Therefore, suitable breeding habitat is absent for the western spadefoot.
Western pond turtle (<i>Actinemys marmorata</i>)	CSC	Intermittent and permanent waterways including streams, marshes, rivers, ponds and lakes.	Unlikely. Though two turtles are known to reside in the manmade pond, their species is unknown (Jackson, pers comm). Due to the fact that none of the water features within the study area are connected to other nearby waters, and there are no known sightings within 3-miles, pond turtles are not expected to be found within the study area.
California horned lizard (<i>Phrynosoma coronatum frontale</i>)	CSC	Grasslands, scrublands, oak woodlands, etc. of central California. Common in sandy washes with scattered shrubs.	Unlikely. Habitat occurring within the study site for this species is considered marginally suitable at best. Furthermore, there are no documented sightings within 3 miles of the site.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS – cont’d.

State Species of Special Concern

Species	Status	Habitat	*Occurrence in the Study Area
Golden eagle (<i>Aquila chrysaetos</i>)	CSC, CP	Open mountains, foothills, plains, and other open terrain. Nests in large trees, cliffs and escarpments.	Possible. It is possible that golden eagles forage over the study area from time to time.
Northern harrier (<i>Circus cyaneus</i>)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats.	Possible. The site supports suitable foraging habitat and marginally suitable nesting habitat for the northern harrier, however no harriers were observed within the study area during the reconnaissance survey conducted in October 2005.
Ferruginous hawk (<i>Buteo regalis</i>)	CSC	Breeds in the Pacific Northwest and Canada. Winters in a variety of California habitats, including grasslands, savannahs, and wetlands.	Possible. Wintering individuals may occasionally pass over or forage on the site. However, breeding habitat is absent for the ferruginous hawk.
White-tailed kite (<i>Elanus leucurus</i>)	CP	Occurs in open grasslands and agricultural areas throughout central California.	Possible. Suitable breeding and foraging habitat occurs onsite for this species. However, none were observed during the reconnaissance survey conducted in October 2005.
Cooper’s hawk (<i>Accipiter cooperii</i>)	CSC	Breeds in oak woodlands, riparian forests and mixed conifer forests of the Sierra Nevada, but winters in a variety of lowland habitats.	Possible. Individuals may occasionally pass over or forage on the site. However, breeding habitat is absent for the Cooper’s hawk.
Sharp-shinned hawk (<i>Accipiter striatus</i>)	CSC	Breeds in the mixed conifer forests of the northern Sierra Nevada. This species winters in a variety of habitats of the state.	Possible. Wintering individuals may occasionally pass over or forage on the site. However, breeding habitat is absent for sharp-shinned hawks.
Prairie falcon (<i>Falco mexicanus</i>)	CSC	Frequents dry, open terrain. Breeding sites are located on cliffs.	Possible. Marginal foraging habitat occurs onsite for this species. However, breeding habitat is absent for the prairie falcon.
Merlin (<i>Falco columbarius</i>)	CSC	Frequents open habitats at low elevation near water and tree stands. Favors coastlines, lakeshores, and wetlands. Breeds in Alaska and Canada.	Unlikely. Wintering individuals may rarely to occasionally pass over or forage on the site. However, breeding habitat is absent for the merlin.
Burrowing owl (<i>Athene cunicularia</i>)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	Possible. Nesting habitat in the form of ground squirrel burrows exist onsite for the burrowing owl. Burrowing owls may also forage on the site. However none were observed during the reconnaissance survey, and there are no known sightings within 3 miles of the study area.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS – cont’d.

State Species of Special Concern

Species	Status	Habitat	*Occurrence in the Study Area
California horned lark (<i>Eremophila alpestris actia</i>)	CSC	Found in a variety of open habitats where trees and shrubs are absent; breeds in grasslands and fallow fields.	Possible. The site provides suitable breeding and foraging habitat for CA horned lark. However, none were observed during the reconnaissance survey and no observations have been noted within 3 miles of the study 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.	Possible. The site provides suitable breeding and foraging habitat for the loggerhead shrike. However, none were observed during the reconnaissance survey and no observations have been noted within 3 miles of the study area.
Tricolored blackbird (<i>Agelaius tricolor</i>)	CSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	Possible. The site provides suitable, albeit marginal, foraging and breeding habitat for tricolored blackbirds in the manmade pond. However, the only known occurrence of the species within 3 miles of the study area was from 1989.
Spotted bat (<i>Euderma maculatum</i>)	CSC	Occurs in arid areas from deserts to ponderosa pine forests. Forages over fields, marshes, and forest openings. Roosts in crevices of cliffs and canyon walls.	Unlikely. While marginal foraging habitat for the spotted bat may be present within the study area, roosting habitat is absent.
Hoary bat (<i>Lasiurus cinereus</i>)	CSC	Occurs and in deciduous and coniferous forests; roosts in branches. Winter roosts include sides of buildings and tree trunks. Forages over streams and ponds or around streetlamps.	Possible. Suitable winter roosting and foraging habitat for the hoary bat is present within the study area.
Pallid bat (<i>Antrozous pallidus</i>)	CSC	Roosts in rocky outcrops, cliffs, and crevices with access to open habitats for foraging. May also roost in caves, mines, hollow trees and buildings.	Unlikely. Suitable roosting habitat is absent and foraging habitat is marginal at best from the study area.
Western mastiff bat (<i>Eumops perotis californicus</i>)	CSC	Found in deserts, canyons, and cities. Roosts in rock and building crevices at least 10 feet (3 meters) above ground level.	Unlikely. Suitable roosting and foraging habitat are marginal for the western mastiff bat within the study area. Furthermore, this species has not been seen regionally since 1991, and these occurrences took place approximately 12 miles southwest of the site
American Badger (<i>Taxidea taxus</i>)	CSC	Occurs in grasslands, and open areas of scrubland and forests with friable soils that are uncultivated.	Unlikely. The grassland habitats of the study area are likely too disturbed to offer suitable habitat for the American badger.

***Explanation of Occurrence Designations and Status Codes**

Present: Species observed on the sites 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 sites, but it could occur there from time to time.

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

Absent: Species not observed on the sites, 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	CP	California Protected
		CSC	California Species of Special Concern
CNPS	California Native Plant Society Listing		
1A	Plants Presumed Extinct in California	3	Plants about which we need more information – a review list
1B	Plants Rare, Threatened, or Endangered in California and elsewhere	4	Plants of limited distribution – a watch list
2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere		

2.4 ENDANGERED, THREATENED, OR SPECIAL STATUS ANIMAL SPECIES MERITING FURTHER DISCUSSION

2.4.1 Western Pond Turtle (*Actinemys marmorata*). Federal listing status: None; State listing status: Species of Special Concern.

In 1992, based on concerns about widespread population declines due to the extensive loss of habitat, overexploitation, and introductions of non-native aquatic predators (57 FR 4561, Jennings and Hayes 1994), the U.S. Fish and Wildlife Service (FWS) was petitioned to list the western pond turtle (*Actinemys marmorata*) as an endangered species under the authority of the Federal Endangered Species Act (Sorensen and Propp 1992). The FWS subsequently ruled that the petition was not warranted. However, the California Department of Fish and Game has subsequently included this organism in its list of “Species of Special Concern” and no longer allows the “take” of this species without the expressed permission of the Department (California Department of Fish and Game 2002).

The western pond turtle is the only native aquatic (freshwater) turtle in California and it is found in a wide variety of aquatic habitats including streams, lakes and ponds. Adult turtles are moderate-sized [4.7-8.3 inches (120-210 mm) carapace length], and are generally brown or khaki-colored (Stebbins 1985). Carapace coloration is usually a dark brown or dull yellow-olive, with or without darker streaks or vermiculations radiating from the centers of the scutes (Ernst et al. 1994, Jennings and Hayes 1994). Hatchling and first-year juvenile turtles have long tails and carapaces that are usually brown or olive in dorsal coloration, with shell lengths generally between 0.99-4.3 inches (25-110 mm).

Life History and Ecology. Adult western pond turtles typically mate in late April or early May, although mating can occur year-round (Holland 1985). The nesting season is from late April to early August (Storer 1930, Rathbun et al. 1992, Jennings and Hayes 1994). Gravid females emigrate from their aquatic habitats to an unshaded, upland location that may be a considerable distance [1,312.4 feet (400 m) or more] from the riparian zones (Storer 1930, Rathbun et al. 1992); however, if nesting substrates and exposures are suitable, most nest locations are located close to riparian zones (Jennings, *pers. comm.*). Shallow nests (Rathbun et al. 1992) are usually placed in well-drained clay or silt soils (Jennings and Hayes 1994) with females depositing from 1-13 (6 average) eggs within the nest. The white eggs are elliptical-oval, approximately 1.2-1.7

inches (30.0-42.6 mm) long by 0.7-0.9 inches (18.5-22.6 mm) wide. The eggs have a hard outer calcium shell [ca. 3.9-4.7 inches (10-12 cm)], although eggs laid in excessively moist substrates have a high probability of failing because of the thin permeable shells (Feldman 1982). Females can lay more than one clutch of eggs a year (Goodman 1997b) and may dig several “false” nests lacking eggs to deter potential predators (Rathbun et al. 1993). Incubation temperatures determine the gender of hatchlings (Ewert et al. 1994).

Young turtles hatch with carapace lengths between 0.99-1.1 inches (25-29 mm) (Ernst et al. 1994) after an incubation period of 3-4.5 months (Buskirk 1992, Goodman 1997a). Most hatchling turtles are thought to emerge from the nest and to move to aquatic sites in the spring (Buskirk 1992), where they typically double their length the first year and grow rapidly over the next 4-5 years (Storer 1930, Holland 1985). Sexual maturity probably occurs between 7 and 11 years of age with males maturing at slightly smaller sizes and ages than females (Jennings and Hayes 1994). Western pond turtles are known to live over 42 years in the wild (Jennings and Hayes 1994), although most individuals have a much shorter life span of around 20-25 years (Bury 1972).

Young turtles spend most their time feeding in shallow water that is dominated by relatively dense vegetation of submergents, short emergents, or algal mats (Jennings and Hayes 1994). Juveniles and adults prefer lotic aquatic habitats with basking sites such as rocks and logs (Bury 1972). Juveniles and adults seem to remain in pond environments except when such ponds dry up, or at higher elevations when turtles may disperse into terrestrial environments to hibernate (Jennings and Hayes 1994, Bury and Holland, in press). In stream environments, juveniles and adults show considerable variation with regards to movements and the timing of movements into terrestrial environments (Reese and Welsh 1998). The largest turtle populations have been observed in slack- or slow-water habitats, which have abundant basking sites and underwater refugia (Bury 1972). The presences of dense stands of submergent or emergent vegetation and abundant aquatic invertebrates resources, as well as suitable nearby nesting sites and the lack of native and exotic predators, are also important components (Bury 1972, Jennings and Hayes 1994, Bury and Holland, in press). Some turtles will leave the stream during the summer when water conditions are low and water temperatures are elevated [$>95^{\circ}\text{F}$ ($>35^{\circ}\text{C}$)], while others will not. However, almost all turtles seem to leave streams during the winter months when large

flood events are common (Reese and Welsh 1998). Additionally, some turtles will move considerable distances [e.g., 1,148 feet (350 m)] to overwinter in terrestrial habitats such as leaf litter or under the root masses of trees (Rathbun et al. 1992, Reese and Welsh 1998). Some individual turtles have displayed site fidelity for hibernation and nesting sites from year to year (Bury and Holland, in press).

Western pond turtles often move about from pool to pool in stream situations, sometimes on a daily basis during seasons of activity (Bury 1972, Reese and Welsh 1998). Distances moved along streams can be up to 3.1 miles (5 kilometers) [Bury and Holland, in press]. These turtles also have the ability to move several miles (kilometers) if their aquatic habitat dries up, and can tolerate at least 7 days without water, or 7 days of being immersed in full strength salt water (Jennings and Hayes 1994, Bury and Holland, in press).

Juvenile and adult western pond turtles feed largely on the same food items although juveniles feed more on smaller aquatic invertebrates (Bury 1986). These turtles are dietary generalists that are highly opportunistic (Ernst et al. 1994), and will consume almost anything that they are able to catch and overpower (Holland 1985). Western pond turtles are eaten by a wide variety of natural predators during their life span. Known predators include: bald eagles, ospreys, great blue herons, gulls, river otters, mink, raccoons, gray foxes, coyotes, black bears, introduced bullfrogs, and introduced largemouth bass (Bury 1972). Humans, especially near urban areas, also illegally collect juvenile and adult turtles.

Potential to Occur Within the Study Area. Two turtles have been reportedly observed (Jackson, pers.comm.) in the manmade pond located within the study area. Their species is not known, and it is possible, though unlikely they are western pond turtles. The pond is isolated from other waters, and therefore it is unlikely that western pond turtles would be able to find their way to the manmade pond. Furthermore, there are no known occurrences of western pond turtle within a 3-mile radius of the study area.

2.4.2 Burrowing Owl (*Athene cunicularia*). Federal Listing Status: None; State Listing Status: Species of Special Concern.

The burrowing owl is designated as a California Species of Special Concern. This designation was based on the species' declining population within the state over the past 40 years. The

population decline is mainly due to habitat destruction resulting from development and agricultural practices.

Life history and ecology. The burrowing owl is a small, long-legged, semi-fossorial bird that averages a height of 9.5 inches, has an average wingspan of 23 inches, and weighs an average of 5.25 ounces. Burrowing owls are unique in that they are the only owl that regularly lives and breeds in underground nests. In California, these birds typically occur in the Central and Imperial Valleys, primarily utilizing ground squirrel burrows (or the burrows of other animals, e.g., badgers, prairie dogs and kangaroo rats) found in grasslands, open shrub lands, deserts, and, to a lesser extent, grazed and agricultural lands. Burrowing owls in this region are typically found at elevations below 250 ft. and exhibit strong site fidelity. Pairs have been known to return to the same area year after year, and some pairs are known to utilize the same burrow as the previous year. Burrowing owls are colonially nesting raptors, and colony size is indicative of habitat quality. It is not uncommon to find burrowing owls in developed and cultivated areas where California ground squirrels are active.

Burrowing owls feed on various small mammals including deer mice, voles, and rats. They also prey on various invertebrates including crickets, beetles, grasshoppers, spiders, centipedes, scorpions and crayfish. Peak hunting periods occur around dusk and dawn.

Potential to Occur Within the Study Area. As noted in Table 2, no burrowing owls or their sign were observed within the study site. However, the study area provides suitable habitat for this species in the form of California ground squirrel burrows present in the orchards, ruderal/non-native grasslands, and developed areas. Given their propensity to establish nest burrows in California ground squirrel burrows, breeding pairs may periodically nest in these habitats during the spring, and individuals may overwinter within the study area.

2.4.3 San Joaquin Kit Fox (*Vulpes macrotus mutica*). Federal Listing Status: Endangered; State Listing Status: Threatened.

By the time the U.S. Fish and Wildlife Service listed it as an endangered species under the authority of the Federal Endangered Species Act on 11 March 1967, the San Joaquin kit fox had been extirpated from much of its historic range. In 1998, the USFWS adopted a final recovery

plan for the San Joaquin kit fox. On 27 June 1971, the State of California listed the kit fox as a threatened species.

Life history and Ecology. The San Joaquin kit fox, the smallest North American member of the dog family (Canidae), historically occupied the dry plains of the San Joaquin Valley, from San Joaquin County to southern Kern County (Grinnell et al. 1937). Critical habitat has yet to be established for the San Joaquin kit fox. Local surveys, research projects, and incidental sightings indicate that kit foxes currently occupy available habitat on the San Joaquin Valley floor and in the surrounding foothills.

Kit foxes prefer habitats of open or low vegetation with loose soils. In the northern portion of their range, they occupy grazed grasslands and, to a lesser extent, valley oak woodlands. In the southern and central portion of the Central Valley, kit foxes are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub, and annual grassland (USFWS 1998). Kit foxes may also be found in grazed grasslands, urban settings, and in areas adjacent to tilled or fallow fields (USFWS 1998).

Kit fox diets vary geographically, seasonally, and annually. In the central portion of their range, which includes lands around the study area, known prey includes white-footed mice, insects, California ground squirrels, black-tailed hares, San Joaquin antelope squirrels, kangaroo rats, desert cottontails, and ground-nesting birds (Archon 1992; Jensen 1972).

The kit fox requires underground dens to raise pups, regulate body temperature, and avoid predators and other adverse environmental conditions (Golightly and Ohmart 1984). In the central portion of their range, they usually occupy burrows excavated by small mammals, such as ground squirrels. Denning habitat consists of ground squirrel complexes in which some burrows are at least 4-inches in diameter for the length of a human arm (approximately 2- to 3-feet).

Potential to Occur Within the Study Area. Areas surrounding the study area consist of residential and commercial development, agricultural land, disced ruderal fields and the State Highway 168 corridor. These land uses are generally unsuitable for the San Joaquin kit fox (SJKF). The site itself has been heavily managed for agricultural uses or has been converted to urban development, rendering onsite habitat for this species marginal, at best. Furthermore, no

suitable burrows for kit foxes were observed on the site during the October 2007 field survey; however, protocol-level surveys consisting of 100% visual coverage were not conducted. Denning habitat consists of ground squirrel complexes in which burrows are at least 4-inches in diameter for a length of at least 2-feet. A number of ground squirrel burrows were observed throughout the site during the reconnaissance survey, but none were noted to possess the dimensions suitable for kit foxes.

Having been modified for agricultural and urban use, the study area provides a limited prey base and, therefore, only marginal to poor foraging habitat for kit foxes. Intensive farming practices have also limited the onsite occurrence of ground-nesting birds that sometimes constitute prey for this species.

In October of 2002, Live Oak Associates conducted an extensive survey for the San Joaquin kit fox on lands fronting Friant Road in Fresno County, approximately 10 miles north of the study area. The 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.

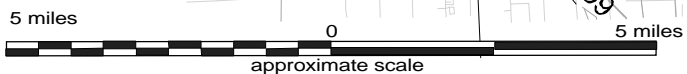
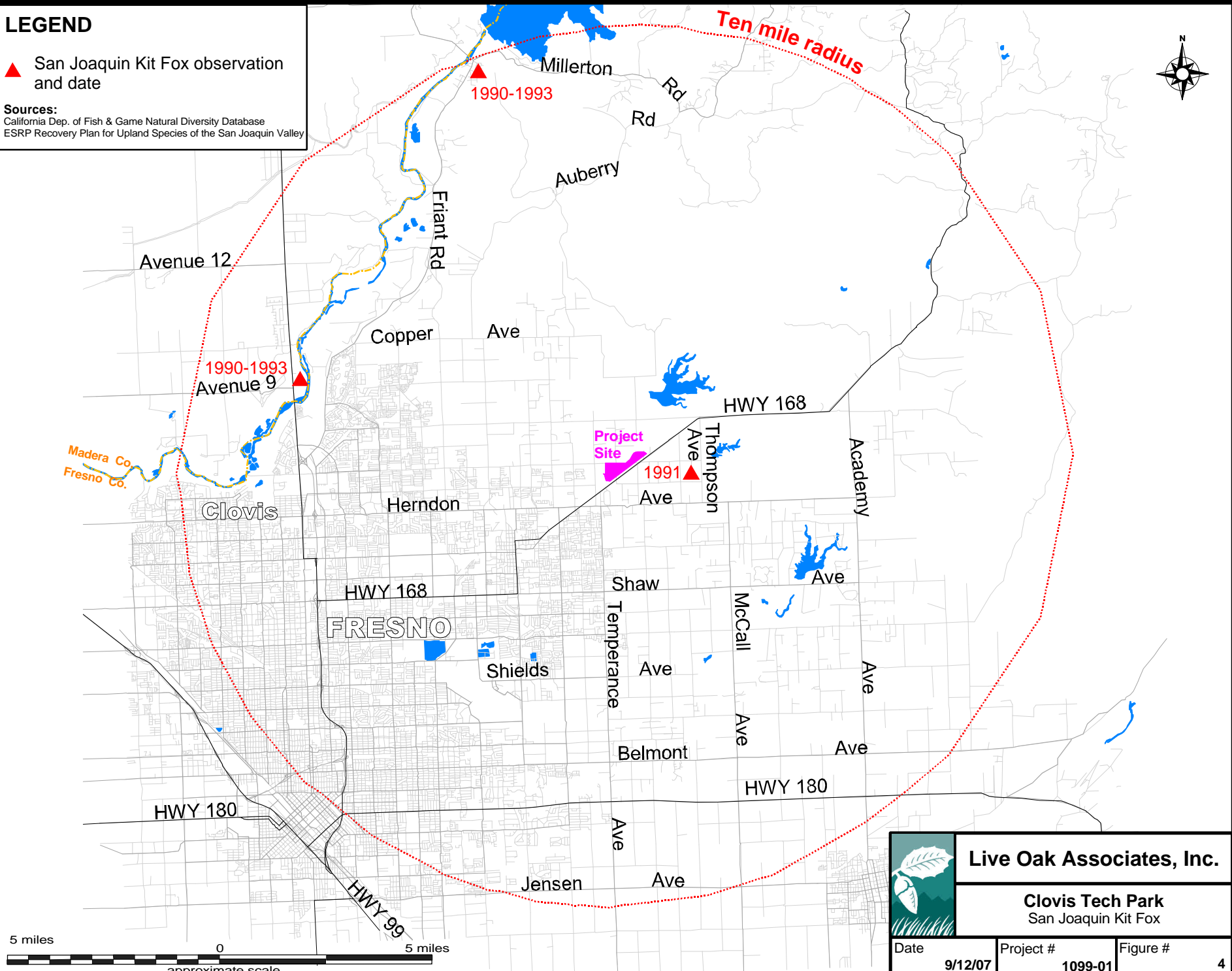
Three historic sightings of SJKF occur within a 10-mile radius of the study area (see Figure 4); however, conversations with the staff from the Endangered Species Recovery Act (ESRP) have concluded that Clovis is east of the current kit fox range, and that any contemporary sightings would be associated with transitory animals.

In summary, the study area has been highly modified for agricultural or urban use (as stated above), and lands surrounding the study area in all directions either support dense development or consist of agricultural fields, presenting significant barriers to movement for the species. Considering the highly disturbed condition of the study area, its isolation from extant kit fox populations, and its marginal to poor suitability as foraging or denning habitat, occurrence of the San Joaquin kit fox on the study site is considered to be highly unlikely or absent.

LEGEND

▲ San Joaquin Kit Fox observation and date

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



Live Oak Associates, Inc.

Clovis Tech Park
San Joaquin Kit Fox

Date	9/12/07	Project #	1099-01	Figure #	4
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2.5 JURISDICTIONAL WATERS

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.

The site supports three water detention basins, an irrigation canal named Enterprise Canal, and a manmade, aesthetic pond. Artificial waterways such as irrigation canals and detention basins are typically not claimed by the agencies, especially when they are not connected in any way to other Waters of the U.S. Enterprise Canal appears to draw water from Pine Flat Reservoir 17 miles (27 kilometers) due east of the project site. It then flows in a meandering channel through the region and is siphoned to bypass both Redbank Slough up-channel from the project site and Dry Creek down channel from the project site. The canal appears to be used entirely for agricultural purposes before termination.

Due to the apparent isolation of all water features within the study area, even if portions of these features meet the three technical criteria for jurisdictional wetlands, the USACE would not be expected to exert jurisdiction over them. However, the RWQCB may still regulate these features, especially the pond since it supports hydrophilic plants. The CDFG typically only claims jurisdiction over natural drainages and, therefore, is unlikely to regulate the manmade features mentioned above. It is not expected that any of the agencies would claim jurisdiction over any water feature within the study area. However, it is important to note that these three agencies are the final arbiters and could claim jurisdiction over some or all of these features. Therefore, these features should be evaluated further on a case-by-case basis as to each agency's position regarding their jurisdiction.

3 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

Approval of general plans, area plans, and specific projects is subject to the provisions of the California Environmental Quality Act (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 findings 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 California Department of Fish and Game (CDFG) and the U.S. Fish and Wildlife Service (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 the California Environmental Quality Act (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 Bald and Golden Eagles

The Bald Eagle Protection Act of 1940 as amended in 1959, 1962, 1972, and 1978 prohibits the “taking” (pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb) or commerce of bald eagles and golden eagles. Limited exceptions are listed in 50 CFR 22.

3.2.4 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.

3.2.5 Wetlands 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 hydrophilic 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.

3.2.6 Local Policies or Habitat Conservation Plans

No habitat conservation plans are known to be in effect for Clovis or the surrounding areas.

3.3 CONSTRAINTS SPECIFIC TO THE PROJECT SITE

The project proposes to change the current land use of rural residential, orchard, and grassland to an industrial technology park. This land use change would occur on approximately 160 acres. It is assumed for the purpose of this analysis that any future proposal by the individual applicants will be consistent with development guidelines set forth by the City of Clovis. Secondary impacts to areas outside of construction zones could occur as well. As discussed above, activities resulting in impacts to biotic resources may be regulated by local, state and federal laws. The natural resource issues specific to this project are discussed in detail below.

3.3.1 Loss of Habitat for Special Status Plants

Potential Impacts. Thirteen special status vascular plant species are known to occur in the general vicinity of the study area (Table 2). None of these species is likely to occur in the project vicinity due to lack of suitable habitat or alteration of natural habitats due to human activities in the past. The proposed land use changes and development of individual parcels would not affect regional populations of these species.

Mitigation. Mitigation measures are not warranted for rare plant species.

3.3.2 Loss of Habitat for Special Status Animals

Potential Impacts. Twenty-eight special status animal species occur, or once occurred, regionally (Table 2). Of these, seven species are considered absent from the study area due to unsuitable habitat conditions. These include vernal pool fairy shrimp, vernal pool tadpole shrimp, valley elderberry longhorn beetle, California tiger salamander, western spadefoot, western yellow-billed cuckoo, and Fresno kangaroo rat. Future development of individual

parcels would have no effect on loss of habitat for these species because there is no likelihood that they are present.

Species that are unlikely to occur within the study area include the western pond turtle, California horned lizard, Swainson's hawk, merlin, spotted bat, pallid bat, western mastiff bat, San Joaquin kit fox, and American badger. Of these species that are unlikely or possible to occur on the site, some may only occur as transients or migrants. These include the Swainson's hawk, white-tailed kite, sharp-shinned hawk, merlin, spotted bat, pallid bat, western mastiff bat, San Joaquin kit fox, and American badger. Migrant and transient species pass through or over many types of habitats en route to breeding or wintering habitat. Considerable habitat suitable for migratory movements will continue to be available for these species to the north east and east of the study area following development. Therefore, eventual development will result in a less-than-significant impact on these species.

The remaining special status animal species from Table 2 potentially occur more frequently as regular foragers or may be resident to the area. These include the golden eagle, northern harrier, ferruginous hawk, white-tailed kite, Cooper's hawk, sharp-shinned hawk, prairie falcon, burrowing owl, California horned lark, loggerhead shrike, tricolored blackbird and hoary bat. With the exception of the burrowing owl (if present within the study area), project build out would, at most, result in a small reduction of foraging, roosting, and/or breeding habitat available regionally. The loss of foraging, breeding, or roosting habitat for these species would be considered less-than-significant.

Eleven species that are unlikely or possible to occur on the project site would utilize the site for more than the facilitation of migratory movements or occasional foraging habitat. These species include the golden eagle, northern harrier, ferruginous hawk, white-tailed kite, Cooper's hawk, sharp-shinned hawk, prairie falcon, burrowing owl, California horned lark, loggerhead shrike, and hoary bat. As these species may be resident to the area, they may pose particular constraints on projects that will occur within the study area in the future. These species are discussed individually below.

Mitigation. With the possible exception of the western pond turtle and burrowing owl (discussed below), the loss of habitat for special status animals would constitute a less-than-significant impact under CEQA. Therefore, no mitigations are warranted.

3.3.3 Impacts to Burrowing Owls

Potential Impacts. Burrowing owls (BUOW) are known to occur in areas of the Central Valley, including the general vicinity of Clovis, and the study area supports potentially suitable burrowing owl nesting and foraging habitat. However, there are no known sightings of BUOW within 3 miles of the study area and no direct or indirect evidence of owls was observed onsite during the October 2007 survey. It should be noted that protocol-level burrowing owl surveys were not conducted, and therefore, we cannot say with certainty that BUOW are currently absent from the site. Protocol-level surveys conducted during the breeding season (especially during the peak of the breeding season – 15 April to 15 July) could determine whether BUOW are breeding within the study area. Pre-construction protocol-level surveys (conducted within 30-days of ground disturbance) should occur prior to any earth moving activities. Should BUOW utilize the site for breeding or overwintering, the loss of this habitat would be considered an adverse impact to their habitat. Construction activities that would adversely affect the nesting success of BUOWs or result in mortality of individual owls would constitute a violation of state and federal laws (see Section 3.2.3) and would be considered a significant impact under CEQA.

Mitigation 1. If, through protocol-level surveys, it is determined burrowing owls are absent from the site, no mitigation for impacts to BUOW would be warranted.

Mitigation 2. The following mitigation measures should be implemented to ensure that BUOW are not disturbed nor harmed, injured or killed.

- A qualified biologist should conduct pre-construction surveys for nesting burrowing owls on site within 30 days of the onset of ground disturbance (for each individual parcel to be build-out), if ground disturbance is to occur during the breeding season (1 February to 31 August). These surveys will be based on the accepted protocols written for the species. If nesting owls were to be detected, an appropriate construction buffer would be established by consulting with the CDFG. No disturbance would be allowed within the buffer until such time young were determined to be independent.
- A qualified biologist will conduct pre-construction surveys for burrowing owls during the non-breeding season. If pre-construction surveys (conducted during the non-breeding

season) determine that burrowing owls occupy the site just prior to ground disturbance, then an eviction effort (blocking burrows with one-way doors) may be necessary to ensure that the owl is not harmed or injured during construction.

Mitigation 3. If BUOW are found present within the study area at any time prior to site construction, the permanent loss of owl habitat would be considered a significant effect under CEQA, and compensation for loss of habitat may be required. Currently, in the northern part of the BUOW's range, such compensation ranges from conserving known habitat at 6.5 acres per nesting pair or individual to a 1:1 replacement-to-removal ratio.

3.3.4 Disturbance to Tree-nesting Raptor

Potential Impacts. While tree-nesting raptors or stick nests were not observed during the October 2007 survey, large trees on individual parcels throughout the project site provide potential nesting habitat for species, including golden eagle, red-tailed hawks, white-tailed kites and other species. If raptors were to nest in trees in the future prior to development of individual parcels, project-related activities could result in the abandonment of active nests or direct mortality to these birds. Construction activities that would adversely affect the nesting success of raptors or result in mortality of individual birds would constitute a violation of state and federal laws (see Section 3.2.3) and would be considered a significant impact under CEQA.

Mitigation. For development that would occur on parcels with large or mature trees, trees planned for removal should be removed during the non-breeding season (September 1 through January 31). A qualified biologist should conduct a pre-construction survey for tree-nesting raptors in all trees on the project site within 30 days if it is not possible to avoid such disturbance during the breeding season (February 1 through August 31). If nesting raptors are detected on or adjacent to the site during the survey, a suitable construction-free buffer should be established around all active nests. The precise dimension of the buffers (usually 250 feet for raptors) would be determined at that time and may vary depending on location and species. The buffer areas should be enclosed with temporary fencing, and construction equipment and workers should not enter the enclosed setback areas. Buffers should remain in place for the duration of the breeding season or until it has been confirmed by a qualified biologist that all chicks have fledged and are independent of their parents. Pre-construction surveys during the non-breeding season are not necessary for tree-nesting raptors, as they are expected to abandon their roosts during

construction. Implementation of the above measures would mitigate impacts to tree-nesting raptors to a less-than-significant level.

3.3.5 Impacts to Other Special Status and/or Migratory Bird Species

Potential Impacts. Sensitive bird species such as the northern harrier and California horned lark, as well as ground-nesting migratory birds which are protected under the Migratory Bird Treaty Act (see section 3.2.2), could potentially nest throughout the ruderal non-native grassland areas of the site. Additionally the site provides significant habitat for shrub and small-tree nesting bird species such as the loggerhead shrike. Construction activities that adversely affect the nesting success of these species or result in mortality of individuals constitute a violation of state and federal laws (see Section 3.2.3) and would be considered a significant impact under CEQA.

Mitigation. Due to the fact that burrowing owl surveys require 100% visual coverage, other active ground nesting bird nests would be observed during these surveys. If these species are detected similar work-free buffers would need to be erected until after the breeding season or until a qualified biologist determines that young are fledged and independently foraging. Similarly, tree-nesting raptor surveys would provide survey coverage for other shrub and small-tree nesting bird species. Mitigation would be the same as for tree-nesting raptors. Implementation of these measures would mitigate impacts to these species to a less-than-significant level.

3.3.6 Disturbance to Bat Nursery Sites

Potential Impacts. No bats or evidence of bats were observed on-site during the reconnaissance level survey; however, abandoned structures, hollow trees, and some deciduous trees including fan palms occurring on the site provide potential roosting habitat for special status bat species, as well as for non-listed bats. Site development could result in the removal of structures and trees that provide suitable roosting habitat. The loss of a maternity colony for any bat species, regardless of the species' status, would constitute a potentially significant impact.

A qualified biologist should conduct pre-construction bat surveys in buildings to be demolished and for tree snags and other suitable habitat to determine if bats are present on the site. If no bats

are observed to be roosting in these features, then no further action would be required and construction activities could proceed.

It is recommended that bat surveys be conducted early on in the planning process. That way, should bats be encountered, they can be moved during the appropriate time period, and the site can be managed until construction begins. This process can potentially alleviate timing issues with construction that could arise otherwise.

Mitigation. . If bats are found to be roosting on the site, the project proponents should exclude bats prior to disturbance activities to ensure no harm or take would occur to any bats as a result of construction activities. Demolition and planned tree and tree snag removal should occur after 31 August and before 1 March to avoid interfering with an active nursery. If a non-breeding bat hibernaculum is found, the individuals should be safely evicted, under the direction of a qualified bat biologist, through a “partial dismantle” process, whereby the roosting area is opened to allow airflow through and sunlight into the building, making it unsuitable habitat and undesirable for the bats to return to the site. Demolition of structures and removal of suitable trees and tree snags should then follow no later than the following day (i.e., there should be no less than one night between initial disturbance for airflow and the demolition). This action should allow bats to leave during the night, thus increasing their chances of finding new roosts with a minimum of potential predation during daylight hours.

By implementing the above mitigation, impacts to bats would be reduced to a less-than-significant level.

3.3.7 Loss of Habitat for Native Wildlife

Potential Impacts. Development within the study area could eliminate orchard and ruderal lands used by some native wildlife species. While similar lands around Clovis provide some habitat for regional wildlife populations, these lands are not of unique or particularly significant value to such populations. Even if the site is fully developed, large tracts of open space will remain in the region. This suggests that development projects, when considered individually or cumulatively, will neither result in a wildlife population dropping below self-sustaining levels nor threaten to eliminate an animal community, at least within the near foreseeable future.

Therefore, development of the project site would not constitute a significantly adverse impact on native wildlife.

Mitigation. Mitigation measures are not warranted.

3.3.8 Interference with the Movement of Native Wildlife

Potential Impacts. The study area does not appear to function as a movement corridor for native wildlife, although many species potentially move within and through it. Thus, future development of individual parcels is not expected to have a significant impact on corridor-type movements within the region.

Site development is not expected to have a significant effect on home range and dispersal movements of native wildlife that occur within the proposed development boundary. Many migratory species that now pass through the study area are neo-tropical migrant birds that are likely to pass through and over these lands, even when they are eventually developed. A considerable amount of agricultural lands adjacent to and in the vicinity of the urban development area will continue to be used by native species for home range and dispersal movements. Therefore, project impacts on regional wildlife movements are considered less-than-significant.

Mitigation. No mitigation measures are warranted.

3.3.9 Disturbance to Waters of the United States or Riparian Habitats

Potential Impacts. All waters occurring within the study area are man-made and there are no riparian habitats present. Therefore, it is not likely any water feature would be found jurisdictional by the regulatory agencies, and their removal would not be considered a significant impact under CEQA.

Caveat: It is possible, though highly unlikely, that the regulatory agencies may claim jurisdiction over a water feature located within the study area and may require mitigation under their permitting process if necessary.

Mitigation. No mitigation required under CEQA.

3.3.10 Degradation of Water Quality in Drainages, Ponds, and Downstream Waters

Potential Impacts. 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. However, lands in and around the study area are nearly level. Therefore, the potential for erosion and the degradation of water quality in any surrounding waters would be negligible, and any such runoff would be filtered through the detention basins associated with the site.

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 California Regional Water Quality Control Board.

Mitigation. No mitigations are warranted under CEQA.

3.3.11 Local Policies or Habitat Conservation Plans

Potential Impacts. It is assumed that all future development within the project site would be in compliance with the provisions of the City of Clovis's General Plan polices. No known Habitat Conservation Plans are in effect for Clovis or its surrounding areas.

Mitigation. No mitigations are warranted.

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APPENDICES

APPENDIX A: VASCULAR PLANTS OF THE STUDY AREA

The plants species listed below were observed on the Clovis Tech Park project site during the field surveys conducted by Live Oak Associates on October 5, 2007. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
 FACW - Facultative Wetland
 FAC - Facultative
 FACU - Facultative Upland
 UPL - Upland
 +/- - Higher/lower end of category
 NI - No investigation

AMARANTHACEAE – Amaranth Family		
<i>Amaranthus blitoides</i>	Prostrate pigweed	FACW
ANACARDIACEAE – Sumac Family		
<i>Schinus molle</i> *	Peruvian pepper-tree	NI
ARALIACEAE – Ginseng Family		
<i>Hedera helix</i> *	English ivy	UPL
ARECACEAE – Arum Family		
<i>Washingtonia sp.</i> *	Fan palm	-
ASCLEPIADACEAE – Milkweed Family		
<i>Asclepias fascicularis</i>	Narrowleaf milkweed	FAC
ASTERACEAE - Sunflower Family		
<i>Centaurea solstitialis</i> *	Yellow star thistle	UPL
<i>Cichorium intybus</i> *	Chicory	UPL
<i>Conyza canadensis</i>	Canada horseweed	FAC
<i>Gnaphalium californicum</i>	California cudweed	UPL
<i>Helianthus californicus</i>	California sunflower	OBL
<i>Hemizonia fitchii</i>	Fitch’s spikeweed	UPL
<i>Heterotheca grandiflora</i>	Telegraph weed	UPL
<i>Lactuca serriola</i> *	Prickly lettuce	FAC
BORAGINACEAE – Borage Family		
<i>Amsinckia menziesii</i>	Small-flowered fiddleneck	UPL
BRASSICACEAE – Mustard Family		
<i>Brassica nigra</i> *	Black mustard	UPL
<i>Hirschfeldia incana</i> *	Summer mustard	UPL
CONVOLVULACEAE – Morning-Glory Family		
<i>Convolvulus arvensis</i> *	Field bindweed	UPL
CUPRESSACEAE – Cypress Family		

<i>Cupressus</i> sp.	Cypress	-
<i>Juniperus</i> sp.	Juniper	-
EBENACEAE – Ebony Family		
<i>Diospyros virginiana</i> *	Common persimmon	FAC
EQUISETACEAE – Horsetail Family		
<i>Equisetum</i> sp.	Horsetail	FAC+
EUPHORBIACEAE – Spurge Family		
<i>Eremocarpus setigerus</i>	Turkey mullein	UPL
FABACEAE – Legume Family		
<i>Lotus purshianus</i> var. <i>purshianus</i>	Spanish clover	UPL
<i>Trifolium</i> sp.	Clover	-
FAGACEAE – Oak Family		
<i>Quercus agrifolia</i>	Coast live oak	UPL
<i>Quercus lobata</i>	Valley oak	FAC*
GERANIACEAE – Geranium Family		
<i>Geranium dissectum</i> *	Wild geranium	UPL
JUGLANDACEAE – Walnut Family		
<i>Juglans regia</i> *	English walnut	UPL
LAMIACEAE – Mint Family		
<i>Trichostema lanceolatum</i>	Vinegarweed	UPL
LYTHRACEAE – Loosestrife Family		
<i>Lagerstroemia indica</i>	Crepe myrtle	UPL
MAGNOLIACEAE – Magnolia Family		
<i>Magnolia</i> sp.*	Magnolia	NI
MORACEAE – Mulberry Family		
<i>Ficus carica</i> *	Edible fig	UPL
MYRTACEAE – Myrtle Family		
<i>Eucalyptus globulus</i> *	Blue gum eucalyptus	UPL
OLEACEAE – Olive Family		
<i>Olea europaea</i>	Olive	UPL
ONAGRACEAE – Evening Primrose Family		
<i>Epilobium brachycarpum</i>	Panicled willowherb	UPL
<i>Epilobium ciliatum</i>	Fringed willowherb	FACW
PAPAVERACEAE – Poppy Family		
<i>Eschscholzia californica</i>	California poppy	UPL
PINACEAE – Pine Family		
<i>Picea pungens</i>	Blue spruce	FAC-
<i>Pinus attenuata</i>	Knobcone pine	UPL
PLANTAGINACEAE – Plantain Family		
<i>Plantago lanceolata</i> *	English plantain	FAC-
POACEAE - Grass Family		
<i>Avena barbata</i> *	Slender wild oats	UPL
<i>Avena fatua</i> *	Wild oat	UPL
<i>Bromus diandrus</i> *	Ripgut brome	UPL
<i>Bromus hordeaceus</i> *	Soft chess	FACU-
<i>Cynodon dactylon</i> *	Bermuda grass	FAC

<i>Echinochloa crus-galli</i> *	Barnyard grass	FACW
<i>Hordeum marinum</i> ssp. <i>gussoneanum</i> *	Mediterranean barley	FAC
<i>Hordeum murinum</i> *	Foxtail barley	NI
<i>Leptochloa fascicularis</i>	Bearded sprangletop	OBL
<i>Lolium multiflorum</i> *	Italian ryegrass	UPL
<i>Polypogon monspeliensis</i> *	Rabbitsfoot grass	FACW
<i>Triticum aestivum</i> *	Common wheat	UPL
POLYGONACEAE – Buckwheat Family		
<i>Polygonum arenastrum</i> *	Common knotweed	UPL
<i>Rumex crispus</i> *	Curly dock	FACW-
<i>Rumex pulcher</i> *	Fiddle dock	FAC+
ROSACEAE – Rose Family		
<i>Prunus dulcis</i> *	Almond	UPL
<i>Rosa</i> sp.	Horticultural rose	-
RUTACEAE – Rue Family		
<i>Citrus sinensis</i> cultivar*	Orange	FACU
<i>Citrus paradise</i> *	Grapefruit	NI
SALICACEAE – Willow Family		
<i>Populus fremontii</i> ssp. <i>fremontii</i>	Fremont cottonwood	FACW
<i>Salix bablyonica</i> *	Weeping willow	FACW-
<i>Salix laevigata</i> *	Red willow	UPL
SIMAROUBACEAE – Simarouba Family		
<i>Ailanthus altissima</i> *	Tree of Heaven	
SOLANACEAE – Nightshade Family		
<i>Datura wrightii</i> *	Jimsonweed	UPL
TAXODIACEAE – Bald Cypress Family		
<i>Sequoia sempervirens</i> *(planted)	Coast redwood	UPL
ZYGOPHYLLACEAE – Caltrop Family		
<i>Tribulus terrestris</i> *	Puncturevine	UPL

* Introduced non-native species

**APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY
OCCUR ON THE STUDY AREA**

The species listed below are those that may reasonably be expected to regularly use the habitats of the study area. The list was not intended to include birds that are vagrants or occasional transients. Terrestrial vertebrate species observed in or adjacent to the study area on October 5, 2007 have been noted with an asterisk.

CLASS: AMPHIBIA (Amphibians)

ORDER: SALIENTIA (Frogs and Toads)

FAMILY: BUFONIDAE (True Toads)

Western Toad (*Bufo boreas*)

FAMILY: HYLIDAE (Treefrogs and relatives)

Pacific Treefrog (*Pseudacris regilla*)

CLASS: REPTILIA (Reptiles)

ORDER: SQUAMATA (Lizards and Snakes)

SUBORDER: SAURIA (Lizards)

FAMILY: PHRYNOSOMATIDAE

Western Fence Lizard (*Sceloporus occidentalis*)

Side-blotched Lizard (*Uta stansburiana*)

Coast Horned Lizard (*Phrynosoma coronatum*)

FAMILY: TEIIDAE (Whiptails and relatives)

Western Whiptail (*Cnemidophorus tigris*)

FAMILY: ANGUIDAE (Alligator Lizards and relatives)

Southern Alligator Lizard (*Elgaria multicarinatus*)

FAMILY: ANNIELIDAE (California Legless Lizards)

Silvery Legless Lizard (*Anniella pulchra pulchra*)

SUBORDER: SERPENTES (Snakes)

FAMILY: COLUBRIDAE (Colubrids)

Gopher Snake (*Pituophis melanoleucus*)

Common Kingsnake (*Lampropeltis getulus*)

Common Garter Snake (*Thamnophis sirtalis*)

CLASS: AVES (Birds)

ORDER: GAVIIFORMES (Loons)

FAMILY: PODICIPEDIDAE (Grebes)

Western Grebe (*Aechmopohorus occidentalis*)

ORDER: GRUIFORMES (Coot, Moorhen, Cranes and Relatives)

FAMILY: RALLIDAE (Coot, Moorhen, Gallinule, Rails, Sora)

American Coot (*Fulica americana*)

ORDER: CICONIIFORMES (Hérons, Storks, Ibises and Relatives)

FAMILY: ARDEIDAE (Hérons and Bitterns)

- Cattle Egret (*Bubulcus ibis*)
 Great Egret (*Ardea alba*)
 Black-crowned Night Heron (*Nycticorax nycticorax*)

FAMILY: RECURVIROSTRIDAE (Avocets)

- Avocet (*Recurvirostra Americana*)

FAMILY: SCOLOPACIDAE (Sandpipers)

- Lesser Sandpiper (*Calidris minutilla*)
 Greater Yellow Legs (*Tringa melanoleuca*)

FAMILY: ANATIDAE (Ducks, Geese, and Swans)

- *Mallard (*Anas platyrhynchos*)
 Northern Pintail (*Anas acuta*)
 Ruddy Duck (*Oxyura jamaicensis*)
 Lesser Scaup (*Aythya affinis*)
 Northern Shoveler (*Anas clypeata*)
 Cinnamon Teal (*Anas cyanoptera*)
 Canada Goose (*Anas canadensis*)

FAMILY: CATHARTIDAE (American Vultures)

- *Turkey Vulture (*Cathartes aura*)

ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)**FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)**

- White-tailed Kite (*Elanus leucurus*)
 Northern Harrier (*Circus cyaneus*)
 Red-tailed Hawk (*Buteo jamaicensis*)
 Ferruginous Hawk (*Buteo regalis*)
 Rough-legged Hawk (*Buteo lagopus*)
 Swainson's Hawk (*Buteo swainsonii*)
 Sharp-Shinned Hawk (*Accipiter striatus*)
 Cooper's Hawk (*Accipiter cooperii*)

FAMILY: FALCONIDAE (Caracaras and Falcons)

- American Kestrel (*Falco sparverius*)
 Merlin (*Falco columbarius*)
 Prairie Falcon (*Falco mexicanus*)

ORDER: GALLIFORMES (Megapodes, Curassows, Pheasants, and relatives)**FAMILY: PHASIANIDAE (Quails, Pheasants, and relatives)**

- Ring-necked Pheasant (*Phasianus colchicus*)

ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and relatives)**FAMILY: CHARADRIIDAE (Plovers and relatives)**

- Killdeer (*Charadrius vociferus*)

FAMILY: LARIDAE (Skuas, Gulls, Terns and Skimmers)

- Ring-billed Gull (*Larus delawarensis*)
 California Gull (*Larus californicus*)

ORDER: COLUMBIFORMES (Pigeons and Doves)**FAMILY: COLUMBIDAE (Pigeons and Doves)**

- *Rock Dove (*Columba livia*)
 *Mourning Dove (*Zenaida macroura*)

- ORDER: STRIGIFORMES (Owls)**
FAMILY: TYTONIDAE (Barn Owls)
 Common Barn Owl (*Tyto alba*)
FAMILY: STRIGIDAE (Typical Owls)
 Burrowing Owl (*Athene cunicularia*)
 Great Horned Owl (*Bubo virginianus*)
 Western Screech Owl (*Otus kennicottii*)
- ORDER: CAPRIMULGIFORMES (Goatsuckers and relatives)**
FAMILY: CAPRIMULGIDAE (Goatsuckers)
 Lesser Nighthawk (*Chordeiles acutipennis*)
- ORDER: APODIFORMES (Swifts and Hummingbirds)**
FAMILY: APODIDAE (Swifts)
 Vaux's Swift (*Chaetura vauxi*)
FAMILY: TROCHILIDAE (Hummingbirds)
 Black-chinned Hummingbird (*Archilochus alexandri*)
 Anna's Hummingbird (*Calypte anna*)
 Rufous Hummingbird (*Selasphorus rufus*)
- ORDER: CORACIIFORMES (Kingfishers and relatives)**
FAMILY: ALCEDINIDAE (Kingfishers)
 *Belted Kingfisher (*Ceryle alcyon*)
- ORDER: PICIFORMES (Woodpeckers and relatives)**
FAMILY: PICIDAE (Woodpecker and Wrynecks)
 *Northern Flicker (*Colaptes chrysoides*)
 Downy Woodpecker (*Picoides pubescens*)
 Nuttall's Woodpecker (*Picoides nuttallii*)
- ORDER: PASSERIFORMES (Perching Birds)**
FAMILY: TYRANNIDAE (Tyrant Flycatchers)
 Black Phoebe (*Sayornis nigricans*)
 Say's Phoebe (*Sayornis saya*)
 Western Kingbird (*Tyrannus verticalis*)
FAMILY: LANIIDAE (Shrikes)
 Northern Shrike (*Lanius excubitor*)
 Loggerhead Shrike (*Lanius ludovicianus*)
FAMILY: CORVIDAE (Jays, Magpies, and Crows)
 *Western Scrub-jay (*Aphelocoma coerulescens*)
 Yellow-billed Magpie (*Pica nuttalli*)
 *American Crow (*Corvus brachyrhynchos*)
 Common Raven (*Corvus corax*)
FAMILY: ALAUDIDAE (Larks)
 Horned Lark (*Eremophila alpestris*)
FAMILY: HIRUNDINIDAE (Swallows)
 Northern Rough-winged Swallow (*Stelgidopteryx serripennis*)
 Cliff Swallow (*Hirundo pyrrhonota*)
 Barn Swallow (*Hirundo rustica*)
FAMILY: TURDIDAE
 Western Bluebird (*Sialia mexicana*)

- American Robin (*Turdus migratorius*)
FAMILY: MIMIDAE (Mockingbirds and Thrashers)
 *Northern Mockingbird (*Mimus polyglottos*)
FAMILY: STURNIDAE (Starlings)
 *European Starling (*Sturnus vulgaris*)
FAMILY: MOTACILLIDAE (Wagtails and Pipits)
 American Pipit (*Anthus rubescens*)
FAMILY: BOMBYCILLIDAE (Waxwings)
 Cedar Waxwing (*Bombycilla cedrorum*)
FAMILY: PARULIDAE (Wood Warblers and Relatives)
 Orange-crowned Warbler (*Vermivora celata*)
 Yellow Warbler (*Dendroica petechia*)
 *Yellow-rumped Warbler (*Dendroica coronata*)
FAMILY: EMBERIZIDAE (Wood Warblers, Sparrows, Blackbirds, and relatives)
 Spotted Towhee (*Pipilo maculatus*)
 Savannah Sparrow (*Passerculus sandwichensis*)
 Song Sparrow (*Melospiza melodia*)
 Golden-crowned Sparrow (*Zonotrichia atricapilla*)
 *White-crowned Sparrow (*Zonotrichia leucophrys*)
FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)
 Red-winged Blackbird (*Agelaius phoeniceus*)
 Western Meadowlark (*Sturnella neglecta*)
 Brewer's Blackbird (*Euphagus cyanocephalus*)
 Brown-headed Cowbird (*Molothrus ater*)
FAMILY: PASSERIDAE (Old World Sparrows)
 House Sparrow (*Passer domesticus*)
CLASS: MAMMALIA (Mammals)
ORDER: DIDELPHIMORPHIA (Marsupials)
FAMILY: DIDELPHIDAE (Opossums)
 Virginia Opossum (*Didelphis virginiana*)
ORDER: INSECTIVORA (Insectivores)
 Ornate Shrew (*Sorex ornatus*)
ORDER: CHIROPTERA (Bats)
FAMILY: PHYLLOSTOMIDAE (Leaf-nosed Bats)
 Southern Long-nosed Bat (*Leptonycteris curasoae*)
FAMILY: VESPERTILIONIDAE (Evening Bats)
 Yuma Myotis (*Myotis yumanensis*)
 California Myotis (*Myotis californicus*)
 Pale Big-eared Bat (*Corynorhinus townsendii pallescens*)
 Townsend's Western Big-eared Bat (*Corynorhinus townsendii townsendii*)
 Western Pipistrelle (*Pipistrellus hesperus*)
 Big Brown Bat (*Eptesicus fuscus*)
 Western Red Bat (*Lasiurus borealis*)
 Pallid Bat (*Antrozous pallidus*)
FAMILY: MOLOSSIDAE (Free-tailed Bat)
 California Mastiff Bat (*Eumops perotis ssp. californicus*)

Brazilian Free-tailed Bat (*Tadarida brasiliensis*)

ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)

FAMILY: LEPORIDAE (Rabbits and Hares)

Desert Cottontail (*Sylvilagus audubonii*)

Black-tailed (Hare) Jackrabbit (*Lepus californicus*)

ORDER: RODENTIA (Rodents)

FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)

*California Ground Squirrel (*Spermophilus beecheyi*)

FAMILY: GEOMYIDAE (Pocket Gophers)

Botta's Pocket Gopher (*Thomomys bottae*)

FAMILY: HETEROMYIDAE (Pocket Mice and Kangaroo Rats)

San Joaquin Pocket Mouse (*Perognathus inornatus*)

Heermann's Kangaroo Rat (*Dipodomys heermanni*)

Short-Nosed Kangaroo Rat (*Dipodomys nitratoides brevinasus*)

FAMILY: MURIDAE (Old World Rats and Mice)

Western Harvest Mouse (*Reithrodontomys megalotis*)

Deer Mouse (*Peromyscus maniculatus*)

Norway Rat (*Rattus norvegicus*)

House Mouse (*Mus musculus*)

California Vole (*Microtus californicus*)

Southern Grasshopper Mouse (*Onchomys torridus ramona*)

ORDER: CARNIVORA (Carnivores)

FAMILY: CANIDAE (Foxes, Wolves, and relatives)

*Dog (*Canis familiaris*)

Coyote (*Canis latrans*)

Gray Fox (*Urocyon cinereoargenteus*)

FAMILY: MUSTELIDAE (Weasels, Badgers, and relatives)

Badger (*Taxidea taxus*)

ORDER: PERISSODACTYLA (Horses, Tapirs, and relatives)

FAMILY: EQUIDAE (Horses)

*Horse (*Equus Caballus*)

FAMILY: CERVIDAE (Deer, Elk, and relatives)

Mule Deer (*Odocoileus hemionus*)