

Appendix D: Biological Resources Supporting Information

D.1 - CNDDDB List



Selected Elements by Scientific Name

California Department of Fish and Game

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	None	G2G3	S2	SSC
<i>Alkali Seep</i> Alkali Seep	CTT45320CA	None	None	G3	S2.1	
<i>Ambystoma californiense</i> California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SSC
<i>Ammospermophilus nelsoni</i> Nelson's antelope squirrel	AMAFB04040	None	Threatened	G2	S2	
<i>Aquila chrysaetos</i> golden eagle	ABNKC22010	None	None	G5	S3	FP
<i>Astragalus tener var. tener</i> alkali milk-vetch	PDFAB0F8R1	None	None	G2T2	S2	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S2	SSC
<i>Atriplex cordulata var. cordulata</i> heartscale	PDCHE040B0	None	None	G2?	S2.2?	1B.2
<i>Atriplex coronata var. vallicola</i> Lost Hills crownscale	PDCHE04250	None	None	G4T2	S2	1B.2
<i>Atriplex minuscula</i> lesser saltscale	PDCHE042M0	None	None	G1	S1.1	1B.1
<i>Atriplex persistens</i> vernal pool smallscale	PDCHE042P0	None	None	G2	S2.2	1B.2
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	ICBRA03010	Endangered	None	G1	S1	
<i>Branchinecta longiantenna</i> longhorn fairy shrimp	ICBRA03020	Endangered	None	G1	S1	
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S2S3	
<i>Branta hutchinsii leucopareia</i> cackling (=Aleutian Canada) goose	ABNJB05035	Delisted	None	G5T4	S2	
<i>Buteo regalis</i> ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
<i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070	None	Threatened	G5	S2	
<i>California macrophylla</i> round-leaved filaree	PDGER01070	None	None	G2	S2	1B.1
<i>Caulanthus lemmonii</i> Lemmon's jewel-flower	PDBRA0M0E0	None	None	G2	S2.2	1B.2
<i>Chloropyron molle ssp. hispidum</i> hispid bird's-beak	PDSCR0J0D1	None	None	G2T2	S2.1	1B.1
<i>Circus cyaneus</i> northern harrier	ABNKC11010	None	None	G5	S3	SSC



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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
Cismontane Alkali Marsh Cismontane Alkali Marsh	CTT52310CA	None	None	G1	S1.1	
Coastal and Valley Freshwater Marsh Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S1S2	SSC
Delphinium recurvatum recurved larkspur	PDRAN0B1J0	None	None	G3	S3	1B.2
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Dipodomys ingens giant kangaroo rat	AMAFD03080	Endangered	Endangered	G2	S2	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T3Q	S3	WL
Eryngium racemosum Delta button-celery	PDAP10Z0S0	None	Endangered	G1Q	S1	1B.1
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3?	SSC
Falco mexicanus prairie falcon	ABNKD06090	None	None	G5	S3	WL
Gambelia sila blunt-nosed leopard lizard	ARACF07010	Endangered	Endangered	G1	S1	FP
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	CTT61410CA	None	None	G2	S2.1	
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T3	S2.1	1B.1
Lepidurus packardi vernal pool tadpole shrimp	ICBRA10010	Endangered	None	G3	S2S3	
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G3	S2S3	
Malacothamnus hallii Hall's bush-mallow	PDMAL0Q0F0	None	None	G2Q	S2	1B.2
Masticophis flagellum ruddocki San Joaquin whipsnake	ARADB21021	None	None	G5T2T3	S2?	SSC
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4?	
Navarretia nigelliformis ssp. radians shining navarretia	PDPLM0C0J2	None	None	G4T2	S2	1B.2
Navarretia prostrata prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.1



Selected Elements by Scientific Name

California Department of Fish and Game

California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
<i>Perognathus inornatus inornatus</i> San Joaquin pocket mouse	AMAFD01061	None	None	G4T2T3	S2S3	
<i>Rana boylei</i> foothill yellow-legged frog	AAABH01050	None	None	G3	S2S3	SSC
<i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened	None	G4T2T3	S2S3	SSC
<i>Sagittaria sanfordii</i> Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
<i>Senecio aphanactis</i> chaparral ragwort	PDAST8H060	None	None	G3?	S1.2	2.2
<i>Spea hammondi</i> western spadefoot	AAABF02020	None	None	G3	S3	SSC
<i>Streptanthus insignis ssp. lyonii</i> Arburua Ranch jewel-flower	PDBRA2G0Q1	None	None	G3G4T1	S1.2	1B.2
<i>Stuckenia filiformis</i> slender-leaved pondweed	PMPOT03090	None	None	G5	S1S2	2.2
<i>Sycamore Alluvial Woodland</i> Sycamore Alluvial Woodland	CTT62100CA	None	None	G1	S1.1	
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S4	SSC
<i>Thamnophis gigas</i> giant garter snake	ARADB36150	Threatened	Threatened	G2G3	S2S3	
<i>Trichocoronis wrightii var. wrightii</i> Wright's trichocoronis	PDAST9F031	None	None	G4T3	S1.1	2.1
<i>Valley Sacaton Grassland</i> Valley Sacaton Grassland	CTT42120CA	None	None	G1	S1.1	
<i>Valley Sink Scrub</i> Valley Sink Scrub	CTT36210CA	None	None	G1	S1.1	
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2T3	S2S3	

Record Count: 57

D.2 - U.S. Fish and Wildlife Service Species List

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 120503105605

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

- Branchinecta conservatio
 - Conservancy fairy shrimp (E)
 - Critical habitat, Conservancy fairy shrimp (X)
- Branchinecta longiantenna
 - Critical habitat, longhorn fairy shrimp (X)
 - longhorn fairy shrimp (E)
- Branchinecta lynchi
 - Critical habitat, vernal pool fairy shrimp (X)
 - vernal pool fairy shrimp (T)
- Desmocerus californicus dimorphus
 - valley elderberry longhorn beetle (T)
- Lepidurus packardi
 - Critical habitat, vernal pool tadpole shrimp (X)
 - vernal pool tadpole shrimp (E)

Fish

- Hypomesus transpacificus
 - delta smelt (T)
- Oncorhynchus mykiss
 - Central Valley steelhead (T) (NMFS)

Amphibians

- *Ambystoma californiense*
 - California tiger salamander, central population (T)
 - Critical habitat, CA tiger salamander, central population (X)
- *Rana draytonii*
 - California red-legged frog (T)

Reptiles

- *Gambelia (=Crotaphytus) sila*
 - blunt-nosed leopard lizard (E)
- *Thamnophis gigas*
 - giant garter snake (T)

Mammals

- *Dipodomys ingens*
 - giant kangaroo rat (E)
- *Dipodomys nitratoides exilis*
 - Fresno kangaroo rat (E)
- *Vulpes macrotis mutica*
 - San Joaquin kit fox (E)

Plants

- *Chamaesyce hooveri*
 - Critical habitat, Hoover's spurge (X)

Proposed Species

Amphibians

- *Rana draytonii*
 - Critical habitat, California red-legged frog (PX)

Quads Containing Listed, Proposed or Candidate Species:

CHARLESTON SCHOOL (383A)

ORTIGALITA PEAK NW (383B)

LOS BANOS VALLEY (384A)

SAN LUIS RANCH (403A)

INGOMAR (403B)

VOLTA (403C)

LOS BANOS (403D)

HOWARD RANCH (404A)

SAN LUIS DAM (404D)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in

an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.
- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed

dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [Map Room](#) page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6520.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be August 01, 2012.

D.3 - CNPS Inventory Results

CNPS *California Native Plant Society* Inventory of Rare and Endangered Plants

Plant List

25 matches found. [Click on scientific name for details](#)

Search Criteria

Found in 9 Quads around 37120A8

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Acanthomintha lanceolata	Santa Clara thorn-mint	Lamiaceae	annual herb	4.2	S3.2	G3
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	4.2	S3.2?	G5? T3T4
Astragalus tener var. tener	alkali milk-vetch	Fabaceae	annual herb	1B.2	S2	G2T2
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	1B.2	S2.2?	G2?
Atriplex coronata var. coronata	crownscale	Chenopodiaceae	annual herb	4.2	S3.2	G4T3
Atriplex coronata var. vallicola	Lost Hills crownscale	Chenopodiaceae	annual herb	1B.2	S2	G4T2
Atriplex depressa	brittlescale	Chenopodiaceae	annual herb	1B.2	S2.2	G2Q
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	1B.1	S1.1	G1
Atriplex persistens	vernal pool smallscale	Chenopodiaceae	annual herb	1B.2	S2.2	G2
California macrophylla	round-leaved filaree	Geraniaceae	annual herb	1B.1	S2	G2
Caulanthus lemmonii	Lemmon's jewelflower	Brassicaceae	annual herb	1B.2	S2.2	G2
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	4.2	S3.2	G4T3
Chloropyron molle ssp. hispidum	hispid bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.1	S2.1	G2T2
Delphinium gypsophilum ssp. gypsophilum	gypsum-loving larkspur	Ranunculaceae	perennial herb	4.2	S3.2	G4T3
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	1B.2	S3	G3
Eryngium racemosum	Delta button-celery	Apiaceae	annual / perennial herb	1B.1	S1	G1Q
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	1B.2	S2	G2Q
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	3.1	S2.2	G5T2Q
Navarretia nigelliformis ssp. radians	shining navarretia	Polemoniaceae	annual herb	1B.2	S2	G4T2
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	1B.1	S2	G2
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb	1B.2	S3	G3

Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	2.2	S1.2	G3?
Streptanthus insignis ssp. lyonii	Arburua Ranch jewel-flower	Brassicaceae	annual herb	1B.2	S1.2	G3G4T1
Stuckenia filiformis	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb	2.2	S1S2	G5
Trichocoronis wrightii var. wrightii	Wright's trichocoronis	Asteraceae	annual herb	2.1	S1.1	G4T3

Suggested Citation

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D.4 - Special-Status Plant and Animal Species Tables

**Summary of Special-Status Plant Species Review
Volta Redi-Mix Batch Plant Project, County of Merced**

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat Description	Potential for Impacts	Period of Identification
Plants				
<i>Astragalus tener</i> var. <i>tener</i> Alkali milk-vetch	—/—/1B.2	Playas, valley and foothill grassland in adobe clay, and vernal pools. Restricted to alkaline substrates. 1 to 60 meters in elevation.	Low. Scrub habitat on the site is degraded by historic haying operations making potential for occurrence low. Presence requires a seedbank that persisted through haying operations and/or recruitment from an adjacent population. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	March–June
<i>Atriplex cordulata</i> Heartscale	—/—/1B.2	Chenopod scrub, meadows and seeps, and valley and foothill grassland in sandy soils. Restricted to saline or alkaline substrates. 1 to 375 meters in elevation.	Low. Scrub habitat on the site is degraded by historic haying operations making potential for occurrence low. Presence requires a seedbank that persisted through haying operations and/or recruitment from an adjacent population. There is a CNDDDB-recorded occurrence of this species approximately 0.5 mile northwest of the project (CNDDDB 2009).	April – October
<i>Atriplex depressa</i> Brittlescale	—/—/1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools. Restricted to alkaline, clay substrates. 1 to 320 meters in elevation.	None. Loam and clay loam soils within the site are not suitable for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	May–October
<i>Atriplex persistens</i> Vernal pool smallscale	—/—/1B.2	Vernal pools in alkaline substrates. 10 to 115 meters feet in elevation.	None. The site does not contain vernal pools. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	June–October

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat Description	Potential for Impacts	Period of Identification
<i>Atriplex vallicola</i> Lost Hills crownscale	—/—/1B.2	Chenopod scrub, valley and foothill grassland, vernal pools. Restricted to alkaline substrates. 50 to 635 meters in elevation.	Low. Scrub habitat on the site is degraded by historic haying operations making potential for occurrence low. Presence requires a seedbank that persisted through haying operations and/or recruitment from an adjacent population. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	April–August
<i>California macrophyllum</i> Round-leaved filaree	—/—/1B.1	Cismontane woodland, valley and foothill grassland; restricted to clay substrates. 15 to 1,200 meters in elevation.	None. Loam and clay loam soils within the site are not suitable for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	March–May
<i>Caulanthus coulteri</i> var. <i>lemmonii</i> Lemmon’s jewelflower	—/—/1B.2	Pinyon and juniper woodland, valley and foothill grassland. 80 to 1,220 meters in elevation.	None. The project site does not contain pinyon and juniper woodland or valley and foothill grassland habitats. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	March–May
<i>Cordylanthus mollis</i> ssp. <i>hispidus</i> Hispid bird’s-beak	—/—/1B.1	Meadows and seeps, playas, and valley and foothill grassland. Restricted to alkaline substrates. 1 to 155 meters in elevation.	Low. According to CNDDDB, this species was present on the site during the 1980s (CNDDDB 2009). This species may be still occur through seedbank persistence or newly introduced seed from adjacent populations recorded northwest and northeast of the site.	June–September
<i>Delphinium recurvatum</i> Recurved larkspur	—/—/1B.2	Chenopod scrub, cismontane woodland, valley and foothill grassland. Restricted to alkaline substrates. 3 to 750 meters in elevation.	Low. Scrub habitat on the site is degraded by historic haying operations making potential for occurrence low. Presence requires a seedbank that persisted through haying operations and/or recruitment from an adjacent population. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	April–May

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat Description	Potential for Impacts	Period of Identification
<i>Eryngium racemosum</i> Delta button-celery	—/CE/1B.1	Riparian scrub in vernal mesic clay depressions. 3 to 30 meters in elevation.	None. The project site does not contain riparian scrub. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	June–September
<i>Malacothamnus hallii</i> Hall’s bush-mallow	—/—/1B.2	Chaparral and coastal scrub habitats. 10 to 760 meters in elevation.	None. The project site does not contain chaparral or coastal scrub habitats. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	May–September
<i>Navarretia leucocephala</i> var. <i>bakeri</i> Baker’s navarretia	—/—/1B.1	Cismontane woodland, low-elevation conifer forests, meadows and seeps, valley and foothill grasslands, vernal pools. Restricted to vernal mesic sites. 16-5,708 feet in elevation.	None. The project site does not contain cismontane woodland, low-elevation conifer forests, meadows and seeps, valley and foothill grasslands, or vernal pools. No vernal mesic sites were observed within the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	April–July
<i>Navarretia nigelliformis</i> ssp. <i>radians</i> Shining navarretia	—/—/1B.2	Cismontane woodland, valley and foothill grassland, and vernal pools. 76 to 1,000 meters in elevation.	None. The project site does not contain vernal pools. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	May–July
<i>Navarretia prostrata</i> Prostrate navarretia	—/—/1B.1	Mesic sites in coastal scrub, meadows and seeps, and vernal pools. Mesic, alkaline sites in valley and foothill grassland.	None. The project site does not contain coastal scrub, meadows and seeps, valley and foothill grassland, or vernal pools. No vernal mesic sites were observed within the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	April–July
<i>Potamogeton filiformis</i> Slender-leaved pondweed	—/—/2.2	Assorted freshwater marshes and swamps. 300 to 2,150 meters in elevation.	None. The irrigation canal that borders the project site on the west may be suitable for this species, but is located outside of the project footprint. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	May–July

Scientific Name Common name	Listing Status USFWS/ CDFG/CNPS	General Habitat Description	Potential for Impacts	Period of Identification
<i>Sagittaria sanfordii</i> Sanford's arrowhead	—/—/1B.2	Assorted shallow freshwater marshes and swamps. 0 to 2,132 feet in elevation.	None. The irrigation canal that borders the project site on the west may be suitable for this species, but is located outside of the project footprint. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	May–October
<i>Senecio aphanactis</i> Chaparral ragwort	—/—/2.2	Chaparral, cismontane woodland, and coastal scrub habitats. Sometimes in alkaline substrates. 15 to 800 meters in elevation.	None. The project site does not contain chaparral, cismontane woodland, or coastal scrub habitats. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	June–September
<i>Streptanthus insignis</i> ssp. <i>lyonii</i> Arburua Ranch jewel- flower	—/—/1B.2	Coastal scrub habitat; sometimes in serpentinite soils. 230 to 855 meters in elevation.	None. The project site does not contain coastal scrub habitat. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	March–May
<i>Trichocoronis wrightii</i> var. <i>wrightii</i> Wright's trichocoronis	—/—/2.1	Meadows and seeps, marshes and swamps, riparian forest, and vernal pools. Restricted to alkaline substrates. 5 to 435 meters in elevation.	None. The project site does not contain meadows and seeps, marshes and swamps, riparian forest, or vernal pools. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	May–September
*Status Codes:				
Federal FE = Federally Endangered FT = Federally Threatened FD = Federally Delisted		State CE = State Endangered CT = State Threatened SSC = State Species of Special Concern SR = State Rare	CNPS 1A = Presumed extinct in California 1B.X = Rare, threatened, or endangered in California, but more common elsewhere Threat rank: 0.1 = Seriously threatened in California 0.2 = Fairly threatened in California 0.3 = Not very threatened in California	
**Potential for Impacts if Present.				
High = Species was observed, or suitable habitat is present and the species has been recorded recently within or adjacent to the project site. Medium = Species is locally common and suitable habitat is present. Low = Habitat is marginal, or suitable habitat is present but species is rare or locally uncommon. Very Low = Habitat is poor and species is very rare and has not been recorded within 5 miles of the project site. None = Habitat is absent or the project site is not within the range of the species.				

**Summary of Special-Status Wildlife Species Review
Volta Redi-Mix Batch Plant Project, County of Merced**

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Impacts	Period of Identification
Invertebrates				
<i>Branchinecta conservatio</i> Conservancy fairy shrimp	FE/—	Vernal pools, swales, and ephemeral freshwater habitats.	None. No vernal pools, swales, or other ephemeral freshwater habitat were observed within the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	November – May (wet-season sampling, varies with rainfall)
<i>Branchinecta longiantenna</i> Longhorn fairy shrimp	FE/—	Vernal pools, swales, and ephemeral freshwater habitats.	None. No vernal pools, swales, or other ephemeral freshwater habitat were observed within the project site. This species is recorded as occurring approximately 2 miles north of the site (CNDDDB 2009).	November – May (wet-season sampling, varies with rainfall)
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT/—	Vernal pools, swales, and ephemeral freshwater habitats.	None. No vernal pools, swales, or other ephemeral freshwater habitat were observed within the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	November – May (wet-season sampling, varies with rainfall)
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT/—	Elderberry shrubs (<i>Sambucus mexicana</i>).	None. There are no elderberry shrubs within the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	All year (for shrub surveys)
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE/—	Vernal pools, swales, and ephemeral freshwater habitats.	None. No vernal pools, swales, or other ephemeral freshwater habitat were observed within the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	November – May (wet-season sampling, varies with rainfall)

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Impacts	Period of Identification
Fishes				
<i>Hypomesus transpacificus</i> Delta smelt	FT/CT	Sacramento-San Joaquin Delta.	None. The project site does not contain aquatic habitat suitable for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Consult agency
<i>Oncorhynchus mykiss</i> Central Valley steelhead	FT/—	Sacramento and San Joaquin Rivers and their tributaries.	None. The project site does not contain aquatic habitat suitable for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Consult agency
Amphibians				
<i>Ambystoma californiense</i> California tiger salamander	FT/—	Annual grassland habitat and grassy understory of valley-foothill hardwood habitats. Uncommon along streamcourses in valley-foothill riparian habitats. Adults spend most of the year in subterranean refugia, especially burrows of California ground squirrels. Migrate to vernal pools and other temporary rainwater ponds to breed and lay eggs.	None. The project site does not contain annual grassland or valley-foothill hardwood habitats. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	March–May (aquatic larval sampling)
<i>Rana draytonii</i> California red-legged frog	FT/CSC	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent vegetation.	None. The project site does not contain suitable aquatic habitat for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	January– February (breeding season survey)
<i>Rana boylei</i> Foothill yellow-legged frog	—/CSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	None. The project site does not contain suitable aquatic habitat for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	January– February (breeding season survey)
<i>Spea hammondi</i> Western spadefoot toad	—/CSC	Grasslands with temporary pools.	None. The project site does not contain grasslands with temporary pools. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	December – February (breeding season survey)

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Impacts	Period of Identification
Reptiles				
<i>Actinemys marmorata</i> Western pond turtle	—/CSC	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires basking sites and suitable upland habitat for egg-laying. My move overland up to 325 feet for egg laying.	None. The irrigation canal that borders the project site on the west is not suitable for this species; no open water is present. This species has been recorded in several areas of the San Luis Wasteway just west of the site (CNDDDB 2009).	Year-round (for adults in aquatic environs)
<i>Gambelia sila</i> Blunt-nosed leopard lizard	FE/CE	Currently occurs at scattered sites in the San Joaquin Valley and adjacent foothills. Found at elevations of 30 to 730 m on alkali flats, large washes, arroyos, canyons, and low foothills. On the San Joaquin Valley floor, associated with annual grassland, perennial grassland, alkali playas, and valley sink scrub habitats.	None. Native scrub habitat within the project site was converted prior to 1989 for hay production. Habitat within the project site is highly degraded and surrounding areas are agricultural. Therefore, the project site is not considered suitable for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	March–July
<i>Masticophis flagellum ruddocki</i> San Joaquin whipsnake	—/CSC	The San Joaquin whipsnake occurs from the Delta region southward in the San Joaquin Valley, and the Coast Ranges to Kern and Santa Barbara counties. Known from a variety of habitats, including grassland, savanna, chaparral, and woodland.	None. The project site is highly disturbed and surrounded by agricultural fields. The site is not considered suitable for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	March–October
<i>Thamnophis gigas</i> Giant garter snake	FT/CT	Marshes, sloughs, irrigation channels, and occasionally in slow-moving streams. Requires emergent vegetation for cover.	None. The irrigation canal that borders the project site on the west may be suitable for this species; however, the project would not impact this feature. This species has been recorded widely throughout the project vicinity (CNDDDB 2009).	Mid-March– October
Birds				
<i>Accipiter striatus</i> Sharp-shinned hawk	—/CSC	Winter resident throughout much of the state; permanent at higher elevations. Breeds in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers but is not restricted to riparian habitats.	None. The project site does not contain suitable breeding habitat for this species, although it may use the property for foraging. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Year-round

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Impacts	Period of Identification
<i>Agelaius tricolor</i> Tricolored blackbird	—/CSC	Largely endemic to California, most numerous in the Central Valley and nearby vicinity. Breeds near fresh water, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow, blackberry, wild rose, tall herbs. Feeds in grassland and cropland habitats.	None. The irrigation canal that borders the project site on the west does not provide emergent nesting habitat for this species. There is a CNDDDB-recorded occurrence of this species approximately 5 miles north of the project (CNDDDB 2009).	April – July
<i>Aquila chrysaetos</i> Golden eagle	—/CSC,CFP	Breeds on cliffs or in large trees or electrical towers, forages in open habitats.	None. The project site does not contain any trees required for breeding. However the project site is suitable for foraging by this species. The nearest suitable nest trees are approximately 1,000 feet to the east. There is a CNDDDB-recorded occurrence of this species approximately 3 miles south of the project (CNDDDB 2009).	Year-round
<i>Athene cucularia</i> Western burrowing owl	—/CSC	Open, dry annual or perennial grasslands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals.	Low. Habitat within the project site is suitable; however, no suitable burrows were observed during the field assessment. There is a CNDDDB-recorded occurrence of this species approximately 4 miles southwest of the project (CNDDDB 2009).	Dec. 1– Jan. 31 and April 15–July 15
<i>Buteo swainsoni</i> Swainson’s hawk	—/CT	Uncommon breeding resident and migrant in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert. Breeds in open stands in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grasslands, grain or alfalfa fields, or livestock pastures.	Moderate. The project site does not contain any trees required for breeding. However the project site is suitable for foraging by this species. There are several CNDDDB-recorded occurrences of this species within 5 miles of the project, the nearest of which is adjacent to the site on the west (CNDDDB 2009).	Year-round
<i>Buteo regalis</i> Ferruginous hawk	—/CSC	Forages in grasslands and occasionally in other open habitats during migration and winter.	None. The project site contains suitable foraging habitat for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	September– April

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Impacts	Period of Identification
<i>Charadrius alexandrinus nivosus</i> Western snowy plover	FT/CSC	Nests locally along sandy marine shores, estuarine shores, and salt ponds. Inland nesting occur at the Salton Sea , Mono Lake , and at isolated sites on the shores of alkali lakes in northeastern California, in the Central Valley, and southeastern deserts. Foraging habitat includes the shores of lakes, reservoirs, ponds, braided river channels, and playas.	None. The project site does not contain suitable breeding or foraging habitat for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Year-round
<i>Charadrius montanus</i> Mountain plover	—/CSC	Winter resident. Found on short grasslands and plowed fields of the Central and Imperial valleys, in foothill valleys west of San Joaquin Valley, and in plowed fields of Los Angeles and western San Bernardino counties. Uses open grasslands, plowed fields with little vegetation, and open sagebrush areas.	None. The project site contains suitable foraging habitat for this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	September– March
<i>Circus cyaneus</i> Northern harrier	—/CSC	Winter resident throughout most of the state; year-round in the Central Valley and Coast Range. Forages in marshes, grasslands, and ruderal habitats; nests in extensive marshes and wet fields or grasslands.	None. The project site contains suitable foraging habitat for this species. There is a CNDDDB-recorded occurrence of this species approximately 0.5 mile north of the project (CNDDDB 2009).	April–September (breeding)
<i>Cortunicops noveboracensis</i> Yellow rail	—/CSC	Very local breeder in the northeastern interior, and a winter visitor on the coast and in the Suisun Marsh region.	None. The project site is outside the current range of this species. There is a CNDDDB-recorded occurrence of this species approximately 4 miles southeast of the project (CNDDDB 2009).	Year-round
<i>Elanus leucurus</i> White-tailed kite	—/CFP	Year-round resident. Nests or roosts in dense, broad-leafed deciduous trees. Forages in herbaceous lowlands with variable tree growth and dense populations of voles.	None. The project site does not contain any trees required for breeding. However, the project site is suitable for foraging by this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	January–August (breeding)

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Impacts	Period of Identification
<i>Eremophila alpestris actia</i> California horned lark	—/CSC	A resident species. Nests in level or gently sloping shortgrass prairie, montane meadows, “bald” hills, opens coastal plains, fallow grain fields, and alkali flats. Grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities provide cover.	Low. There is suitable nesting and foraging habitat for this species throughout the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Year-round
<i>Falco columbarius</i> Merlin	—/CSC	Uncommon winter migrant. Seldom found in heavily wooded areas or open deserts. Frequents open habitats at low elevations near water and tree stands. Favors coastlines, lakeshores, and wetlands. Ranges from annual grasslands to ponderosa pine and montane hardwood-conifer habitats.	None. The project site is suitable for foraging by this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	September–May
<i>Falco mexicanus</i> Prairie falcon	—/CSC	Year-round resident throughout much of the state; winters in the Central Valley and along the coast. Occurs in open habitats such as grasslands, desert scrub, rangelands and croplands. Nests in a scrape on a sheltered ledge of a cliff overlooking a large, open area.	None. The project site does not contain suitable nesting habitat; however, suitable foraging habitat is present. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Year-round
<i>Lanius ludovicianus</i> Loggerhead shrike	—/CSC	Found in a variety of habitats with open areas, available perches, and dense shrubs for nesting.	None. The project site does not contain suitable nesting habitat; however, suitable foraging habitat is present. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	March–August
<i>Larus californicus</i> California gull	—/CSC	Nests in alkali and freshwater lacustrine habitats east of the Sierra Nevada and Cascades. Winter visitor to coastal and interior lowlands. Feeds on garbage, carrion, earthworms, adult insects, and larvae. Adults roost in large concentrations along shorelines, landfills, pastures, and on islands.	None. The project site is suitable for foraging by this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Year-round
<i>Numenius americanus</i> Long-billed curlew	—/CSC	Breeds in upland shortgrass prairies and wet meadows in northeastern California; coastal estuaries, open grasslands, and croplands are used in winter	None. The project site is suitable for foraging by this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	April–September

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Impacts	Period of Identification
Mammals				
<i>Antrozous pallidus</i> Pallid bat	—/CSC	Broadly distributed in California from sea level to over 6,000 feet. Roosts in caves, buildings, rock crevices, and tree hollows. Overwinters in summer habitats at lower elevations.	None. The project site is suitable for foraging by this species. There are no known roost sites within the vicinity of the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	April–October
<i>Corynorhinus townsendii</i> Townsend’s big-eared bat	—/CSC	Roosts in colonies in caves, mines, tunnels, or buildings in mesic habitats. The species forages along habitat edges, gleaning insects from bushes and trees. Habitat must include appropriate roosting or hibernacula sites free from disturbance by humans.	None. The project site is suitable for foraging by this species. There are no known roost sites within the vicinity of the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Consult agency
<i>Dipodomys ingens</i> Giant kangaroo rat	FE/CE	Permanent resident occurring in scattered colonies along the western side of the San Joaquin Valley. Level terrain and sandy loam soils are required for excavating burrows and nests.	None. The species is extremely rare and is represented by only a few populations. The project site is outside of the current distribution of this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Year-round
<i>Dipodomys nitratooides exilis</i> Fresno kangaroo rat	FE/CE	In grassland and chenopod scrub communities on the San Joaquin Valley floor. Now believed only to occur in the Alkali Sink Ecological Reserve east of Fresno.	None. This species is extirpated from Merced County. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Year-round
<i>Eumops perotis californicus</i> Greater western mastiff bat	—/CSC	Roosts in rock crevices of vertical cliffs and less commonly in buildings. Does not migrate or hibernate.	None. The project site is suitable for foraging by this species. There are no known roost sites within the vicinity of the project site. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Year-round
<i>Reithrodontomys raviventris</i> Salt-marsh harvest mouse	FE/CE	Found only in saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed saline emergent wetland is preferred habitat, although grasslands adjacent to pickleweed marsh are used in spring and summer when new grass provides suitable cover.	None. The project site does not contain any saline emergent wetlands and is outside the current range of this species. There are no CNDDDB-recorded occurrences of this species within 5 miles of the project (CNDDDB 2009).	Year-round

Scientific Name Common name	Listing Status USFWS/ CDFG	General Habitat Description	Potential for Impacts	Period of Identification
<i>Taxidea taxus</i> American badger	—/CSC	Herbaceous, shrub, and open stages of most habitats with dry, friable soils.	Very Low. The project site contains suitable habitat for this species. There is a CNDDDB-recorded occurrence of this species 3 miles southeast of the project (CNDDDB 2009).	Year-round
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE/CT	Occur in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub with loose-textured, sandy and loamy soils.	Low. The project site is suitable for foraging by this species. No suitable burrows were observed during the field assessment. There are 3 CNDDDB-recorded occurrences of this species southwest of the project (CNDDDB 2009).	Year-round
*Status Codes:				
Federal FE = Federally Endangered FT = Federally Threatened FD = Federally Delisted		State CE = State Endangered CT = State Threatened SSC = State Species of Special Concern		
**Potential for Impacts if Present				
High = Species was observed, or suitable habitat is present and the species has been recorded recently within or adjacent to the project site. Medium = Species is locally common and suitable habitat is present. Low = Habitat is marginal, or suitable habitat is present but species is rare or locally uncommon. Very Low = Habitat is poor and species is very rare and has not been recorded within 5 miles of the project site. None = Habitat is absent or the project site is not within the range of the species.				

D.5 - Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox

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

Prepared by the Sacramento Fish and Wildlife Office
January 2011

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) and does not preclude the need for section 7 consultation or a section 10 incidental take permit for the proposed project.** 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. 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). These 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.

IS A PERMIT NECESSARY?

Certain acts need a permit from the Service which includes destruction of any known (occupied or unoccupied) or natal/pupping kit fox dens. Determination of the presence or absence of kit foxes and /or their dens should be made during the environmental review process.

All surveys and monitoring described in this document must be conducted by a qualified biologist and these activities do not require a permit. 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, the 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. Resumes of biologists should be submitted to the Service for review and approval prior to any survey or monitoring work occurring.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints, of approximately one acre or less, such as an individual in-fill oil well, communication tower, or bridge repairs. 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 utilize this information as guidance to situate the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then surveys should be conducted and the Service should be contacted for technical assistance to determine the extent of possible take.

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. Kit foxes change dens four or five times during the summer months, and change natal dens one or two times per month (Morrell 1972). Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, 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 and under no circumstances should the den be disturbed or destroyed without prior authorization. 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 the take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping den which may not be destroyed while occupied. A take authorization/permit is required to destroy these dens even after they are vacated. 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

In order to avoid impacts, construction activities must avoid their dens. The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances due to the length of dens underground. The following distances are **minimums**, and if they cannot be followed the Service must be contacted. Adult and pup kit foxes are known to sometimes rest and play near the den entrance in the afternoon, but most above-ground activities begin near sunset and continue sporadically throughout the night. Den definitions are attached as Exhibit A.

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

***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. Acceptable fencing includes untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the Service as long as it has openings for kit fox ingress/egress and keeps humans and equipment out. 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.

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 or greatly restricted within the exclusion zones.

DESTRUCTION OF DENS

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.

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 judgment of the biologist, the animal has escaped, without further disturbance, from the partially destroyed den.

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.

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 all construction activities shall cease and the Service shall be notified immediately.

CONSTRUCTION AND ON-GOING OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of ongoing project-related disturbance activities should be minimized by adhering to the following activities. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting achievement of project goals. 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 daytime speed limit of 20-mph throughout the site 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. Night-time construction should be minimized to the extent possible. However if it does occur, then the speed limit should be reduced to 10-mph. 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. If the trenches cannot be closed, one or more escape ramps constructed of earthen-fill or wooden planks shall be installed. 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 Service and the California Department of Fish and Game (CDFG) shall be contacted as noted under measure 13 referenced below.
3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipes and become 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 only 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 securely 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. No pets, such as dogs or cats, should be permitted on the project site to prevent harassment, mortality of kit foxes, or destruction of dens.
 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 a 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 kit fox. The representative will be identified during the employee education program and their name and telephone number shall be provided to the Service.
 9. An employee education program should be conducted for any project that has anticipated 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/or 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 previously referenced 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 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 guidance.
12. Any contractor, employee, or military or agency personnel who are responsible for inadvertently killing or injuring 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 Mr. Paul Hoffman, the wildlife biologist, at (530)934-9309. The Service should be contacted at the numbers below.
13. The Sacramento Fish and Wildlife Office and CDFG shall 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 below. The CDFG contact is Mr. Paul Hoffman at 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, (530) 934-9309.
14. New sightings of kit fox shall be reported to the California Natural Diversity Database (CNDDDB). A copy of the reporting form and a topographic map clearly marked with the location of where the kit fox was observed should also be provided to the Service at the address below.

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 or (916) 414-6600

EXHIBIT "A" - DEFINITIONS

"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/pupping 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 pupping 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.