

## **Appendix E: Biological Resources**



## **Biological Reconnaissance Survey**





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December 12, 2007  
(8522)

Mr. William Barkett  
Wasco Investments, LLC  
7541 Eads Avenue, Suite F  
La Jolla, CA 92037

Subject: **Results of the Biological Reconnaissance Survey for the Wasco Center Development Project in the City of Wasco, Kern County, California**

Dear Mr. Barkett:

The purpose of this letter is to describe the results of the biological reconnaissance survey and literature review conducted for the Wasco Center Development Project (project site). The project site is located on the U.S. Geological Survey (USGS) 7.5-minute quadrangle topographic map, Wasco NW, just north of Highway 46 between Magnolia Avenue and Palm Avenue in the City of Wasco, Kern County, California. This project involves the development of approximately 121 acres in the City of Wasco. The current vegetation communities present onsite include cultivated orchards, developed, ruderal vegetation, and barren ground.

Prior to performing the field surveys, existing documentation relevant to the project site was reviewed (see References attached). The most recent records of the California Natural Diversity Database (CNDDDB 2007) and the California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPSEI 2007) were reviewed for the quadrangles containing and surrounding the project site (i.e., Wasco NW, Wasco SW, and Pond, California USGS 7.5 minute quadrangles). These databases contain records of reported occurrences of federal- or state-listed endangered or threatened or proposed endangered or threatened species, former Federal Species of Concern (FSC), California Species of Special Concern (CSC), or otherwise sensitive species or habitat that may occur within or in the immediate vicinity of the project site.

### **Status Codes**

#### **Federal**

FE = Federally listed; Endangered  
FT = Federally listed; Threatened  
FC = Federal Candidate for listing  
FSC = Federal Species of Special Concern

#### **State**

ST = State listed; Threatened  
SE = State listed; Endangered  
RARE = State-listed; Rare (Listed "Rare" animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)  
CSC = State Species of Special Concern

### **CNPS**

- List 1A = Plants presumed extinct in California.  
List 1B = Plants rare and endangered in California and throughout their range.  
List 2 = Plants rare, threatened or endangered in California but more common elsewhere in their range.

### **Extensions**

- 0.1 = Seriously endangered in California (>80% of occurrences threatened/high degree and immediacy of threat).  
0.2 = Fairly endangered in California (20-80% occurrences threatened).  
0.3 = Not very endangered in California (<20% of occurrences threatened).

Based on the results of the database searches, the following sensitive species that may have the potential to occur on the project site include:

### **Plants**

- Heartscale (*Artiplex cordulata*) – CNPS 1B.2;
- Earlimart orache (*Atriplex erecticaulis*) – CNPS 1B.2;
- Subtle orache (*Atriplex subtilis*) – CNPS 1B.2;
- California jewel-flower (*Caulanthus californicus*) – FE; SE; CNPS 1B.1;
- Slough thistle (*Cirsium crassicaule*) – CNPS 1B.1;
- Recurved larkspur (*Delphinium recurvatum*) – CNPS 1B.2;
- Munz' tidy-tips (*Layia munzii*) – CNPS 1B.2;

### **Wildlife**

- San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) – ST;
- burrowing owl (*Athene cunicularia*) – CSC;
- Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) – FE, SE;
- blunt-nosed leopard lizard (*Gambelia sila*) – FE, SE;
- Coast (California) horned lizard (*Phrynosoma coronatum*) – CSC;
- Le Conte's thrasher (*Toxostoma lecontei*) – CSC;
- San Joaquin kit fox (*Vulpes macrotis mutica*) – FE, ST.

Chambers Group biologists Shannan Shaffer and Nichole Cervin conducted a reconnaissance-level biological resource survey of the project site on December 5, 2007, between 8:30 and 11:45 a.m. Weather conditions during the survey consisted of 100% cloud cover, winds ranging from 0 to 1 mile per hour (mph), and temperatures that ranged from 51 to 64 degrees Fahrenheit. The project site and its immediate vicinity were walked on foot. All plant and wildlife species detected during the survey were recorded (see Attachment). Photographs were taken of the site to document the existing conditions of the area (see Attachment).

### **Results – Vegetation**

The project site encompasses approximately 121 acres. The site is primarily comprised of cultivated orchards with patches of ruderal vegetation occurring along their margins. Other areas on the site are either barren or developed. A map of these vegetation communities is included as an Attachment.

The majority of the site is actively cultivated as a walnut and almond orchard. A dense layer of leaf litter is present in the understory of the orchards. Occasional weedy annuals were observed including horseweed (*Conyza canadensis*), broad-lobed filaree (*Erodium botrys*), Palmer's amaranth (*Amaranthus palmeri*), Mexican sprangletop (*Leptochloa uninervia*), and cheeseweed (*Malva parviflora*). Cultivated areas account for approximately 94.5 acres of the project site.

Ruderal areas consist of early successional habitats that are dominated by pioneering herbaceous species that readily colonize disturbed ground. The soils in ruderal areas are typically characterized as heavily compacted or frequently disturbed. The vegetation in these areas is adapted to living in compacted areas where water does not readily penetrate the soil. Typically, ruderal vegetation communities are dominated by species of the Centaurea, Brassica, Malva, Salsola, Eremocarpus, Amaranthus, and Atriplex genres.

Areas with ruderal vegetation are present on the project site. They primarily occur along the margins of the orchards. Ruderal plant species found on the project site include Russian thistle (*Salsola tragus*), barnyard grass (*Echinochloa* sp.), red-stemmed filaree (*Erodium cicutarium*), horseweed, cheeseweed, Bermuda grass (*Cynodon dactylon*), and flax-leaved horseweed (*Conyza bonariensis*). This vegetation community comprised approximately 1.6 acres of the project site.

A portion of the project site has been altered by humans and is comprised of developed or barren areas. Developed areas display man-made structures such as houses; paved roads, buildings, parks, and other maintained areas; and barren areas are completely void of vegetation. Developed and barren areas comprise 22.2 acres of the project site.

A water catch basin is located toward the north end of the project site. The basin was empty at the time of the visit, and vegetation had begun to grow in the bottom. Plant species observed in the basin include Palmer's amaranth, yellow cress (*Rorippa palustris*), red-stemmed filaree, tall cyperus (*Cyperus eragrostis*), and cheeseweed. The catch basin covers approximately 0.1 acres of the project site.

A list of the plant species observed onsite at the time of the survey is included as an attachment. No sensitive plant species were observed during the survey.

All seven of the sensitive plant species identified in the literature review have habitat requirements characteristic of chenopod scrub, pinyon-juniper woodland, meadows and seeps, riparian scrub, or valley and foothill grassland communities that were not present onsite. Due to the lack of suitable habitat and the disturbed state of the property, these species are considered absent from the project site. No further surveys onsite are required for these seven sensitive plant species.

## **Results – Wildlife**

Wildlife species observed or detected during the site survey were characteristic of the existing conditions. A list of the wildlife detected within the project area during the survey is included as an attachment.

Populations of the Le Conte's thrasher within Kern County are restricted to the southwestern corner of the San Joaquin Valley in the Taft-Maricopa area (CDFG 1983). Because the project site occurs well outside the known range of the Le Conte's thrasher and no habitat exists onsite, this species is considered absent from the project site.

Three of the seven sensitive wildlife species identified in the literature review, California horned lizard, San Joaquin antelope squirrel, and the Tipton kangaroo rat, require the presence of scattered shrubs and low to moderate ground cover of grasses and forbs. Because only marginal, low quality habitat exists along

the borders of the project site, these species are considered to have a low potential to occur on the project site.

Burrowing owls are yearlong residents of shortgrass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), prairies, coastal dunes, desert floors, and some artificial and open areas (Haug et al., 1993). They may also use golf courses, cemeteries, road allowances within cities, airports, vacant lots in residential areas and university campuses, fairgrounds, abandoned buildings, and irrigation ditches (Haug et al., 1993). This species requires large open expanses of sparsely vegetated areas on gently rolling or level terrain with an abundance of active small mammal burrows. They primarily utilize modified rodent or other small mammal burrows for roosting and nesting cover. When burrows are scarce, they may use man-made structures such as openings beneath cement or asphalt pavement, pipes, culverts, and nest boxes (Robertson, 1929).

Potential foraging and nesting habitat for burrowing owl exists along the outer edges of the orchards and within the cleared area on the east end of the project. Although no burrowing owl sign was detected during the survey, ground squirrel activity was detected on the site and historical records for burrowing owl exist within 5 miles of the site. Therefore, the site has a moderate potential to support this species.

The blunt-nose leopard lizard inhabits sparsely vegetated plains, alkali flats, low foothills, grasslands, canyon floors, large river washes and arroyos and seeks cover in mammal burrows and under shrubs or structures. They do not excavate their own burrows (CDFG 2000). Although historical records for this species exist within 3.5 miles of the project site, only marginal habitat for this species exists near the existing structures and debris piles on site, and the majority of the site has been used for agriculture, which is a contributing factor in the decline of the blunt-nose leopard lizard population. Therefore, this species is considered to have a low potential to occur within the project site.

The San Joaquin kit fox occurs in native valley and foothill grasslands and chenopod scrub communities of the valley floor and surrounding foothills from southern Kern County north to Los Baños, Merced County (CDFG 2000). Historical records for this species occur within 3.5 miles of the project site and potential sign was found within the project site boundary. Sign included the presence of burrows, scat, and partial carcass. Due to the condition of the carcass, identification as San Joaquin kit fox was deemed probable but not absolute. Therefore, this species is considered to have a high probability to occur within areas of the site bordering the orchards.

### **Conclusions and Recommendations**

Although the majority of the project site is actively cultivated as a walnut and almond orchard and lacks the habitat requirements for many of the sensitive plant and wildlife species identified in the literature review, two sensitive wildlife species, burrowing owl, a California Species of Special Concern, and San Joaquin kit fox, a Federally Endangered and State Threatened species, have been identified as having a moderate or high potential to occur on the project site.

According to the Burrowing Owl Survey Protocol and Mitigation Guidelines prepared by The California Burrowing Owl Consortium, because habitat for the burrowing owl does exist on site, a Phase II Burrow Survey is recommended and may be required prior to the start of construction (Burrowing Owl Consortium 1993). The Phase II Burrow Survey is conducted by walking transects over 100% of the project areas which contain habitat, as well as within a 150-meter buffer of these areas, noting any sign or observations of burrowing owls. A pre-construction survey within 30 days prior to construction activity may also be required for the burrowing owl.

Under the California Endangered Species Act (CESA), Section 2080 of the Fish and Game Code prohibits "take" of any species that the commission determines to be an endangered species or a threatened

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species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project caused losses of listed species populations and their essential habitats. Additionally, Section 9 of the Endangered Species Act (ESA) of 1973 prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the ESA, take means ".....to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat (USFWS 1999).

It is likely that projects occurring within kit fox habitat will require take permits from California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS). In order to evaluate the project's impacts to the San Joaquin kit fox, an Evaluation Survey for San Joaquin kit fox should be conducted within the project site. This survey is conducted by walking transects throughout the project site to determine prey base, denning potential, and an analysis of adverse and cumulative effects of the project on kit foxes, if any.

If you have any questions or comments regarding this letter or other related issues, please call (949) 261-5414.

Sincerely,

**CHAMBERS GROUP, INC.**



Shannan Shaffer  
Staff Wildlife Biologist

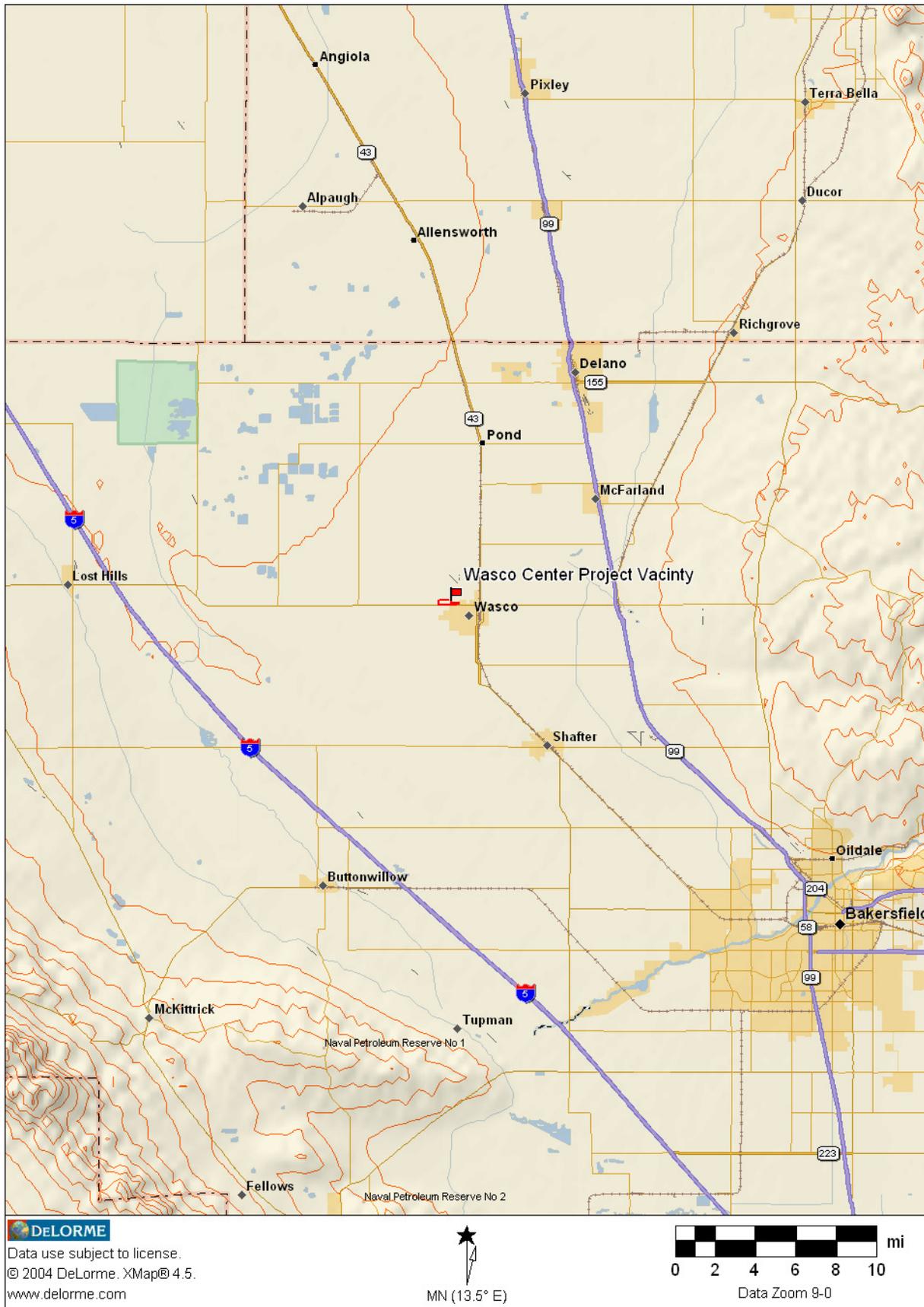


Nichole Cervin  
Associate Biologist

Attachments: References, Site Vicinity, Site Location, Vegetation Communities, Plant Species Observed, and Wildlife Species Detected, Site Photographs

## REFERENCES

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1999 U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance.



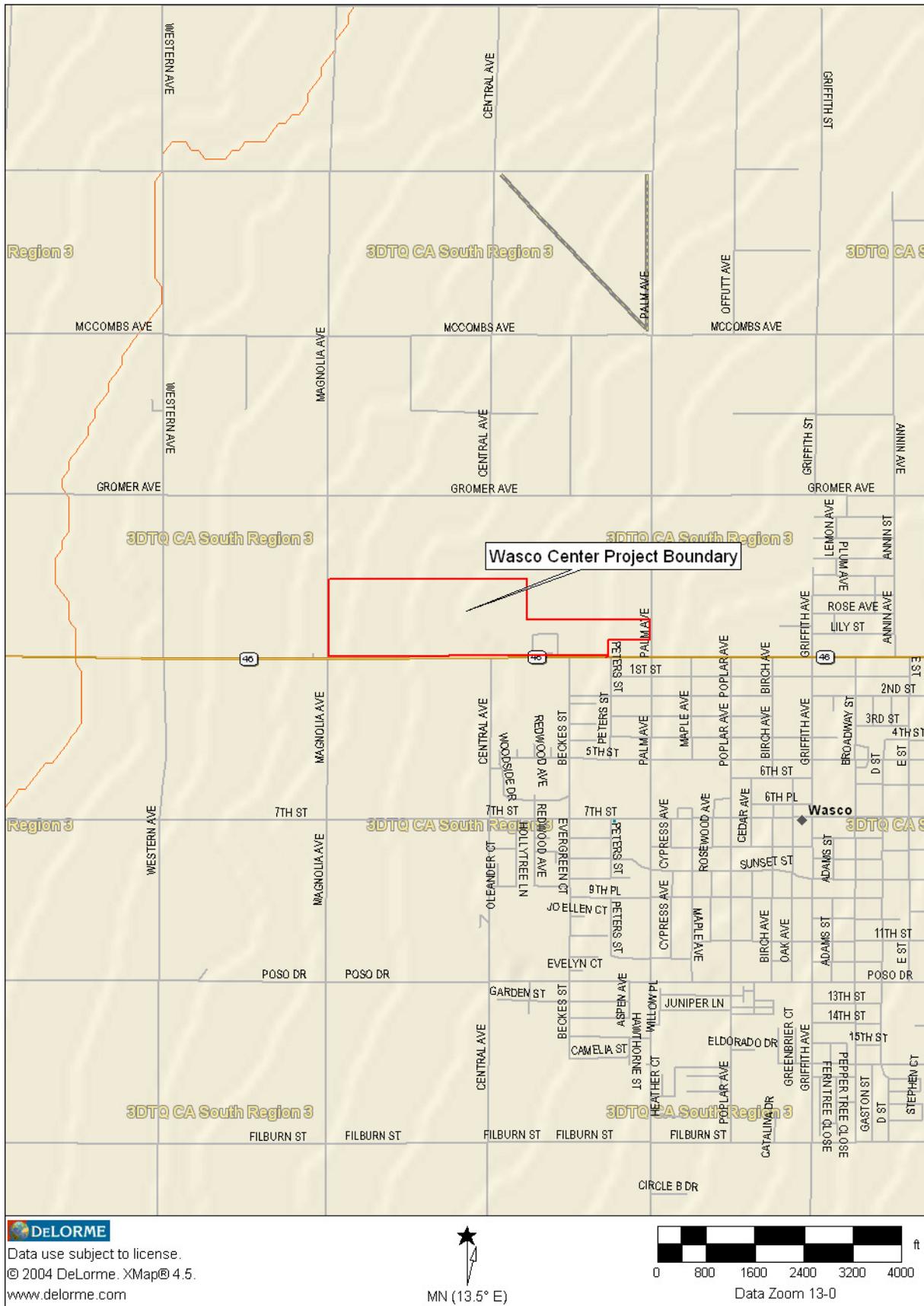
SCALE 1:400,000

SOURCE: DeLorme 3-D Topo Quads



**Wasco Center (Wasco, California)**  
**SITE VICINITY MAP**  
 Appendix X





SCALE 1:25,000

SOURCE: DeLorme 3-D Topo Quads



**Wasco Center (Wasco, California)**  
**SITE LOCATION MAP**  
 Appendix X

# Attachment 1 Wasco Center Project Vegetation Communities

## Legend

 Project Boundary

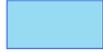
## Vegetation Communities

 Cultivated

 Barren

 Developed

 Ruderal

 Water Reservoir



**Plants Observed Within the  
Wasco Center Development Project Site**

Scientific Name	Common Name
<b>ANGIOSPERMS (DICOTYLEDONS)</b>	
<b>AMARANTHACEAE</b> <i>Amaranthus palmeri</i>	<b>AMARANTH FAMILY</b> Palmer's amaranth
<b>ASTERACEAE</b> <i>Conyza bonariensis</i> * <i>Conyza canadensis</i> <i>Sonchus oleraceus</i> *	<b>SUNFLOWER FAMILY</b> flax-leaved horseweed horseweed common sow thistle
<b>BRASSICACEAE</b> <i>Rorippa palustris</i>	<b>MUSTARD FAMILY</b> yellow cress
<b>CENOPODIACEAE</b> <i>Salsola tragus</i> *	<b>GOOSEFOOT FAMILY</b> Russian thistle
<b>EUPHORBIACEAE</b> <i>Chamaesyce maculata</i> *	<b>SPURGE FAMILY</b> spotted spurge
<b>GERANIACEAE</b> <i>Erodium botrys</i> * <i>Erodium cicutarium</i> *	<b>GERANIUM FAMILY</b> broad-lobed filaree red-stemmed filaree
<b>JUGLANDACEAE</b> <i>Juglans regia</i> *	<b>WALNUT FAMILY</b> English walnut
<b>MALVACEAE</b> <i>Malva parviflora</i> *	<b>MALLOW FAMILY</b> cheeseweed
<b>MYRTACEAE</b> <i>Eucalyptus sp.</i> *	<b>MYRTLE FAMILY</b> gum tree
<b>POLYGONACEAE</b> <i>Polygonum arenastrum</i> *	<b>BUCKWHEAT FAMILY</b> common knotweed
<b>ROSACEAE</b> <i>Prunus amygdalus</i>	<b>ROSE FAMILY</b> almond
<b>SIMAROUBACEAE</b> <i>Ailanthus altissima</i> *	<b>QUASSIA FAMILY</b> tree of heaven
<b>ANGIOSPERMS (MONOCOTYLEDONS)</b>	
<b>ARECACEAE</b> <i>Washingtonia sp.</i>	<b>PALM FAMILY</b> fan palm
<b>CYPERACEAE</b> <i>Cyperus eragrostis</i>	<b>SEDGE FAMILY</b> tall cyperus
<b>POACEAE</b> <i>Bromus sp.</i> <i>Cynodon dactylon</i> * <i>Leptochloa uninervia</i> <i>Echinochloa sp.</i> <i>Sorghum halepense</i> *	<b>GRASS FAMILY</b> brome Bermuda grass Mexican sprangletop barnyard grass Johnsongrass
* Signifies non-native species	

**Wildlife Detected Within or Adjacent to the  
Wasco Center Development Project Site**

Scientific Name	Common Name	Sign
<b>CLASS AVES</b>		
<b>BIRDS</b>		
<b>COLUMBIDAE</b> <i>Columba livia</i> <i>Zenaida macroura</i>	<b>PIGEONS &amp; DOVES</b> rock pigeon mourning dove	Fe O, V
<b>TYTONIDAE</b> <i>Tyto alba</i>	<b>BARN OWLS</b> barn owl	Fe
<b>PICIDAE</b> <i>Colaptes auratus</i>	<b>WOODPECKERS</b> northern flicker	V
<b>TYRANNIDAE</b> <i>Contopus cooperi</i>	<b>TYRANT FLYCATCHERS</b> olive-sided flycatcher	O
<b>CORVIDAE</b> <i>Aphelocoma californica</i> <i>Corvus brachyrhynchos</i>	<b>JAYS &amp; CROWS</b> Western scrub-jay American crow	O, V O, V
<b>AEGITHALIDAE</b> <i>Psaltriparus minimus</i>	<b>BUSHTITS</b> bushtit	V
<b>EMBERIZIDAE</b> <i>Zonotrichia atricapilla</i> <i>Zonotrichia leucophrys</i>	<b>EMBERIZIDS</b> golden-crowned sparrow white-crowned sparrow	O O, V
<b>FRINGILLIDAE</b> <i>Carpodacus mexicanus</i>	<b>FINCHES</b> house finch	O, V
<b>CLASS MAMMALIA</b>		
<b>MAMMALS</b>		
<b>SCIURIDAE</b> <i>Spermophilus beecheyi</i>	<b>SQUIRRELS</b> California ground squirrel	O
<b>CANIDAE</b> <i>Vulpes sp.</i>	<b>WOLVES &amp; FOXES</b> fox	B, C, Fu, S
<b>B = Burrow, C = Carcass, Fe = Feathers, Fu = Fur, O = Observation, S = Scat, V = Vocalization</b>		



**Photo 1.** This photo was taken from the west end of the project site facing east depicting the walnut orchards with bare ground and leaf litter.



**Photo 2.** This photo was taken from within the project area facing west depicting almond orchard with bare ground and leaf litter.



**Photo 3.** This photo was taken from within the project area and depicts the water catch basin at the north end of the site. Note the ruderal vegetation along the outer margins of the orchard in the background.



**Photo 4.** This photo was taken from within the project area facing east and depicts the barren area at the east end of the site.



**Photo 5.** This photo was taken from within the project area facing south and depicts the developed and ruderal areas towards the southeast portion of the site.



**Photo 6.** This photo depicts a debris pile located along the northern edge of the project site adjacent to the orchards.

## **Burrowing Owl Survey Protocol**



BURROWING OWL SURVEY PROTOCOL  
AND MITIGATION GUIDELINES

Prepared by:

The California Burrowing Owl Consortium

April 1993

## INTRODUCTION

The California Burrowing Owl Consortium developed the following Survey Protocol and Mitigation Guidelines to meet the need for uniform standards when surveying burrowing owl (*Speotyto cunicularia*) populations and evaluating impacts from development projects. The California Burrowing Owl Consortium is a group of biologists in the San Francisco Bay area who are interested in burrowing owl conservation. The following survey protocol and mitigation guidelines were prepared by the Consortium's Mitigation Committee. These procedures offer a decision-making process aimed at preserving burrowing owls in place with adequate habitat.

California's burrowing owl population is clearly in peril and if declines continue unchecked the species may qualify for listing. Because of the intense pressure for development of open, flat grasslands in California, resource managers frequently face conflicts between owls and development projects. Owls can be affected by disturbance and habitat loss, even though there may be no direct impacts to the birds themselves or their burrows. There is often inadequate information about the presence of owls on a project site until ground disturbance is imminent. When this occurs there is usually insufficient time to evaluate impacts to owls and their habitat. The absence of standardized field survey methods impairs adequate and consistent impact assessment during regulatory review processes, which in turn reduces the possibility of effective mitigation.

These guidelines are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect burrowing owls or the resources that support them. The process begins with a four-step survey protocol to document the presence of burrowing owl habitat, and evaluate burrowing owl use of the project site and a surrounding buffer zone. When surveys confirm occupied habitat, the mitigation measures are followed to minimize impacts to burrowing owls, their burrows and foraging habitat on the site. These guidelines emphasize maintaining burrowing owls and their resources in place rather than minimizing impacts through displacement of owls to an alternate site.

Each project and situation is different and these procedures may not be applicable in some circumstances. Finally, these are not strict rules or requirements that must be applied in all situations. They are guidelines to consider when evaluating burrowing owls and their habitat, and they suggest options for burrowing owl conservation when land use decisions are made.

Section 1 describes the four phase Burrowing Owl Survey Protocol. Section 2 contains the Mitigation Guidelines. Section 3 contains a discussion of various laws and regulations that protect burrowing owls and a list of references cited in the text.

We have submitted these documents to the California Department of Fish and Game (CDFG) for review and comment. These are untested procedures and we ask for your comments on improving their usefulness.

## SECTION 1 BURROWING OWL SURVEY PROTOCOL

### PHASE I: HABITAT ASSESSMENT

The first step in the survey process is to assess the presence of burrowing owl habitat on the project site including a 150-meter (approx. 500 ft.) buffer zone around the project boundary (Thomsen 1971, Martin 1973).

#### **Burrowing Owl Habitat Description**

Burrowing owl habitat can be found in annual and perennial grasslands, deserts, and scrublands characterized by low-growing vegetation (Zarn 1974). Suitable owl habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows are the essential component of burrowing owl habitat: both natural and artificial burrows provide protection, shelter, and nests for burrowing owls (Henny and Blus 1981). Burrowing owls typically use burrows made by fossorial mammals, such as ground squirrels or badgers, but also may use man-made structures, such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement.

#### **Occupied Burrowing Owl Habitat**

Burrowing owls may use a site for breeding, wintering, foraging, and/or migration stopovers. Occupancy of suitable burrowing owl habitat can be verified at a site by an observation of at least one burrowing owl, or, alternatively, its molted feathers, cast pellets, prey remains, eggshell fragments, or excrement at or near a burrow entrance. Burrowing owls exhibit high site fidelity, reusing burrows year after year (Rich 1984, Feeney 1992). A site should be assumed occupied if at least one burrowing owl has been observed occupying a burrow there within the last three years (Rich 1984).

The Phase II burrow survey is required if burrowing owl habitat occurs on the site. If burrowing owl habitat is not present on the project site and buffer zone, the Phase II burrow survey is not necessary. A written report of the habitat assessment should be prepared (Phase IV), stating the reason(s) why the area is not burrowing owl habitat.

### PHASE II: BURROW SURVEY

1. A survey for-burrows and owls should be conducted by walking through suitable habitat over the entire project site and in areas within 150 meters (approx 500 ft.) of the project impact zone. This 150-meter buffer zone is included to account for adjacent burrows and foraging habitat outside the project area and impacts from factors such as noise and vibration due to heavy equipment which could impact resources outside the project area.

2. Pedestrian survey transects should be spaced to allow 100 percent visual coverage of the ground surface. The distance between transect center lines should be no more than 30 meters (approx. 100 ft.), and should be reduced to account for differences in terrain, vegetation density, and ground surface visibility. To efficiently survey projects larger than 100 acres, it is recommended that two or more surveyors conduct concurrent surveys. Surveyors should maintain a minimum distance of 50 meters (approx. 160 ft.) from any owls or occupied burrows. It is important to minimize disturbance near occupied burrows during all seasons.
3. If burrows or burrowing owls are recorded on the site, a map should be prepared of the burrow concentration areas. A breeding season survey and census (Phase III) of burrowing owls is the next step required.
4. Prepare a report (Phase IV) of the burrow survey stating whether or not burrows are present.
5. A preconstruction survey may be required by project-specific mitigations no more than 30 days prior to ground disturbing activity.

### **PHASE III: BURROWING OWL SURVEYS, CENSUS AND MAPPING**

If the project site contains burrows that could be used by burrowing owls, then survey efforts should be directed towards determining owl presence on the site. Surveys in the breeding season are required to describe if, when, and how the site is used by burrowing owls. If no owls are observed using the site during the breeding season, a winter survey is required.

#### **Survey Methodology**

A complete burrowing owl survey consists of four site visits. During the initial site visit examine burrows for owl sign and map the locations of occupied burrows. Subsequent observations should be conducted from as many fixed points as necessary to provide visual coverage of the site using spotting scopes or binoculars. It is important to minimize disturbance near occupied burrows during all seasons. Site visits must be repeated on four separate days. Conduct these visits from two hours before sunset to one hour after or from one hour before to two hours after sunrise. Surveys should be conducted during weather that is conducive to observing owls outside their burrows. Avoid surveys during heavy rain, high winds (> 20 mph), or dense fog.

**Nesting Season Survey.** The burrowing owl nesting season begins as early as February 1 and continues through August 31 (Thomsen 1971, Zam 1974). The timing of nesting activities may vary with latitude and climatic conditions. If possible, the nesting season survey should be conducted during the peak of the breeding season, between April 15 and July 15. Count and map all burrowing owl sightings, occupied burrows, and burrows with owl sign. Record numbers of pairs and juveniles, and behavior such as courtship and copulation. Map the approximate territory boundaries and foraging areas if known.

**Survey for Winter Residents (non-breeding owls).** Winter surveys should be conducted between December 1 and January 31, during the period when wintering owls are most likely to be present. Count and map all owl sightings, occupied burrows, and burrows with owl sign.

Surveys Outside the Winter and Nesting Seasons. Positive results, (i.e., owl sightings)- outside of the above survey periods would be adequate to determine presence of owls on site. However, results of these surveys may be inadequate for mitigation planning because the numbers of owls and their pattern of distribution may change during winter and nesting seasons. Negative results during surveys outside the above periods are not conclusive proof that owls do not use the site.

**Preconstruction Survey.** A preconstruction survey may be required by project-specific mitigations and should be conducted no more than 30 days prior to ground disturbing activity.

## **PHASE IV: RESOURCE SUMMARY, WRITTEN REPORT**

A report should be prepared for CDFG that gives the results of each Phase of the survey protocol, as outlined below.

### **Phase I: Habitat Assessment**

1. Date and time of visit(s) including weather and visibility conditions; methods of survey.
2. Site description including the following information: location, size, topography, vegetation communities, and animals observed during visit(s).
3. An assessment of habitat suitability for burrowing owls and explanation.
4. A map of the site.

### **Phase II: Burrow Survey**

1. Date and time of visits including weather and visibility conditions; survey methods including transect spacing.
2. A more detailed site description should be made during this phase of the survey protocol including a partial plant list of primary vegetation, location of nearest freshwater (on or within one mile of site), animals observed during transects.
3. Results of survey transects including a map showing the location of concentrations of burrow(s) (natural or artificial) and owl(s), if present.

### **Phase III: Burrowing Owl Surveys, Census and Mapping**

1. Date and time of visits including weather and visibility conditions; survey methods including transect spacing.
2. Report and map the location of all burrowing owls and owl sign. Burrows occupied by owl(s) should be mapped indicating the number of owls at each burrow. Tracks, feathers, pellets, or other items (prey remains, animal scat) at burrows should also be reported.
3. Behavior of owls during the surveys should be carefully recorded (from a distance) and reported. Describe and map areas used by owls during the surveys. Although not required, all behavior is valuable to document including feeding, resting, courtship, alarm, territorial, parental, or juvenile behavior.
4. Both winter and nesting season surveys should be summarized. If possible include information regarding productivity of pairs, seasonal pattern of use, and include a map of the colony showing territorial boundaries and home ranges.
5. The historical presence of burrowing owls on site should be documented, as well as the source of such information (local bird club, Audubon society, other biologists, etc.).

# Burrowing: Owl Survey Protocol

April 1993

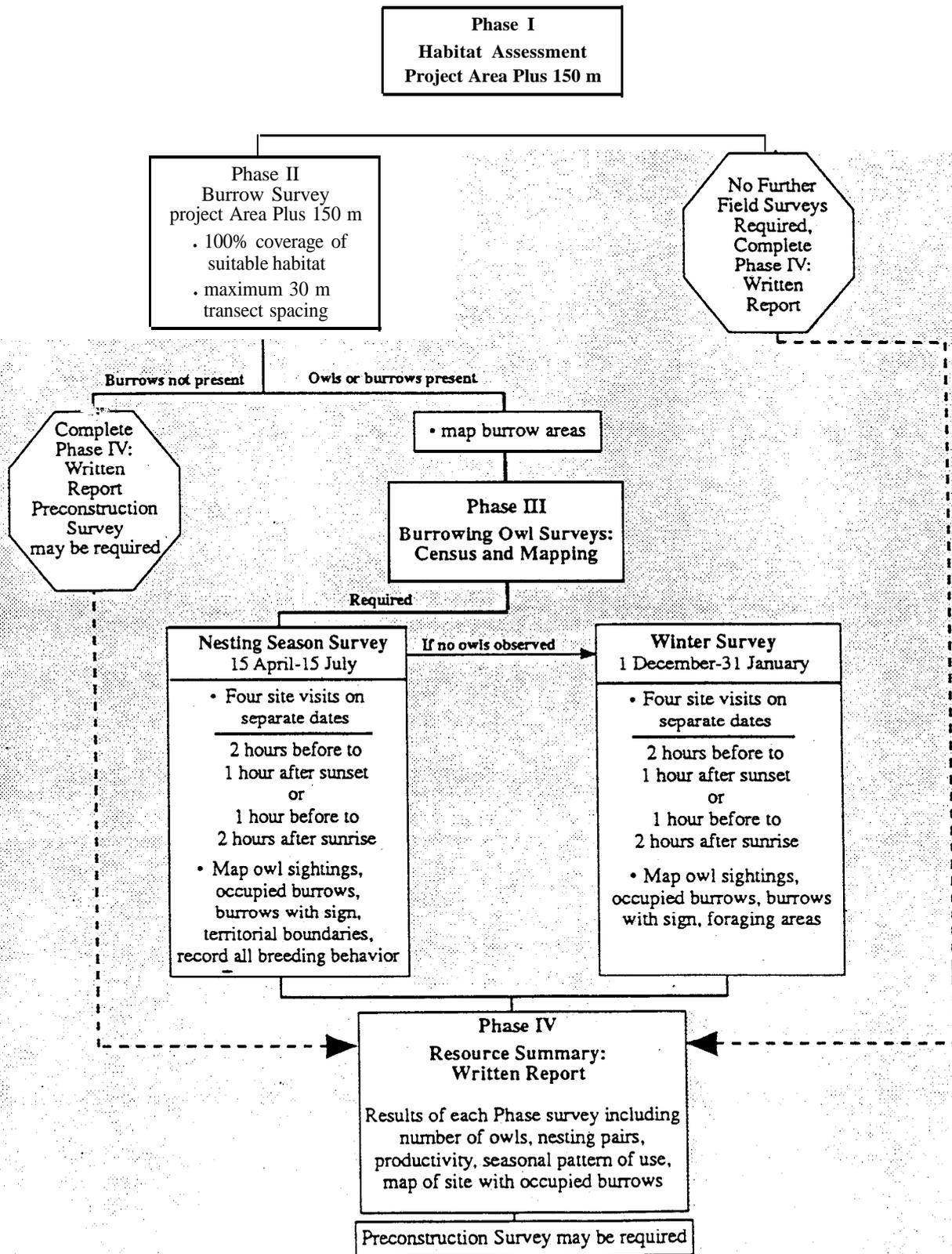


Figure 1.

## SECTION 2 BURROWING OWL MITIGATION GUIDELINES

The objective of these mitigation guidelines is to minimize impacts to burrowing owls and the resources that support viable owl populations. These guidelines are intended to provide a decision-making process that should be implemented wherever there is potential for an action or project to adversely affect burrowing owls or their resources. The process begins with a four-step survey protocol (see *Burrowing Owl Survey Protocol*) to document the presence of burrowing owl habitat, and evaluate burrowing owl use of the project site and a surrounding buffer zone. When surveys confirm occupied habitat, the mitigation measures described below are followed to minimize impacts to burrowing owls, their burrows and foraging habitat on the site. These guidelines emphasize maintaining burrowing owls and their resources in place rather than minimizing impacts through displacement of owls to an alternate site.

Mitigation actions should be carried out prior to the burrowing owl breeding season, generally from February 1 through August 31 (Thomsen 1971, Zarn 1974). The timing of nesting activity may vary with latitude and climatic conditions. Project sites and buffer zones with suitable habitat should be resurveyed to ensure no burrowing owls have occupied them in the interim period between the initial surveys and ground disturbing activity. Repeat surveys should be conducted not more than 30 days prior to initial ground disturbing activity.

### DEFINITION OF IMPACTS

1. Disturbance or harassment within 50 meters (approx. 160 ft.) of occupied burrows.
2. Destruction of burrows and burrow entrances. Burrows include structures such as culverts, concrete slabs and debris piles that provide shelter to burrowing owls.
3. Degradation of foraging habitat adjacent to occupied burrows.

### GENERAL CONSIDERATIONS

1. Occupied burrows should not be disturbed during the nesting season, from February 1 through August 31, unless the Department of Fish and Game verifies that the birds have not begun egg-laying and incubation or that the juveniles from those burrows are foraging independently and capable of independent survival at an earlier date.
2. A minimum of 6.5 acres of foraging habitat, calculated on a 100-m (approx. 300 ft.) foraging radius around the natal burrow, should be maintained per pair (or unpaired resident single bird) contiguous with burrows occupied within the last three years (Rich 1984, Feeney 1992). Ideally, foraging habitat should be retained in a long-term conservation easement.

3. When destruction of occupied burrows is unavoidable, burrows should be enhanced (enlarged or cleared of debris) or created (by installing artificial burrows) in a ratio of 1:1 in adjacent suitable habitat that is contiguous with the foraging habitat of the affected owls.
4. If owls must be moved away from the disturbance area, passive relocation (see below) is preferable to trapping. A time period of at least one week is recommended to allow the owls to move and acclimate to alternate burrows.
5. The mitigation committee recommends monitoring the success of mitigation programs as required in Assembly Bill 3180. A monitoring plan should include mitigation success criteria and an annual report should be submitted to the California Department of Fish and Game.

## **AVOIDANCE**

### **Avoid Occupied Burrows**

No disturbance should occur within 50 m (approx. 160 ft.) of occupied burrows during the non-breeding Season of September 1 through January 31 or within 75 m (approx. 250 ft.) during the breeding Season of February 1 through August 31. Avoidance also requires that a minimum of 6.5 acres of foraging habitat be preserved contiguous with occupied burrow sites for each pair of breeding burrowing owls (with or without dependent young) or single unpaired resident bird (Figure 2).

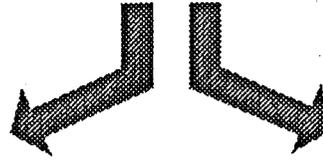
## **MITIGATION FOR UNAVOIDABLE IMPACTS**

### **On-site Mitigation**

On-site passive relocation should be implemented if the above avoidance requirements cannot be met. Passive relocation is defined as encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are beyond 50 m from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls (Figure 3). Relocation of owls should only be implemented during the non-breeding season. On-site habitat should be preserved in a conservation easement and managed to promote burrowing owl use of the site.

Owls should be excluded from burrows in the immediate impact zone and within a 50 m (approx. 160 ft.) buffer zone by installing one-way doors in burrow entrances: One-way doors should be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow should be provided for each burrow that will be excavated in the project impact zone. The project area should be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. Whenever possible, burrows should be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bags should be inserted into the tunnels

# AVOIDANCE



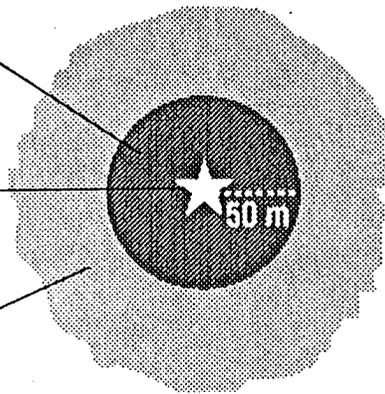
## Non-breeding season

1 Sept. - 31 Jan.

No impacts within  
50 m of occupied  
burrow

Occupied  
burrow

Maintain  
at least 6.5 acres  
foraging habitat



## Breeding season

1 Feb. - 31 Aug.

No impacts within  
75 m of occupied  
burrow

Occupied  
burrow

Maintain  
at least 6.5 acres  
foraging habitat

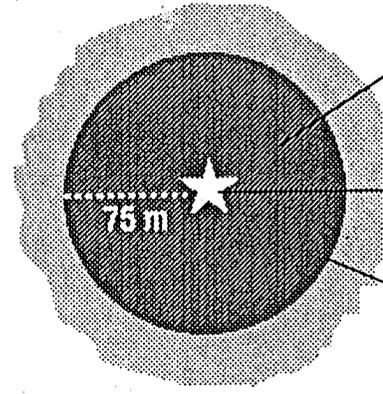


Figure 2. Burrowing owl mitigation guidelines.

## ON-SITE MITIGATION IF AVOIDANCE NOT MET

(More than 6.5 acres suitable habitat available)

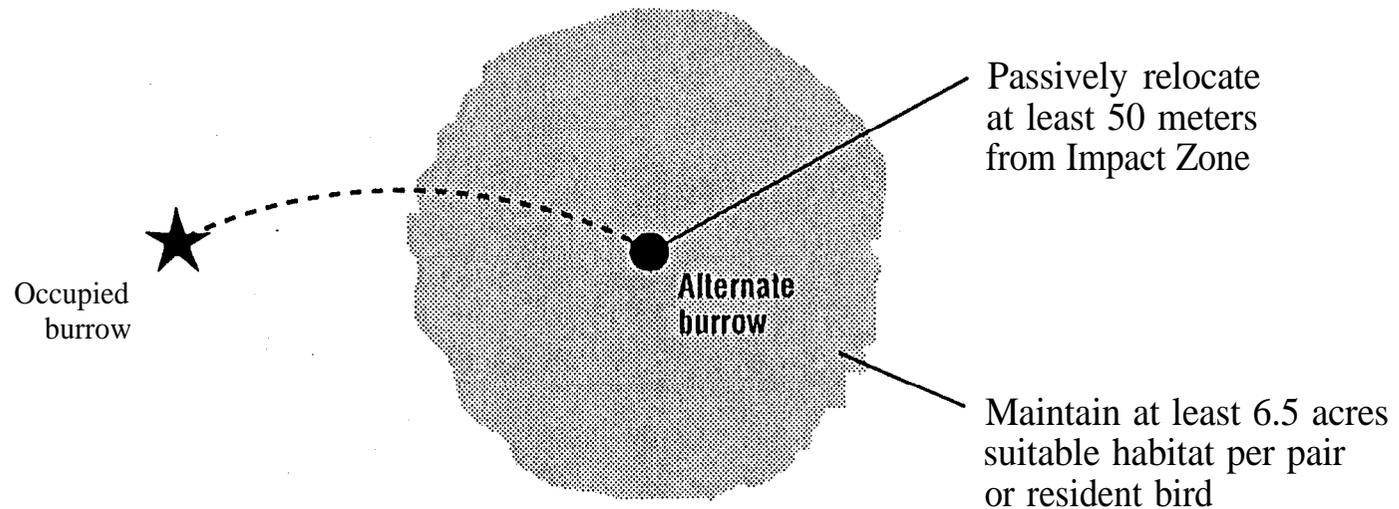


Figure 3. Burrowing owl mitigation guidelines.

during excavation to maintain an escape route for any animals inside the burrow.

### **Off-site Mitigation**

If the project will reduce suitable habitat on-site below the threshold level of 6.5 acres per relocated pair or single bird, the habitat should be replaced off-site. Off-site habitat must be suitable burrowing owl habitat, as defined in the *Burrowing Owl Survey Protocol*, and the site approved by CDFG. Land should be purchased and/or placed in a conservation easement in perpetuity and managed to maintain suitable habitat. Off-site mitigation should use one of the following ratios:

1. Replacement of occupied habitat with occupied habitat: 1.5 times 6.5 (9.75) acres per pair or single bird.
2. Replacement of occupied habitat with habitat contiguous to currently occupied habitat: 2 times 6.5 (13.0) acres per pair or single bird.
3. Replacement of occupied habitat with suitable unoccupied habitat: 3 times 6.5 (19.5) acres per pair or single bird.

## SECTION 3 LEGAL STATUS

The burrowing owl is a migratory bird species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter, any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3503, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (March 1 - August 15, annually). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) or the loss of habitat upon which the birds depend is considered “taking” and is potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g., MBTA).

The burrowing owl is a Species of Special Concern to California because of declines of suitable habitat and both localized and statewide population declines. Guidelines for the Implementation of the California Environmental Quality Act (CEQA) provide that a species be considered as endangered or “rare” regardless of appearance on a formal list for the purposes of the CEQA (Guidelines, Section 15380, subsections b and d). The CEQA requires a mandatory findings of significance if impacts to threatened or endangered species are likely to occur (Sections 21001(c), 21083. Guidelines 15380, 15064, 15065). Avoidance or mitigation must be presented to reduce impacts to less than significant levels.

### CEQA AND SUBDIVISION MAP ACT

CEQA Guidelines Section 15065 directs that a mandatory finding of significance is required for projects that have the potential to substantially degrade or reduce the habitat of, or restrict the range of a threatened or endangered species. CEQA requires agencies to implement feasible mitigation measures or feasible alternatives identified in EIR’s for projects which will otherwise cause significant adverse impacts (Sections 21002, 21081, 21083; Guidelines, sections 15002, subd. (a)(3), 15021, subd. (a)(2), 15091, subd. (a)).

To be legally adequate, mitigation measures must be capable of “avoiding the impact altogether by not taking a certain action or parts of an action”; “minimizing impacts by limiting the degree or magnitude of the action and its implementation”; “rectifying the impact by repairing, rehabilitating or restoring the impacted environment”; “or reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.” (Guidelines, Section 15.370).

Section 66474 (e) of the Subdivision Map Act states “a legislative body of a city or county shall deny approval of a tentative map or parcel map for which a tentative map was not required, if

it makes any of the following findings:... (e) that the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish and wildlife or their habitat". In recent court cases, the court upheld that Section 66474(e) provides for environmental impact review separate from and independent of the requirements of CEQA (Topanga Assn. for a Scenic Community v. County of Los Angeles, 263 Cal. Rptr. 214 (1989).). The finding in Section 66174 is in addition to the requirements for the preparation of an EIR or Negative Declaration.

## LITERATURE CITED

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## **Standardized Recommendations for Protection of the San Joaquin Kit Fox**



**U.S. FISH AND WILDLIFE SERVICE  
STANDARDIZED RECOMMENDATIONS  
FOR PROTECTION OF THE SAN JOAQUIN KIT FOX  
PRIOR TO OR DURING GROUND DISTURBANCE**

Prepared by the Sacramento Fish and Wildlife Office  
June 1999

## **INTRODUCTION**

The following document includes many of the San Joaquin kit fox (*Vulpes macrotis mutica*) protection measures typically recommended by the U. S. Fish and Wildlife Service (Service), prior to and during ground disturbance activities. However, incorporating relevant sections of these guidelines into the proposed project is not the only action required under the Endangered Species Act of 1973, as amended (Act). Project applicants should contact the Service in Sacramento to determine the full range of requirements that apply to your project; the address and telephone number are given at the end of this document. Formal authorization for the project may be required under either section 7 or section 10 of the Act. Implementation of the measures presented in this document may be necessary to avoid violating the provisions of the Act, including the prohibition against "take" (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). Such protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the Act resulting in incidental take authorization (authorization), or an incidental take permit (permit) pursuant to section 10 of the Act. The specific measures implemented to protect kit fox for any given project shall be determined by the Service based upon the applicant's consultation with the Service.

The purpose of this document is to make information on kit fox protection strategies readily available and to help standardize the methods and definitions currently employed to achieve kit fox protection. The measures outlined in this document are subject to modification or revision at the discretion of the Service.

All surveys, den destructions, and monitoring described in this document must be conducted by a qualified biologist. A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox. In addition, biologist(s) must be able to identify coyote, red fox, gray fox, and kit fox tracks, and to have seen a kit fox in the wild, at a zoo, or as a museum mount.

## **SMALL PROJECTS**

Small projects are considered to be those projects with small foot prints such as an individual in-fill oil well, communication tower, or bridge repair. These projects must stand alone and not be part of, or in any way connected to larger projects (i.e., bridge repair or improvement to serve a

future urban development). The Service recommends that on these small projects, the biologist survey the proposed project boundary and a 200-foot area outside of the project footprint to identify habitat features, and make recommendations on situating the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then preconstruction surveys should be conducted.

Preconstruction/preactivity surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, and assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped (see Survey Protocol).

Written results of preconstruction/preactivity surveys must be received by the Service within five days after survey completion and prior to the start of ground disturbance and/or construction activities. If a natal/pupping den is discovered within the project area or within 200-feet of the project boundary, the Service shall be immediately notified. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the Service immediately to obtain the necessary take authorization/permit.

If take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping dens (active or inactive). Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (conversely, the project boundary can be demarcated, see den destruction section).

## **OTHER PROJECTS**

It is likely that all other projects occurring within kit fox habitat will require a take authorization/permit from the Service. This determination would be made by the Service during the early evaluation process (see Survey Protocol). These other projects would include, but are not limited to: linear projects; projects with large footprints such as urban development; and projects which in themselves may be small but have far reaching impacts (i.e., water storage or conveyance facilities that promote urban growth or agriculture, etc.).

The take authorization/permit issued by the Service may incorporate some or all of the protection measures presented in this document. The take authorization/permit may include measures specific to the needs of the project, and those requirements supersede any requirements found in this document.

## EXCLUSION ZONES

The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances. The following radii are minimums, and if they cannot be followed the Service must be contacted:

Potential den	50 feet
Known den	100 feet
Natal/pupping den (occupied <u>and</u> unoccupied)	Service must be contacted
Atypical den	50 feet

Known den: To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by kit foxes. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

Potential and Atypical dens: Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

Construction and other project activities should be prohibited or greatly restricted within these exclusion zones. Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity should be prohibited within the exclusion zones.

## DESTRUCTION OF DENS

Disturbance to all San Joaquin kit fox dens should be avoided to the maximum extent possible. Protection provided by kit fox dens for use as shelter, escape, cover, and reproduction is vital to the survival of the species. Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection. **Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the Service.**

Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgement of the biologist, the animal has escaped from the partially destroyed den.

Potential Dens: If a take authorization/permit has been obtained from the Service, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then destruction shall cease and the Service shall be notified immediately.

## **CONSTRUCTION AND OPERATIONAL REQUIREMENTS**

Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbance should be minimized. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be

included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be prohibited.
2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.
3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.
4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or project site.
5. No firearms shall be allowed on the project site.
6. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites.
7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control

must be conducted, zinc phosphide should be used because of proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the Service.
9. An employee education program should be conducted for any project that has expected impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.
10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.
11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.
12. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.
13. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during

project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9<sup>th</sup> Street, Sacramento, California 95814, (916) 654-4262.

Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at:

Endangered Species Division  
2800 Cottage Way, Suite W2605  
Sacramento, California 95825-1846  
(916) 414-6620

"Take" - Section 9 of the Endangered Species Act of 1973, as amended (Act) prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the Act, take means " . . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat.

"Dens" - San Joaquin kit fox dens may be located in areas of low, moderate, or steep topography. Den characteristics are listed below, however, the specific characteristics of individual dens may vary and occupied dens may lack some or all of these features. Therefore, caution must be exercised in determining the status of any den. Typical dens may include the following: (1) one or more entrances that are approximately 5 to 8 inches in diameter; (2) dirt berms adjacent to the entrances; (3) kit fox tracks, scat, or prey remains in the vicinity of the den; (4) matted vegetation adjacent to the den entrances; and (5) manmade features such as culverts, pipes, and canal banks.

"Known den" - Any existing natural den or manmade structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms "active" and "inactive" when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.

"Potential Den" - Any subterranean hole within the species' range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

"Natal or Popping Den" - Any den used by kit foxes to whelp and/or rear their pups. Natal/popping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the popping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

"Atypical Den" - Any manmade structure which has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

## **California Natural Diversity Database**



California Department of Fish and Game  
Natural Diversity Database  
Selected Elements by Common Name - Portrait  
Wasco Center Walmar Project  
6 Quad Search

Topo Quads: Wasco, Wasco NW, Wasco SW, Buttonwillow, Pond, Rio Bravo

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 American badger <i>Taxidea taxus</i>	AMAJF04010			G5	S4	SC
2 Buena Vista Lake shrew <i>Sorex ornatus relictus</i>	AMABA01102	Endangered		G5T1	S1	SC
3 California jewel-flower <i>Caulanthus californicus</i>	PDBRA31010	Endangered	Endangered	G1	S1.1	1B.1
4 Earlimart orache <i>Atriplex erecticaulis</i>	PDCHE042V0			G2	S2.2	1B.2
5 Hoover's eriastrum <i>Eriastrum hooveri</i>	PDPLM03070	Delisted		G3	S3.2	4.2
6 Le Conte's thrasher <i>Toxostoma lecontei</i>	ABPBK06100			G3	S3	SC
7 Munz's tidy-tips <i>Layia munzii</i>	PDAST5N0B0			G1	S1.1	1B.2
8 Nelson's antelope squirrel <i>Ammospermophilus nelsoni</i>	AMAFB04040		Threatened	G2	S2	
9 San Joaquin kit fox <i>Vulpes macrotis mutica</i>	AMAJA03041	Endangered	Threatened	G4T2T3	S2S3	
10 San Joaquin pocket mouse <i>Perognathus inornatus inornatus</i>	AMAFD01061			G4T2T3	S2S3	
11 Tipton kangaroo rat <i>Dipodomys nitratooides nitratooides</i>	AMAFD03152	Endangered	Endangered	G3T1	S1	
12 Tulare grasshopper mouse <i>Onychomys torridus tularensis</i>	AMAFF06021			G5T1T2	S1S2	SC
13 Valley Saltbush Scrub	CTT36220CA			G1	S2.1	
14 blunt-nosed leopard lizard <i>Gambelia sila</i>	ARACF07010	Endangered	Endangered	G1	S1	
15 burrowing owl <i>Athene cunicularia</i>	ABNSB10010			G4	S2	SC
16 coast horned lizard <i>Phrynosoma blainvillii</i>	ARACF12100			G4G5	S3S4	SC
17 giant garter snake <i>Thamnophis gigas</i>	ARADB36150	Threatened	Threatened	G2G3	S2S3	
18 recurved larkspur <i>Delphinium recurvatum</i>	PDRAN0B1J0			G2	S2.2	1B.2
19 slough thistle <i>Cirsium crassicaule</i>	PDAST2E0U0			G2	S2.2	1B.1
20 subtle orache <i>Atriplex subtilis</i>	PDCHE042T0			G2	S2.2	1B.2
21 western mastiff bat <i>Eumops perotis californicus</i>	AMACD02011			G5T4	S3?	SC

