B.F. Sisk Dam Corrective Action Project

San Joaquin Kit Fox Early Evaluation Report

B.F. Sisk Dam
Central Valley Project, California

March 2010

U.S. Department of the Interior
Bureau of Reclamation

State of California
Department of Water Resources

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To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.

B.F. Sisk Dam Corrective Action Project

San Joaquin Kit Fox Evaluation Report

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Central Valley Project, California

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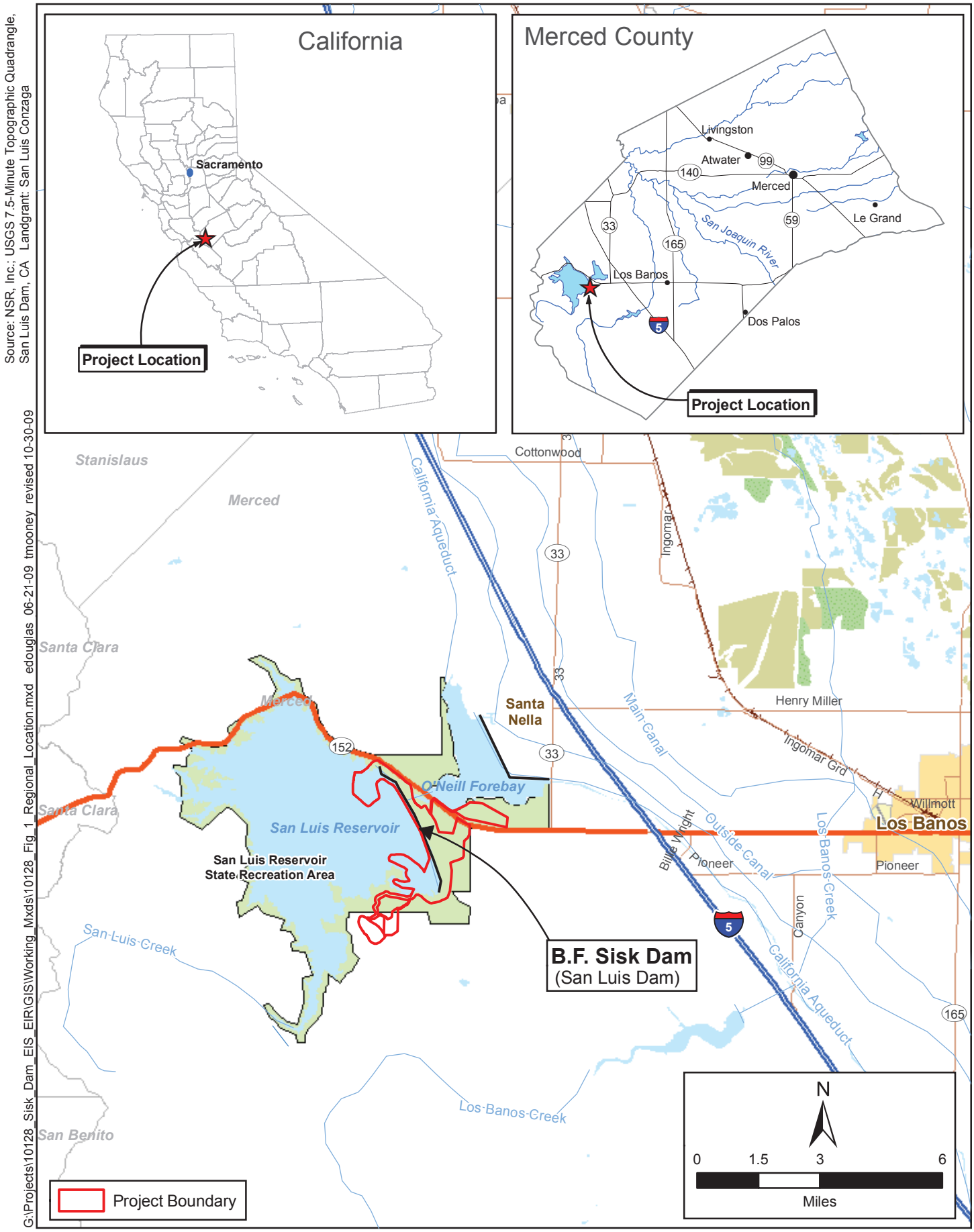
Chapter 1
Introduction

This report presents the findings of an Early Evaluation for San Joaquin kit fox (*Vulpes macrotis mutica*) conducted for the B.F. Sisk Dam Corrective Action Project (project). This report is intended to provide background information to the U.S. Fish and Wildlife Service (Service) to facilitate its evaluation of the project's potential impacts on the San Joaquin kit fox. This Early Evaluation was developed in accordance with the guidelines provided in *U.S. Fish and Wildlife Service San Joaquin Kit Fox Survey Protocol for the Northern Range* (U.S. Fish and Wildlife Service 1999).

The project site (Figure 1) is located on the west side of California's Central Valley, near the community of Santa Nella, approximately 12 miles west of Los Banos. It is located in the *San Luis Dam, California* 7.5-minute U.S. Geological Survey quadrangle.



Source: NSR, Inc.; USGS 7.5-Minute Topographic Quadrangle, San Luis Dam, CA Landgrant: San Luis Conzaga

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Figure 1
Project Location

Chapter 2
Project Description

Sisk Dam is part of the San Luis Joint-Use Complex, which was designed and constructed by the federal government and is operated and maintained by the California Department of Water Resources (DWR). The complex was constructed to provide supplemental irrigation water storage for the federal Central Valley Project (CVP) and storage of municipal and industrial water for the California State Water Project (SWP).

The dam impounds San Luis Reservoir, which, with a total water storage capacity of more than 2 million acre-feet, is one of the largest off-channel storage facilities in the country and a key component of the water supply system in California. Water is lifted into the reservoir for storage by the Gianelli Pumping–Generating Plant from the California Aqueduct and is diverted from the Delta-Mendota Canal via O'Neill Forebay.

The dam and reservoir are located in an area of high potential for severe earthquake loading from active faults. A recent series of studies and analyses, including a probabilistic seismic analysis completed in 2006, determined that corrective actions were justified at Sisk Dam to reduce risk to the downstream public. The Bureau of Reclamation (Reclamation) and DWR seek to mitigate potential safety concerns identified in previous and ongoing studies by modifying water retention structures at Sisk Dam in order to reduce the seismic, static, and hydrologic risk.

The project will involve two main components: stability berms (buttresses) and a dam raise. Project construction will require a large amount (on the order of between 2 million and 20 million cubic yards) of earth material, all of which would be obtained from a number of borrow sites within the project boundary (Figure 2).

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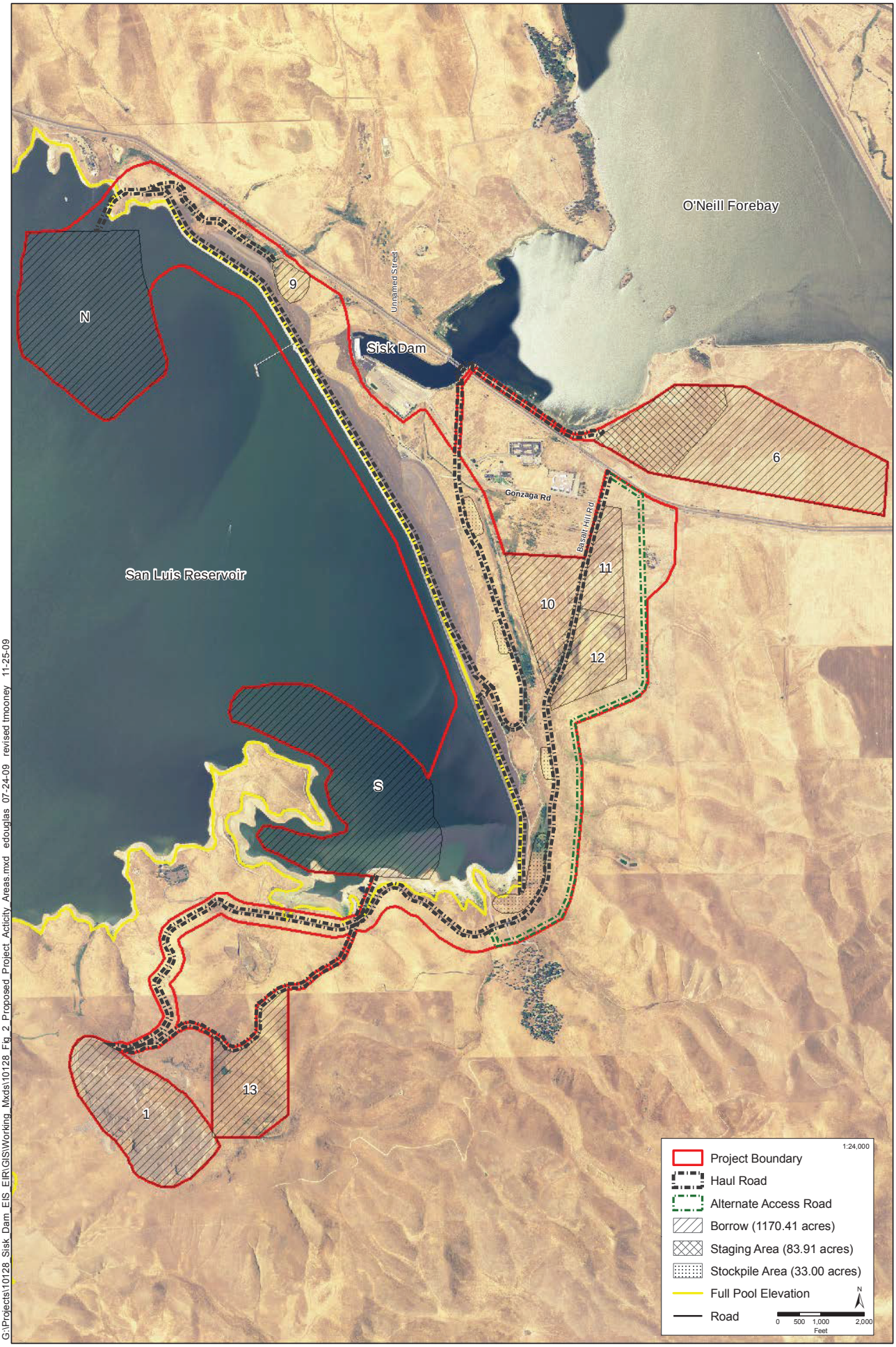

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Figure 2
Proposed Project Activity Areas

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Chapter 3
San Joaquin Kit Fox Sighting Records in the Project Region

The presence of kit foxes in western Merced County is well documented (e.g., Archon 1992; U.S. Fish and Wildlife Service 1998; California Department of Fish and Game 2009). However, the actual population status of kit foxes in the region is less well understood. The results of a study focused on the conservation of kit foxes in western Merced County (Constable et al. 2009) indicate that kit foxes are not homogeneously distributed throughout western Merced County; rather, there appears to be a pronounced ecological continuum, with kit foxes being consistently present in the south and intermittently present in the north. The authors concluded that the consistent detections in the south suggest that a resident population may be present whereas the infrequent detections in the north suggest that foxes in this area may be transients. The boundary between these two situations appears to coincide roughly with State Route 152. The results of this study are consistent with findings from previous studies and survey efforts (Archon 1992; Smith et al. 2006).

As shown in Figure 3, the California Natural Diversity Database (CNDDB) contains numerous records of kit fox within 10 miles of the project site. These occurrences primarily occur to the east of the project site, with a few occurrences to the northeast (California Department of Fish and Game 2009). One occurrence is located within the project boundary. This occurrence (CNDDB Occurrence #875) was documented in 1975. All CNDDB documented occurrences in the project region are listed in Table 1.

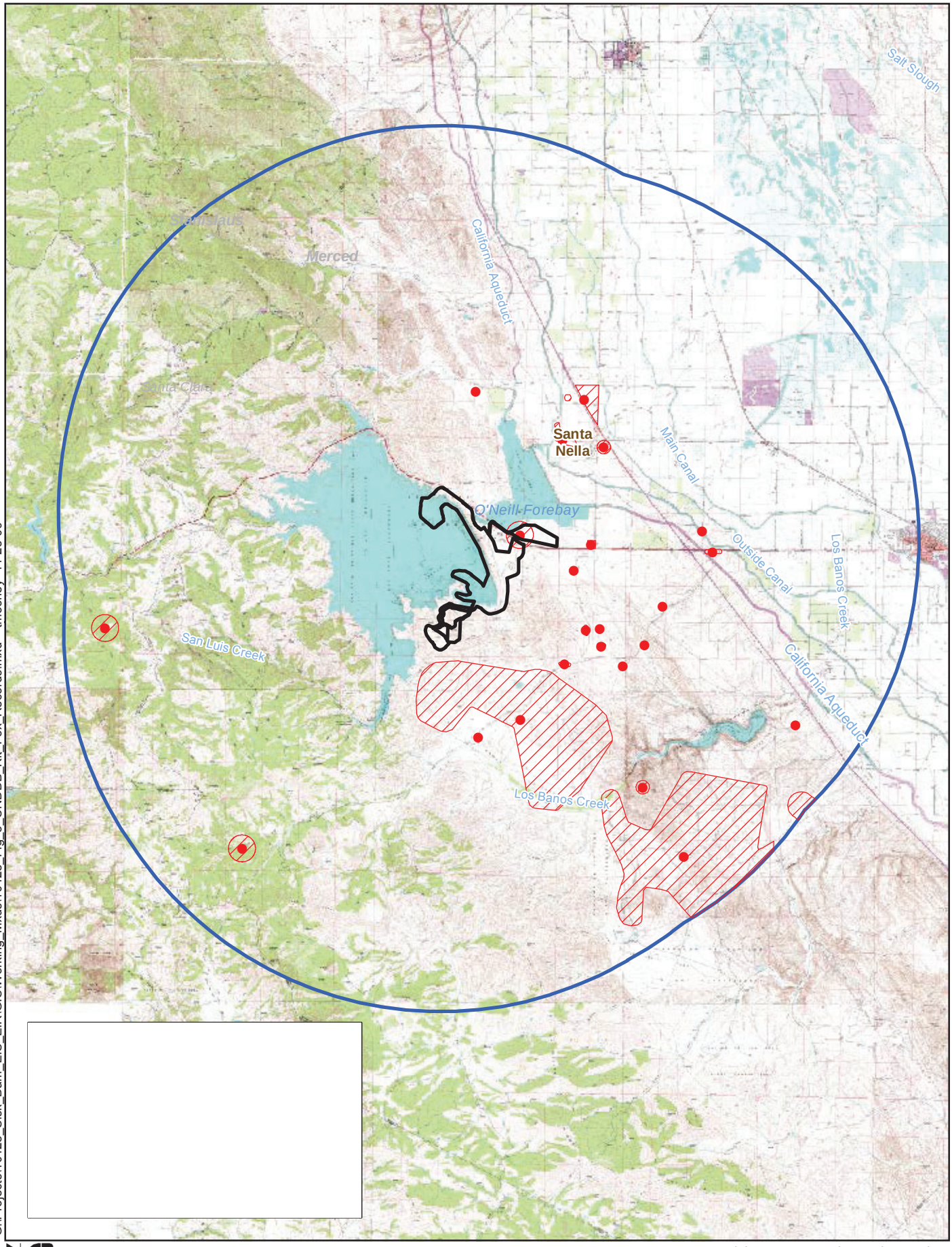
Table 1. Documented CNDDB San Joaquin Kit Fox Occurrences in the Project Region

CNDDB Occurrence Number	Distance from Project Site (miles)	Direction from Project Site	Year Observed
27	3.36	east	2001
46	3.65	east	2001
120	0.81	east	1994
121	2.80	north	1994
122	3.74	north	1994
123	2.33	east	1994
124	3.64	east	1994
125	2.87	south	2005
126	2.87	east	1994

CNDDB Occurrence Number	Distance from Project Site (miles)	Direction from Project Site	Year Observed
127	2.26	east	2005
129	2.56	east	1994
145	8.45	southeast	2003
183	4.30	east	1997
184	4.00	east	1998
211	2.63	south	2005
550	0.94	east	1989
551	2.82	northeast	1989
587	8.25	southeast	198?
603	2.47	north	1986
609	6.24	southeast	1987
874	7.71	southwest	1971
875	within project boundary	n/a	1975
1028	8.85	west	1975

Constable et al. (2009) assessed kit fox presence and abundance in the project region using digital camera stations, track stations, spotlight surveys, and opportunistic observations (see Figures 4 and 5 for the locations of these camera stations, track stations, and spotlight surveys).

Camera stations were established at 61 sites, and 9,286 camera-nights were logged between April 2005 and August 2007. No kit fox observations were recorded on lands near the proposed project. Track stations were established at 76 locations and maintained for 1,041 nights. Kit foxes were detected at track stations in all areas, including three in the areas south of State Route 152. Twelve spotlight surveys were conducted between July 5, 2005, and March 3, 2007. Kit foxes were observed on five occasions within 10 miles of the proposed project site (see Figure 6).



Source: NSR, Inc.; USGS 7.5-Minute Topographic Quadrangle, San Luis Dam, CA Landgrant: San Luis Conzaga

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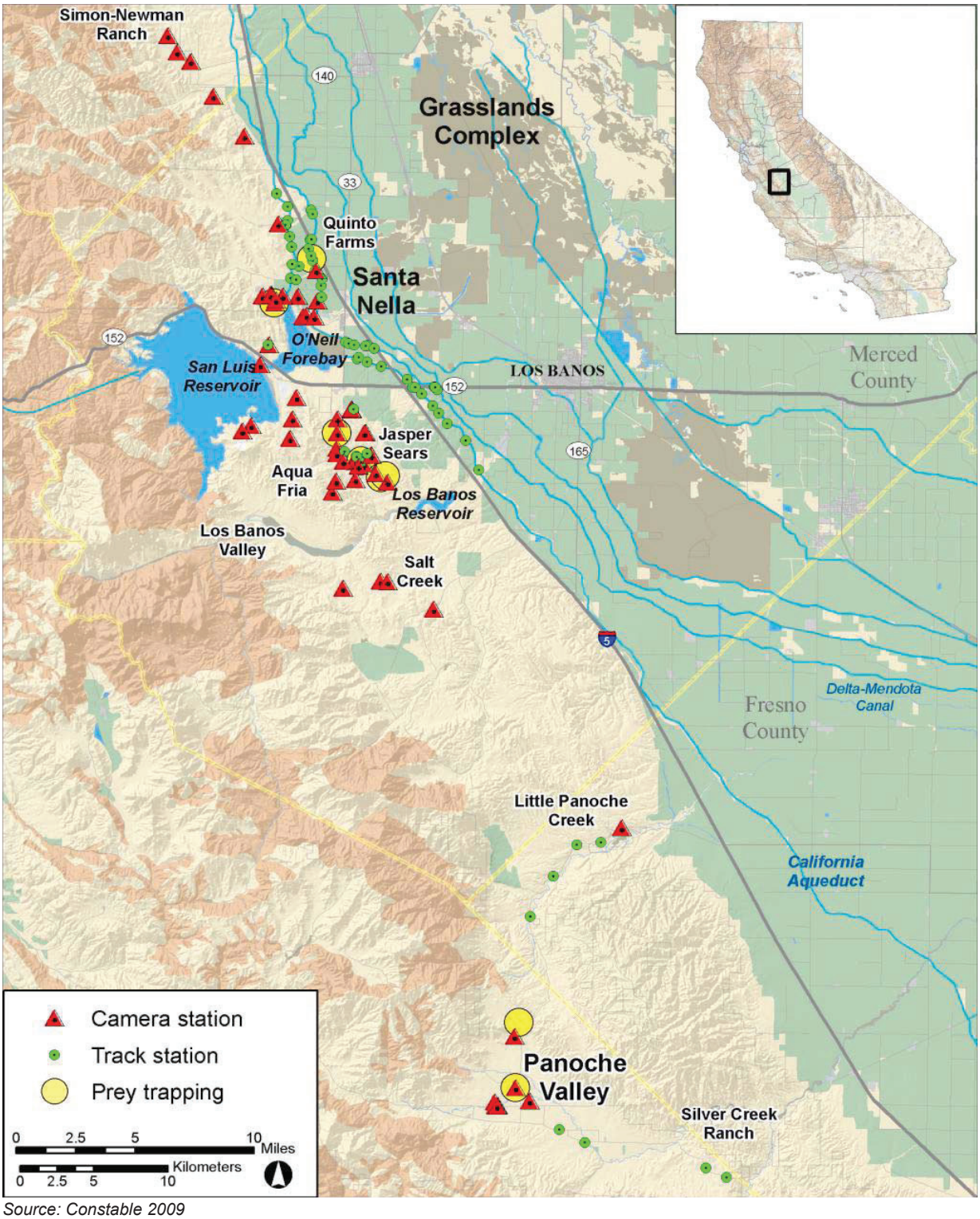
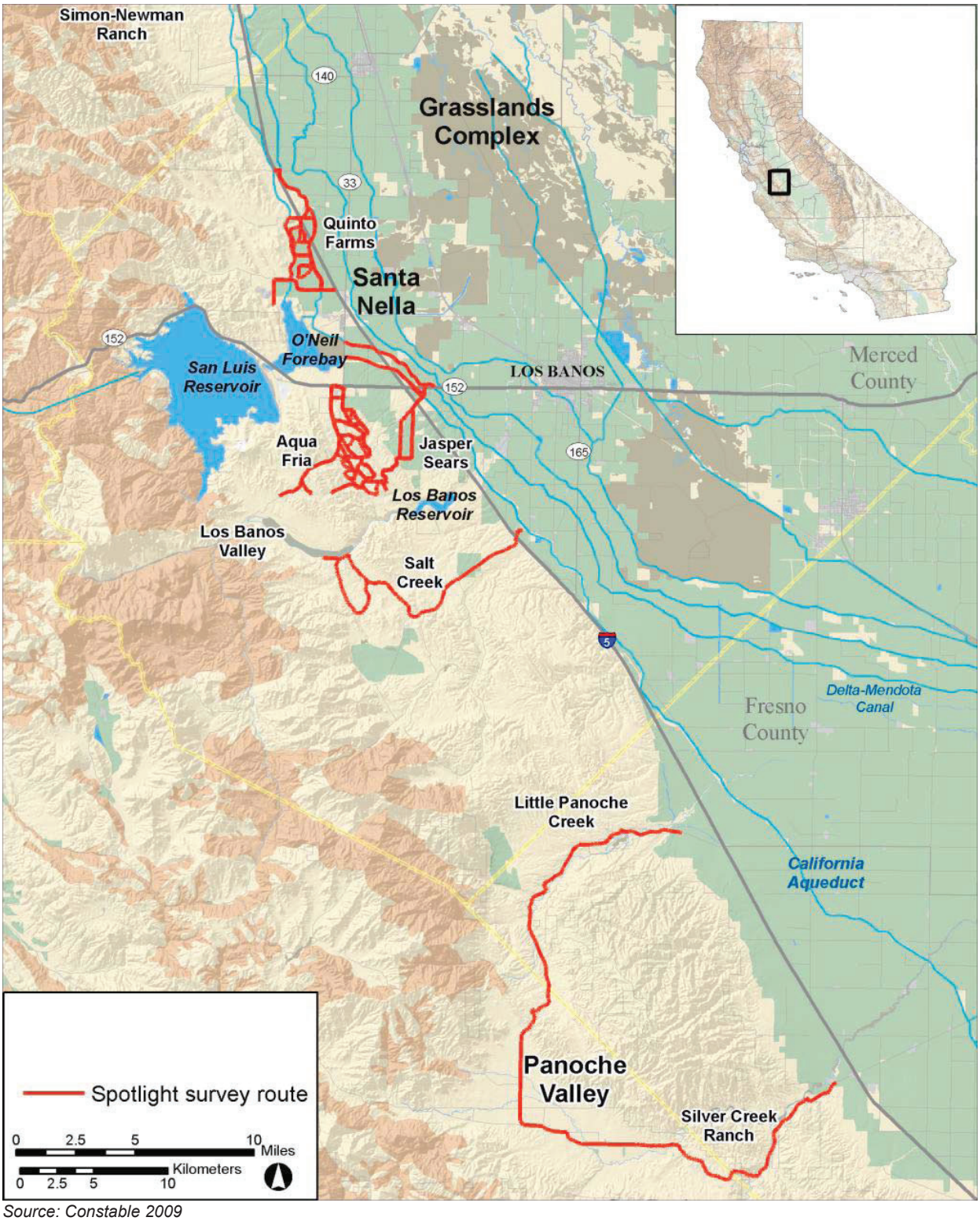
Figure 3
CNDDB Kit Fox Records



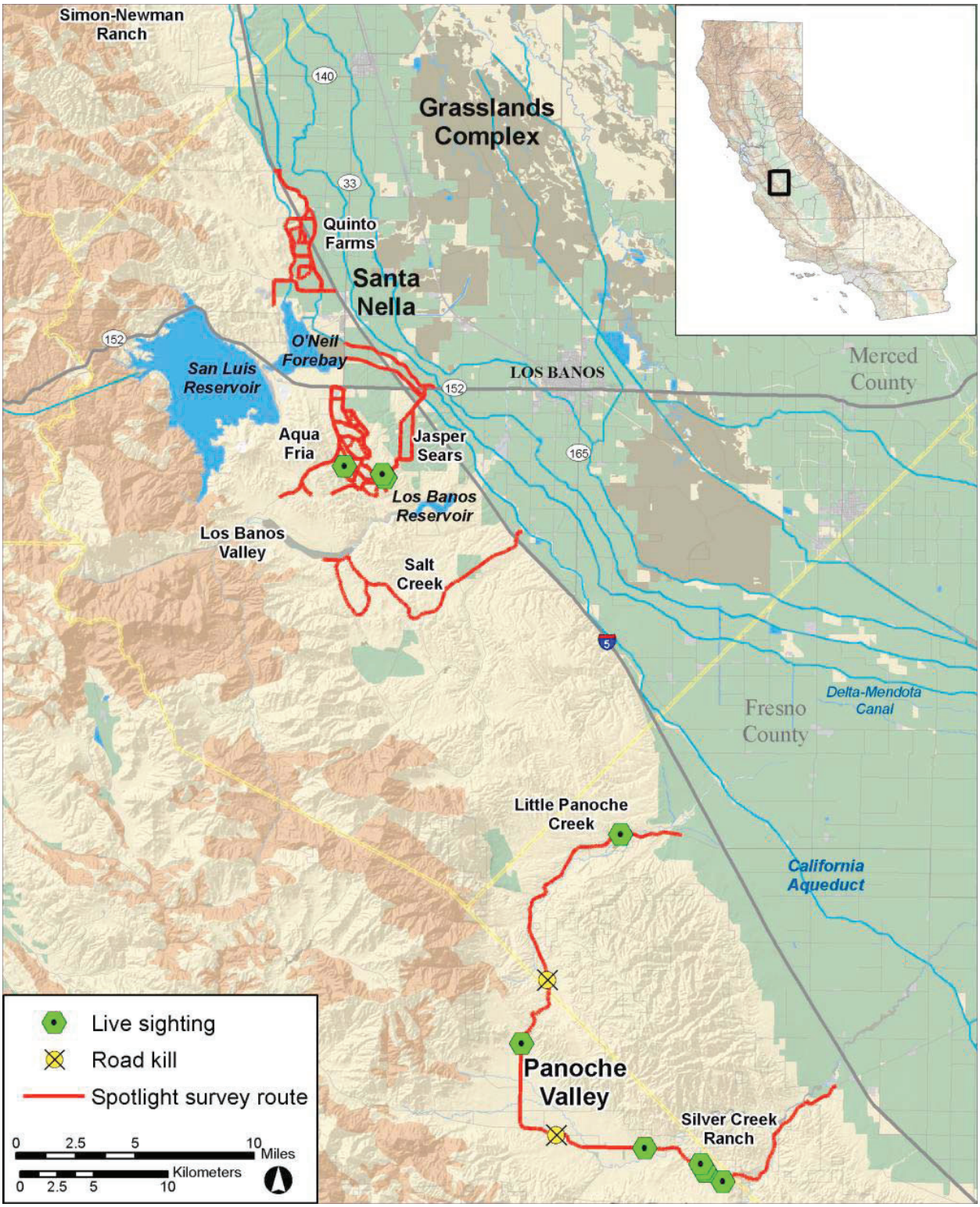
Source: Constable 2009

Figure 4 Locations of Previous Camera Stations, Track Stations, and Prey Trapping in the Santa Nella Area, California



Source: Constable 2009

Figure 5 Routes for Previous Spotlighting Surveys in the Santa Nella Area, California



Source: Constable 2009

Figure 6 Locations of Kit Foxes Observed During Previous Surveys in the Santa Nella Area, April 2005–August 2007

Chapter 4
Biological Characteristics of the Project Site

The topography of the site varies from relatively flat or gently rolling in the northeast section of the study area to steep and mountainous in the southwest. Elevation ranges between 230 feet above mean sea level (msl) near O'Neal Forebay to almost 1,600 feet above msl in the quarry near Basalt Hill. Fossorial mammals, including the American badger (*Taxidea taxus*) and California ground squirrel (*Spermophilus beecheyi*), were observed within the project boundary and burrows are present throughout the project site.

Many areas of the project site are open and undeveloped. However, there are several developed areas in and adjacent to the project boundaries to support water and recreation operations. The operations and maintenance facilities for DWR and the Four Rivers Sector of the Central Valley District of the California Department of Parks and Recreation are at Gonzaga Road, off State Route (SR) 152 at the base of Sisk Dam. This area is developed with the Gianelli Pumping-Generating Plant (operated by DWR) administrative offices, maintenance garages, and work areas. Other developed areas include the Basalt Use Area to the south of the Gonzaga Road entrance, which contains camp sites, a picnic area, boat ramp, and parking. Nearby is the boat launching area for San Luis Reservoir. A quarry, used for gravel extraction during the construction of the dam, is located at the southeast corner of San Luis Reservoir. The quarry is used by DWR for any facilities repairs on DWR's systems (e.g., dam and canal). The California Department of Forestry and Fire Protection operates a fire protection station east of the State Recreation Area Administrative Offices, south of Gonzaga Road.

Habitats within the project boundary were characterized based on descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer Jr. 1988). Annual grassland is the most dominant habitat type within the project site; however, there is a wide diversity between stands in this broad category. In addition to annual grassland, the following six habitat types were mapped within the site: alkali desert scrub, barren, coastal scrub, fresh emergent wetland, mixed chaparral, and valley foothill riparian. The characteristics of these habitats are discussed below and their locations are depicted in Figure 7.

4.1 Annual Grassland

Annual grassland habitat is the dominant terrestrial habitat occurring within the project boundary and is dominated by non-native annual grasses and forbs. This habitat occurs on all the soil map units and the land types present on the

site, with minor differences in species composition based on location. The dominant non-native grasses include wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). The dominant non-native forbs include black mustard (*Brassica nigra*) and broad-leaved pepperweed (*Lepidium latifolium*). These dominants are representative of nearly all of the areas mapped as annual grassland, except for areas adjacent to and within the intermittent drainages along the toe of Sisk Dam, including much of Borrow Area 10. On the steep hillsides to the south of the reservoir, the native forb hayfield tarweed (*Hemizonia congesta*) is also relatively abundant.

The annual grassland within the intermittent drainages along the toe of Sisk Dam has the greatest diversity of native plants and the greatest concentration of broad-leaved pepperweed. Non-natives present in these more mesic areas include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), curly dock (*Rumex crispus*), horehound (*Marrubium vulgare*), and cocklebur (*Xanthium strumarium*). Native grasses and forbs are a minor component in the annual grassland as a whole, but are most abundant in the more mesic areas. Natives include vinegar weed (*Trichostema lanceolatum*), salt heliotrope (*Heliotropium curassavicum*), purple needle grass (*Nassella pulchra*), and gum plant (*Grindelia camporum*).

4.2 Alkali Desert Scrub

Alkali desert scrub habitat occurs as scattered clusters and moderately dense linear stands along intermittent drainages and portions of the reservoir shorelines. This habitat is distinguished by near monotypic stands of big saltbush (*Atriplex lentiformis*). The largest and densest stand adjacent to the project area occurs along the southern shoreline (bank full) of the San Luis Reservoir. This stand includes hundreds of individuals of big saltbush that are concentrated at the base of a drainage and extend along the reservoir shoreline for approximately a quarter mile. The large stand of big saltbush near the toe of Sisk Dam is associated with adjacent stands of coyote bush and a lone honey mesquite (*Prosopis glandulosa* ssp. *torreyana*). Grasslands adjacent to alkali desert scrub stands have higher concentrations of salt heliotrope than the grasslands at large within the project site. Big saltbush, salt heliotrope, and honey mesquite are associated with the halophytic phase of the alkali scrub plant assemblage.

4.3 Barren

Barren habitat is comprised of the disturbed areas that have less than 2 percent total vegetative cover. Borrow Area 1 constitutes the largest barren habitat within the project site. A smaller barren area occurs where a hilltop has been removed and partially paved within Borrow Area 12.

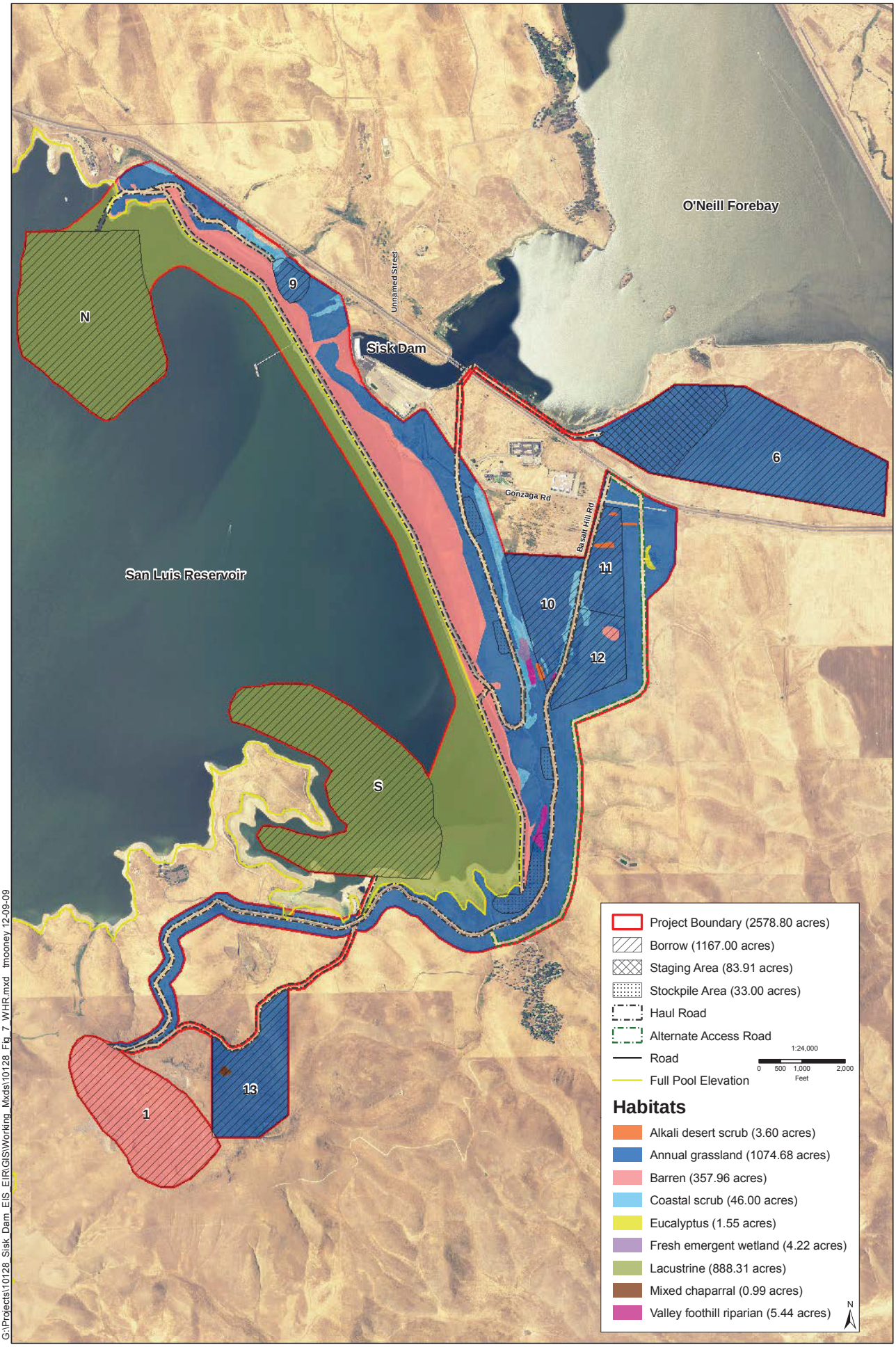


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Figure 7
Habitats

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4.4 Coastal Scrub

Coastal scrub habitat is distinguished by dense stands of coyote bush (*Baccharis pilularis*). Big saltbush is a minor component of the coastal scrub habitat and occurs at the upper and drier edges of the coastal scrub habitat.

4.5 Valley Foothill Riparian

The valley foothill riparian habitat type is dominated by native trees, including Fremont cottonwood (*Populus fremontii* spp. *fremontii*), red willow (*Salix laevigata*), and black willow (*Salix gooddingii*). The dominant shrub in this habitat type is mule fat (*Baccharis salicifolia*), which forms dense stands surrounding the cottonwoods and willows.

4.6 Fresh Emergent Wetland

Fresh emergent wetland habitat occurs as inclusions in and adjacent to the wettest portions of the valley foothill riparian habitat. Fresh emergent wetland habitat is distinguished by dense stands of narrow leaved cattail (*Typha angustifolia*), and includes red willow and dusky willow (*Salix melanopsis*). Dominant non-natives associated with this habitat type are broad-leaved pepperweed and poison hemlock (*Conium maculatum*).

4.7 Mixed Chaparral

Mixed chaparral habitat consists of a single stand of dense shrubs on a steep slope northwest of Borrow Area 1. The dominant shrub in this stand is silver buffaloberry (*Shepherdia argentea*). Subdominant shrubs in this stand are blue elderberry (*Sambucus mexicana*) and wild rose (*Rosa* sp.).

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Chapter 5
Continuity of the Project Site with the Surrounding 10-Mile Area

The project area is surrounded by a variety of land uses. Residential and commercial uses exist in nearby Santa Nella to the northeast of O'Neill Forebay. Lands to the southeast of the project area between San Luis Reservoir and Los Banos Reservoir include large, privately owned ranchlands, agricultural lands, an electrical substation, and scattered nonresidential uses. A national cemetery is located to the northeast of O'Neill Forebay, and immediately west of San Luis Reservoir is Pacheco State Park, owned by the California Department of Parks and Recreation. California Department of Fish and Game properties are located north of the San Luis Reservoir and east and west of O'Neill Forebay. As shown in Figure 8, the area surrounding the project site is characterized by sparse development and large expanses of undeveloped land. Similar to the project site, the surrounding area is characterized by rolling hills with annual grassland vegetation and abundant burrows.

The project site has a high level of continuity with surrounding habitats, given the limited extent of development and the large expanses of surrounding grasslands. Wildlife can currently move throughout the project site and without restriction to surrounding grassland habitats to the south and west. Interstate 5 (I-5), Highway 152, the California Aqueduct, and the Delta-Mendota Canal likely pose some hindrance to wildlife movement to the north and east.

Constable et al. (2009) used modeling to identify and evaluate three potential kit fox movement corridors through the Santa Nella area, two of which cross through a portion of the proposed project site. The study identified a number of significant impediments to kit fox movements in this area and found that all three corridors primarily traversed habitat of low suitability. The study concluded that the identified corridors might be suboptimal at best. Further, the authors stated that the viability and even the presence of kit fox populations north of Santa Nella appears questionable and that the possibility that this region may function as a population sink for kit foxes warrants consideration. The authors also reasoned that if the area is a sink, then corridors might adversely affect source populations by facilitating emigration from those populations.

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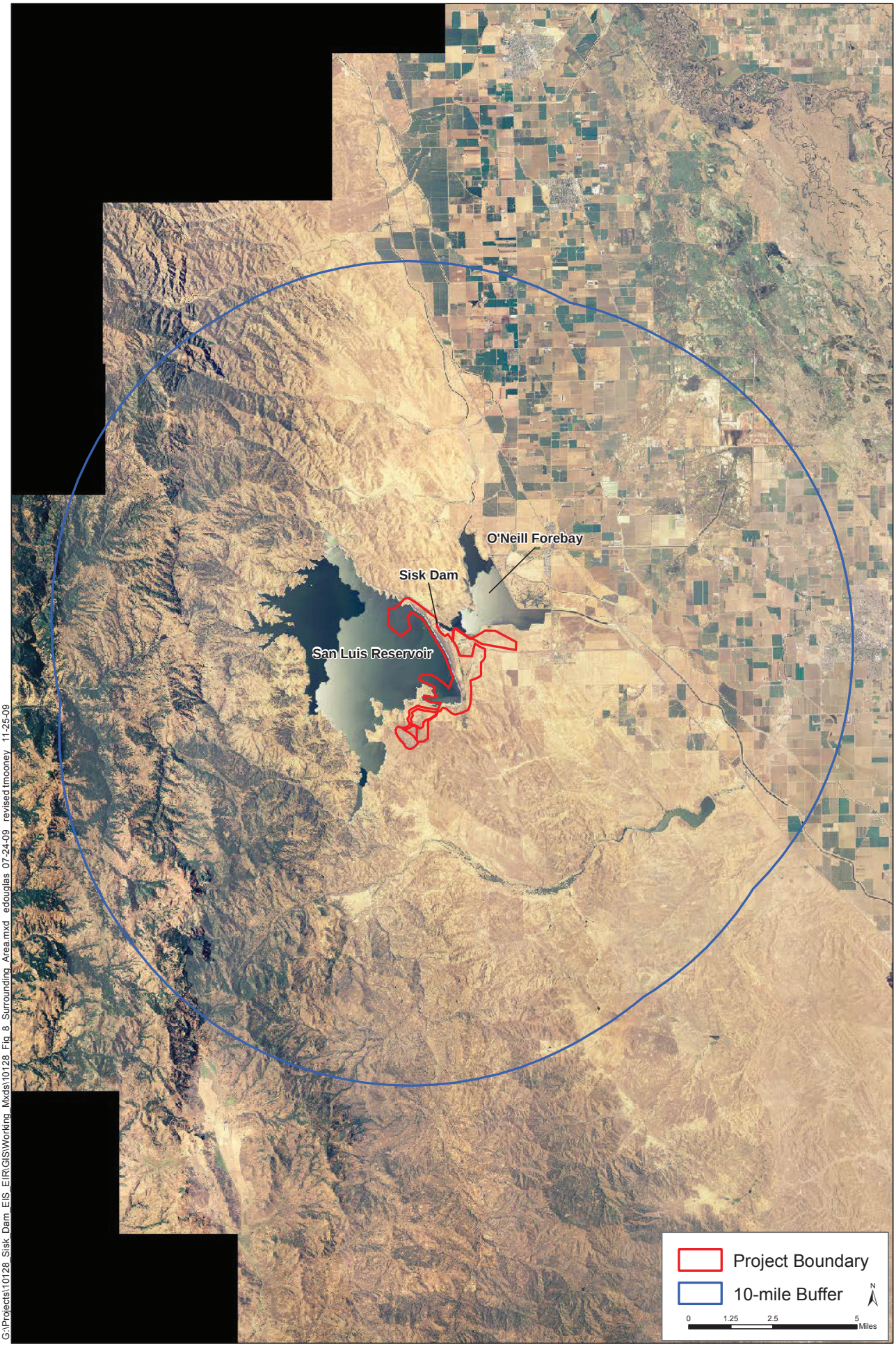

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Figure 8
Surrounding Area

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Chapter 6
Habitat Suitability of the Project Site

6.1 Methodology

Mike Bumgardner, Principal Biologist of Bumgardner Biological Consulting, served as the senior biologist for the San Joaquin kit fox early evaluation survey described herein. Mr. Bumgardner was assisted by North State Resources biologists Brandon Amrhein, Terra Perkins, and Julian Colescott. The primary objective of the survey, conducted in September 2009, was to evaluate the suitability of the project site for the San Joaquin kit fox. Transects were walked to achieve 100 percent visual coverage of the project site (Figure 9), exclusive of areas determined to be unsuitable (see below). Surveyors focused on evaluating denning potential and searching for San Joaquin kit fox sign (e.g., scat, tracks).

Portions of the project site that met any of the following three conditions were eliminated from consideration as potential San Joaquin kit fox: (1) area was within the lake inundation scar; (2) area consisted of steep, rocky slopes; or (3) area was covered by dense shrub or forb habitat typically associated with inundated or saturated soils (see Figure 9).

Representative photographs of project site habitats, a figure depicting photograph location points, and additional details regarding suitability of habitats for the San Joaquin kit fox are presented in Appendix A.

6.2 Results

One San Joaquin kit fox den was observed within the project boundary (Figure 10). Kit fox use of the den was concluded based on the presence of a track positively identified as San Joaquin kit fox by senior biologist Mike Bumgardner. Within the project boundary, 194 potential dens were observed. Potential dens include all subterranean holes that had entrances of appropriate dimensions (i.e., approximately 5–8 inches in diameter) and for which available evidence was insufficient to conclude that it was being used or had been used by a kit fox. Approximately 40 percent of the potential dens identified during the survey appeared to have been created by American badgers.

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Figure 9
Kit Fox Survey Transects

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Figure 10
Potential Den Sites

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Chapter 7
Potential Project-Related Adverse Effects on the San Joaquin Kit Fox

The proposed project would provide for the continued, safe operation of the San Luis Reservoir, but is not expected to result in a permanent increase in the extent of human activity on the project site or in surrounding areas.

A recovery action specified by the Service that is particularly applicable to the project site is to "protect existing kit fox habitat in the northern, northeastern segments of their geographic range and existing connections between habitat in those areas and habitat farther south." The Santa Nella area, including portions of the project site, have been considered crucial to the continued existence of the San Joaquin kit fox because it was believed that the area provides a narrow corridor connecting the northern and southern kit fox populations (Kit Fox Planning and Conservation Team 2002).

Proposed project activities, including grading, mining, stockpiling, etc., could result in the temporary disruption of this travel corridor. However, the significance of the disruption on the health of the kit fox population is difficult to quantify as the importance of travel corridors in this area is unclear (see discussion under Continuity of the Project Site with the Surrounding 10-Mile Area above).

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Chapter 8
Recommended Mitigation

The following measures will be implemented to avoid the loss or harassment of San Joaquin kit fox during project implementation:

- An employee education program shall be conducted to address the potential presence of kit fox and other rare species potentially occurring on the project site.

- Project-related vehicles shall observe a 20-mph speed limit in the project area, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active.

- To the extent practicable, nighttime construction shall be minimized.

- Off-road traffic outside of designated project areas shall be prohibited.

- To prevent inadvertent entrapment of kit foxes or other animals during the construction phases of the projects, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials or equipped with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals.

- All construction pipes, culverts, or similar structures with a diameter of 4 inches or more that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If a kit fox is discovered inside a pipe, that section of pipe shall not be moved until the Service has been consulted. If necessary, and under the direct supervision of a qualified biologist, the pipe may be moved once to remove it from the path of construction activity.

- All food-related trash items, such as wrappers, cans, bottles, and food scraps, shall be disposed of in a closed container and removed at least once a week from a construction or project site.

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Chapter 9
Cumulative Effects

9.1 Context

Merced County is located in the central San Joaquin Valley. While the County's population is distributed in rural and urban areas throughout the County, the majority of people reside along or near the Highway 99 corridor. The total population estimate for Merced County in 2008 was 246,117 (U.S. Census Bureau 2009), with more than 80,000 residents living in unincorporated rural areas. Merced County, as well as the rest of the San Joaquin Valley, is expected to grow substantially over the next 50 years because of an increased demand for affordable housing. California Department of Finance (DOF) projections show that the population of Merced County is expected to increase to 652,355 by the year 2050 (State of California 2007). This represents a 170 percent increase in the County's population from the year 2003. Each of the development projects discussed below would contribute to the projected growth of the County (particularly western Merced County). The Merced County General Plan (Merced County 1990) provides policies and implementation measures to address future growth and focus growth within Specific Urban Development Plan (SUDP) boundaries in order to reduce adverse effects on the natural environment (including the San Joaquin kit fox). Each project would be required to demonstrate compliance with the General Plan prior to project approval. It should be noted that this cumulative context is appropriate for California Environmental Quality Act (CEQA) analysis. The cumulative context is also assumed to be appropriate for federal Endangered Species Act (ESA) compliance (i.e., Section 7 consultation) as none of the identified projects are known to have a nexus for independent Section 7 consultation at this time (i.e., future federal actions requiring separate consultation (unrelated to the proposed action) are not considered part of the cumulative effects).

9.2 Related Projects Contributing to Cumulative Impacts

9.2.1 Villages of Laguna San Luis Community Plan

The Villages of Laguna San Luis Community Plan (Villages of San Luis SUDP) consists of new urban development on approximately 6,214 acres and involves adoption of a Community Plan for the proposed SUDP area and amendment of the Merced County zoning designations to match the land use designations of the Community Plan. This project would result in the development of up to 3,722 acres associated with 15,895 residential units on 3,011 acres; 204.5 acres of commercial-employment uses involving retail, vehicle park, hotel, medical

center and business park uses; 180 acres for schools; 41 acres for quasi-public uses (i.e., water and wastewater treatment); 109.6 acres of public uses; 172.5 acres of parkland; and approximately 1,200 acres of open space for San Joaquin kit fox habitat and movement corridors. The Community Plan consists of eight conceptual development components that describe proposed land uses, onsite circulation, housing mixtures and densities, open space areas, community design standards, flood control and drainage facilities, infrastructure, and public facilities and services. Proposed land uses within the Community Plan are intended to meet housing demands associated with employment-generating land uses and provide local and regional employment opportunities.

9.2.2 Santa Nella Community Specific Plan

The Santa Nella Community Specific Plan (Santa Nella SUDP) consists of new urban development on approximately 2,224 acres and involves amending the Merced County General Plan land use designations and Merced County zoning designations to allow development of 6,133 new residential units (in addition to 350 existing residences on the project site). The Santa Nella SUDP straddles SR 33 between the California Aqueduct at its southern edge, Fahey Road at its northern edge, Delta-Mendota Canal at its western edge, and Hilldale Road at its eastern edge. Development of residential land uses would occur on approximately 1,334 acres, commercial and business park uses would be developed on approximately 482 acres, schools on 99 acres, an existing golf course would be expanded on 120 acres, and institutional land uses would be developed on approximately 190 acres. The Santa Nella SUDP was approved by the County in 2001 and the project site is currently being developed.

9.2.3 Agua Fria Village Community Plan Study Area

The Agua Fria Village Community Plan study area (Agua Fria) consists of a 3,220-acre area located within and south of the Villages of Laguna San Luis Community Plan. A portion of Agua Fria (1,328 acres) encompasses the southwestern-most area of the Villages of Laguna San Luis project site, which is identified in the Villages of Laguna San Luis Community Plan as open space and urban reserve. For the entire project, approximately 933 acres would be developed with residential land uses (i.e., low-density, medium-density, high-density), 9 acres would be developed with commercial land uses (i.e., village center), 17 acres would be developed for institutional land uses (e.g., school, fire station, community center), and 61 acres would be developed as parks. The remaining areas (approximately 2,200 acres) would be used for water retention ponds and detention areas and open space areas (e.g., habitat mitigation acreage and conservation bank). The Agua Fria project is currently being reviewed by Merced County through its planning process.

9.2.4 Solid Waste Disposal/Transfer Options for Western Merced County

The Merced County Department of Public Works Solid Waste Division (SWD) operates the 172-acre Billy Wright Landfill, of which about 39 acres is the permitted area for waste disposal (the landfill footprint). The Billy Wright Landfill primarily serves the cities of Dos Palos, Gustine, and Los Banos, the

community of Santa Nella, and the unincorporated areas of western Merced County. Billy Wright Landfill is located south of SR 152 and west of I-5 approximately 6 miles west of Los Banos along Billy Wright Road. The SWD identified six alternative waste disposal or waste transfer options that would accommodate projected disposal requirements for western Merced County. The options involve either the expansion of the existing Billy Wright Landfill or closure of the landfill and construction of a transfer station in the Los Banos area. The transfer station options would be implemented in conjunction with disposal at the Highway 59 Landfill or another disposal facility in the region. Each of the project options is designed to meet the projected waste disposal needs of western Merced County to at least the year 2023. The landfill expansion options would extend the Billy Wright Landfill site life considerably beyond that year. The first landfill expansion option would increase the permitted disposal area inside the existing boundaries by approximately 62 acres and would provide a refuse capacity of 5.3 million tons. The second landfill expansion option would involve acquiring approximately 53 additional acres along the current northern boundary of the existing landfill, which would increase the permitted disposal area by approximately 131 acres and would provide a refuse capacity of 11.1 million tons. Merced County has not currently selected or begun implementing any of the waste disposal or waste transfer options. If either landfill option is selected, but cannot be completed by the time the existing landfill reaches capacity, a down-sized transfer facility would be constructed to accommodate waste on an interim basis. When the landfill expansion becomes operational, the down-sized transfer facility would be used as a recycling/waste processing center.

9.3 Cumulative Impact Analysis

The projects described above would result in the loss of 9,359 acres of habitat in western Merced County (i.e., west of I-5) that is potentially suitable for San Joaquin kit fox foraging, movement, and denning. Implementation of the proposed Sisk Dam Corrective Action Project would result in an additional permanent loss of approximately 200 acres of potentially suitable San Joaquin kit fox habitat and a temporary loss of approximately 750 acres (as a result of borrow site excavation, staging areas, and storage areas). Other cumulative impacts to San Joaquin kit fox from project implementation may include habitat fragmentation, effects on dispersal corridor connectivity, and road mortality. However, given the questionable status of San Joaquin kit fox populations north of Santa Nella, the uncertainty regarding the ability of northern areas to support viable San Joaquin kit fox populations, and the uncertainty regarding corridor attributes for San Joaquin kit fox (Constable et al. 2009), consideration should be given to whether these impacts are not cumulatively considerable (CEQA) or insignificant or discountable (ESA).

Chapter 10
References

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Appendix A

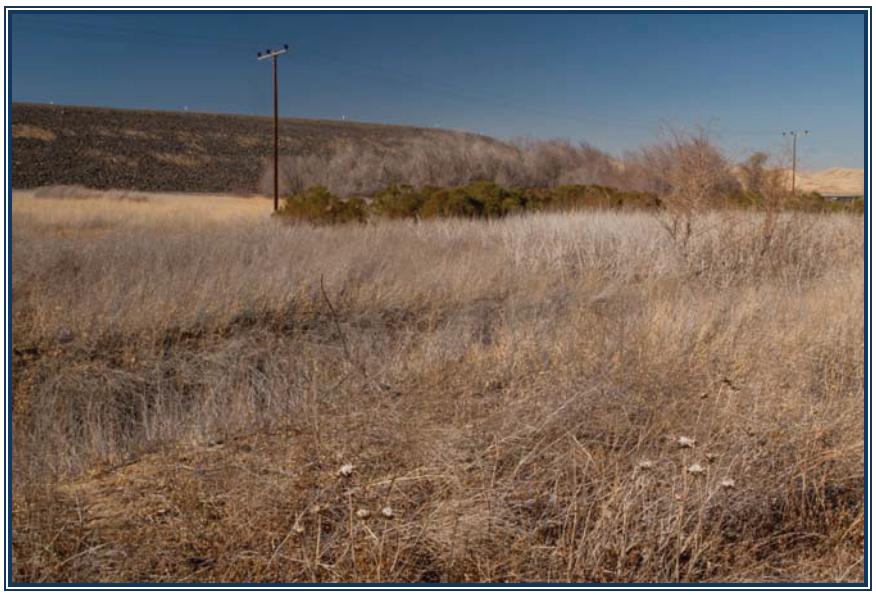
Representative Photographs of the Project Site

North State Resources, Inc.

B.F. Sisk Dam Corrective Action Project EIS/EIR

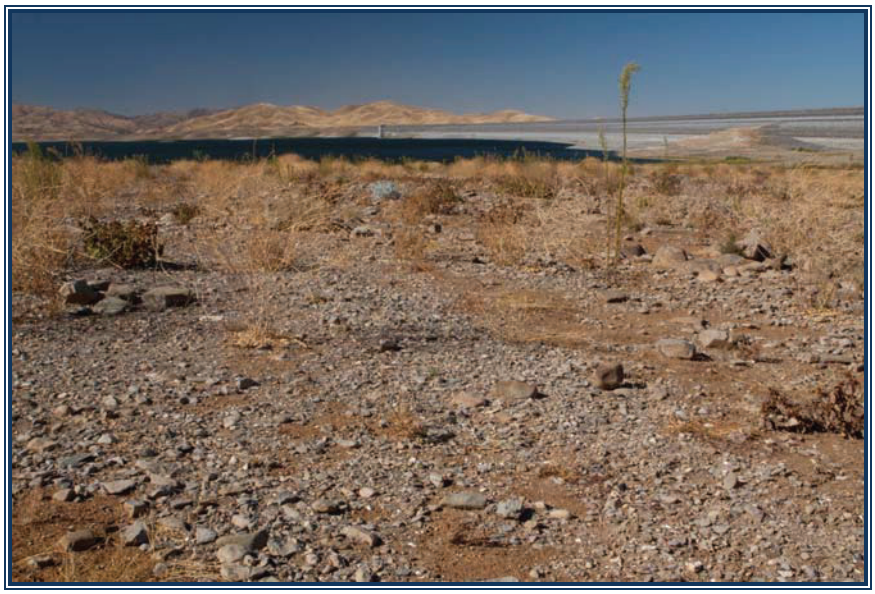
Figure A-1
Photo Point Map

Blank back of 11x17 Figure A-1



Photograph No. 1 – This photo shows a stand of dense, ruderal vegetation that is unsuitable for San Joaquin kit fox. The vegetation is dominated by thistles and wild mustard and occurs in an area that is supported by surface runoff from and leakage through the dam. Several stands of this habitat type occur close to and downslope from the dam. This habitat type also often occurs in conjunction with stands of *Baccharis* spp. and/or riparian woodland.

Photograph No. 2 – The photo shows consolidated rock and gravel substrates located within the lake inundation scar. Though now exposed and dry, these substrates, which are unsuitable for San Joaquin kit fox dens, also exhibit no evidence of use by small rodents (e.g., burrows). Substrates of this type are well distributed within the lake inundation scar. This photo is oriented uphill towards the parking lot at the southeastern corner of the lake.

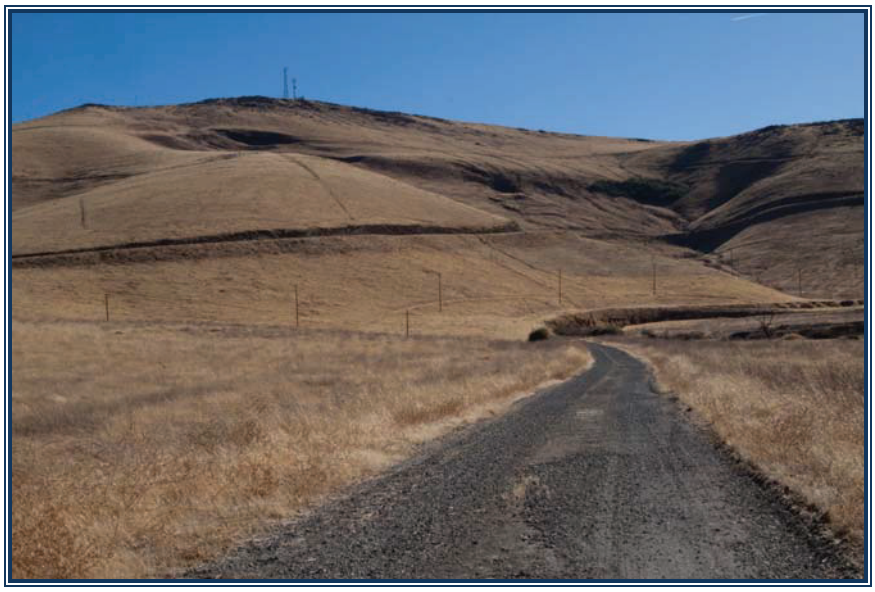


Photograph No. 3 – The photo shows dried sand and gravel substrates located within the lake inundation scar. These substrates are unsuitable for San Joaquin kit fox dens. Though well distributed within the lake inundation scar, they show no evidence of use by small rodents (e.g., burrows). Note that the vegetative cover within these areas is relatively sparse (i.e., low canopy cover).

Photograph No. 4 – The photo shows dried silt and mud substrates located within the lake inundation scar. These substrates are unsuitable for San Joaquin kit fox dens. They also show no evidence of use by small rodents (e.g., burrows). Substrates of this type are also well distributed within the lake inundation scar. Similar to the other substrates within the lake inundation scar, these substrates do not support a well-developed canopy of grassland and/or ruderal species.

Photograph No. 5 – The photo shows the poorly developed vegetation on muds and silts within the lake inundation scar. Though dry for at least two years, almost all vegetation on the dry lakebed is low in height and density. Furthermore, there has been no colonization by small rodents based on the lack of burrows.

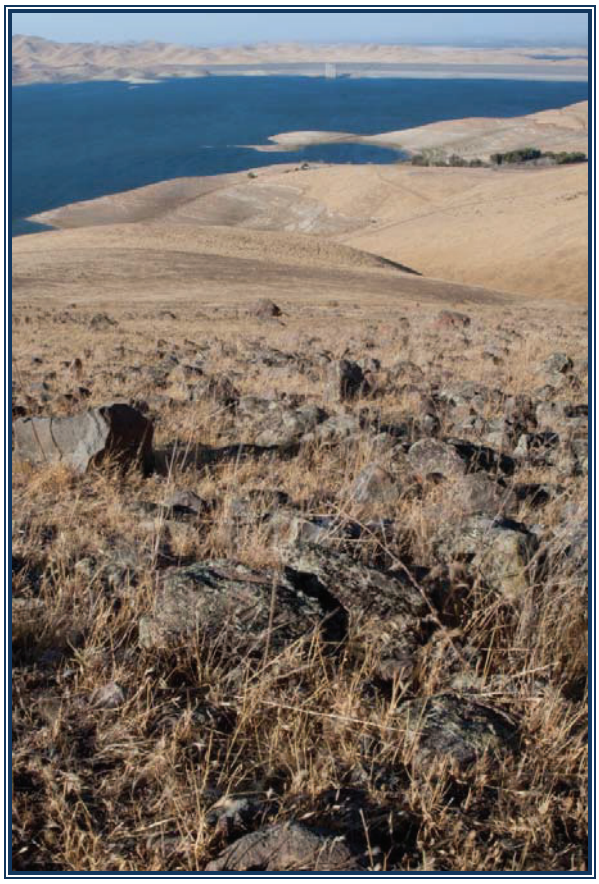
Photograph No. 6 – The photo shows the extent of habitat left exposed by the receding lake. However, as discussed in the captions of the previous photos, there is no prey base or underground refugia for San Joaquin kit fox in these areas. Note that the grassy knoll in the left background view is upland habitat that previously bordered the lake. All habitat in the foreground and middle ground views of the photo is in the lake inundation scar (i.e., was previously covered by water).



Photograph No. 7 – The photo shows the dense, annual grassland that is located in the low rolling hills north of the existing rock quarry. This latter habitat is suitable for San Joaquin kit fox. However, the height and density of the grassland reduces the habitat value for kit fox, which prefer more open habitats. The photo also shows the steep, rocky slopes below the rock quarry. These slopes do not provide suitable habitat for kit fox (mostly due to the presence of extremely rocky soils that preclude burrowing).

Photograph No. 8 – The photo shows the steep, rocky slopes immediately downslope from the existing rock quarry. The photo is oriented towards the northwest corner of the quarry. The access road that enters the quarry can be seen near the top of slope. The annual grassland on these slopes has been moderately grazed, making the rocky substrate more visible. This habitat is considered unsuitable for San Joaquin kit fox (primarily due to the rocky substrate which is difficult to excavate).

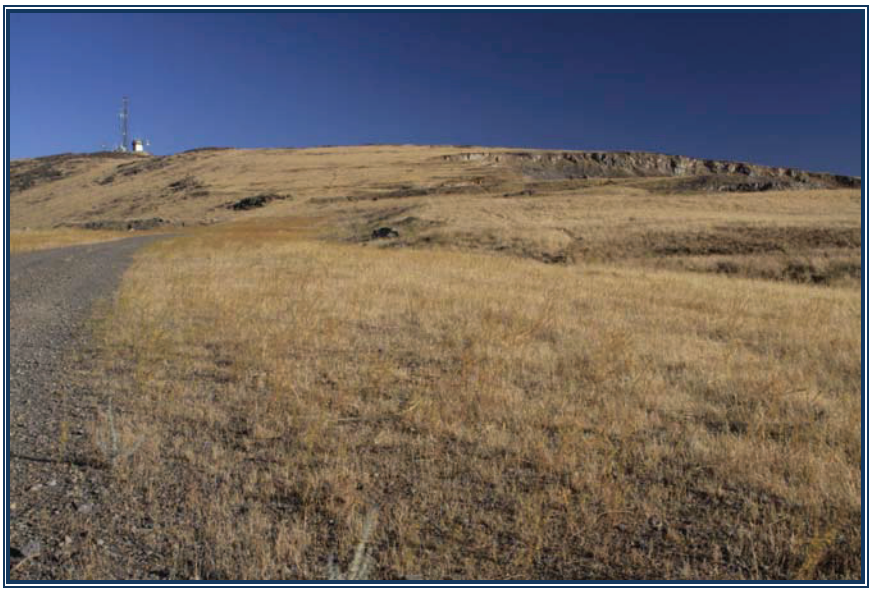
Photograph No. 9 – The photo shows the rocky substrate associated with the slopes located immediately downslope of the existing rock quarry. Such material is difficult for burrowing mammals (including American badger) to excavate. Thus, it was not surprising to find no potential dens in this habitat during the potential den surveys. Annual grasslands that occur on such slopes are not considered to be suitable habitat for San Joaquin kit fox.



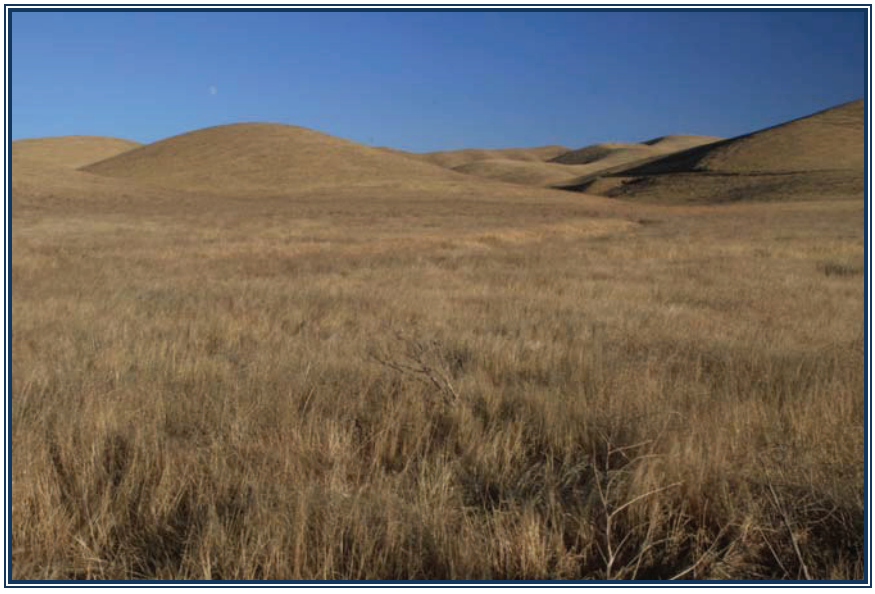
Photograph No. 10 – The photo shows the steep, rocky slopes immediately below the existing rock quarry, but also shows annual grassland that is suitable for San Joaquin kit fox further downslope. The transition from unsuitable to suitable habitat for kit fox is difficult to discern from the photo, but occurs where the rocky substrate ends and deeper, well-developed soils begin. The photo also shows the existing lake inundation scar in the background view.

Photograph No. 11 – The photo shows the existing rock quarry from the access road into the site. The quarry consists primarily of flat benches with extremely rocky substrates (similar to desert pavement), scattered rock piles, and mined, rocky slopes. Very few areas with deeper, well developed soils occur within the quarry. Surveys were conducted throughout the entire quarry site and found only one potential den (a marginal burrow beneath a large rock). Areas with similar rocky soils were subsequently considered to be unsuitable for the San Joaquin kit fox without completing 100 percent surface coverage surveys for potential kit fox dens.

Photograph No. 12 – The photo further shows that the habitat is unsuitable for San Joaquin kit fox. The rocky substrates preclude burrowing activity by mammalian species (including small rodents). Therefore, the habitat does not provide a suitable prey base or escape refugia for the San Joaquin kit fox.



Photograph No. 13 – The photo shows the only area associated with the existing quarry where soils may be suitable for burrowing. However, no potential dens and very few small rodent burrows were found in this habitat. Furthermore, the soils in this area appear to be gypsiferous, as large gypsum crystals occur throughout the substrate and the soils are extremely friable (i.e., crumbly). Thus, the physical characteristics of these soils may not be suitable for burrowing (i.e., burrows may easily collapse in these soils).



Photograph No. 14 – The photo shows the extensive annual grassland located in the flats and rolling hills east of Basalt Road. This habitat is suitable for San Joaquin kit fox. However, as discussed previously, the height and density of the grassland diminishes the habitat value for kit fox. San Joaquin kit fox prefer more open habitats that provide better line-of-site views of potential predators and where potential dens are more easily seen in the landscape.

Photograph No. 15 – The photo shows the most suitable habitat for San Joaquin kit fox within the project site. This area, located east of SR 152, supports a low, sparse cover of annual grassland. Furthermore, the area supports some of the highest California ground squirrel densities observed in the study area. This latter species creates most of the burrows that are later modified as dens for kit fox. The photo is oriented to the west towards SR 152 and the dam.

Photograph No. 16 – The photo further illustrates the low height and density of the annual grassland located east of SR 152. It also shows how easily potential escape refugia can be seen in the shorter grass landscape. Each of these factors is important to kit fox since they facilitate avoidance of and escape from potential predators (e.g., coyote).

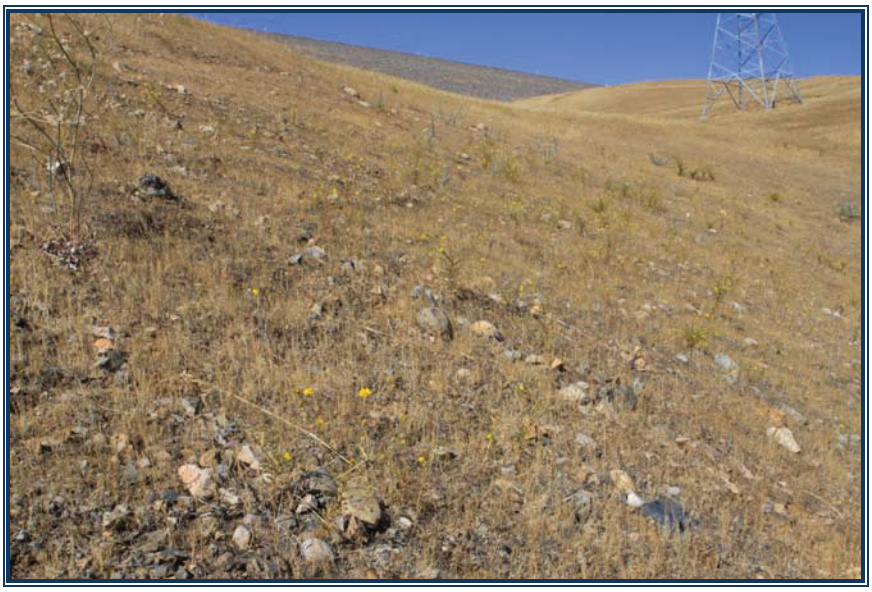
Photograph No. 17 – The photo shows annual grassland near the base of the dam that is suitable habitat for San Joaquin kit fox. The photo also shows the rock fill face of the dam, which is not suitable habitat for kit fox.

Photograph No. 18 – The photo shows a closer view of the rock fill associated with the dam. At a distance the face appears to be covered in sparse annual grassland. However, in this closer view it can be seen that the vegetative cover is sparse and patchy. Furthermore, there are no opportunities for escape refugia (i.e., potential dens) for kit fox due to the rocky substrates.

Photograph No. 19 – The photo further illustrates the rocky conditions that are found on the face of the dam. This substrate precludes any development of potential dens for kit fox.

Photograph No. 20 – The photo shows annual grassland on the higher portions of the slope above the dual-purpose pumping-generating plant at O`Neill Forebay that is suitable habitat for San Joaquin kit fox (i.e., flatter terrain with deeper friable soils). However, the steeper slopes in the center and right middle ground views are associated with an extremely rocky substrate. Though animal trails were observed crossing this steep slope, no evidence of potential dens was found on the slope, while potential dens were found in the annual grassland above the steep slope. Again, similar to other portions of the study area, rocky substrates preclude the creation of potential dens for kit fox.

Photograph No. 21 – The photo shows a closer view of the steep, rocky slope above the dual-purpose pumping-generating plant at O`Neill Forebay. Note that no soils excavation (associated with burrowing activity) is apparent on the slope even though the vegetation is sparse and relatively low.



Photograph No. 22 – The photo further shows the rocky substrate above the dual-purpose pumping-generating plant at O`Neill Forebay. In addition, the photo shows the suitable habitat on the upper slopes below the rock fill face of the dam (in the right background view).

Photograph No. 23 – The photo shows a narrow corridor of suitable habitat for San Joaquin kit fox that is sandwiched between unsuitable habitat for the taxon (i.e., the rock filled face of the dam and steep, rocky slope above the dual-purpose pumping-generating plant at O`Neill Forebay).

Photograph No. 24 – The photo shows a stand of dense vegetation that includes tall weedy species, *Baccharis* sp., and riparian woodland. This habitat is unsuitable for kit fox due to its height, density, presence of spiny vegetation, and seasonal presence of surface water. As identified in a previous photo, this vegetation is supported by surface runoff from and leakage through the dam. Several stands of this habitat type occur close to and downslope from the dam.

Photograph No. 25 – The photo shows overgrown pavement associated with a short reach of the old highway south of Gonzaga Road. The habitat does not provide suitable conditions for kit fox denning, but may be used as foraging habitat. The dam can be seen in the distance in the background view.

Photograph No. 26 – The photo shows the extensive annual grassland east of Basalt Road in the study area (in the vicinity of Helicopter Hill). As previously noted, this habitat is suitable for kit fox, but has diminished value due to the height and density of the annual grasses. Though potential dens (mostly American badger dens) were found in small numbers throughout this habitat, the locations of these dens are not apparent in the dense, grassland landscape. Thus, potential escape refugia for kit fox would be difficult to find in this landscape.

Photograph No. 27 – The photo further shows the dense, annual grassland located east of Basalt Road in the study area.

Photograph No. 28 – The photo shows a closer view of the annual grassland east of Basalt Road. Grass canopy density of this type typically occurs where fire and grazing has been precluded. The density of this grassland diminishes the value to kit fox for a variety of reasons (e.g., increased difficulties associated with movement, detection of prey species, and finding escape refugia).

Appendix B

Resume for Senior Biologist

MICHAEL BUMGARDNER

Principal, Bumgardner Biological Consulting

Mr. Bumgardner has over 20 years of experience with the terrestrial vertebrates, invertebrates, and flora of North, Central, and South America; Asia; Africa; and western Europe. He also has over 18 years of experience in the management and preparation of environmental documents that comply with the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), Tahoe Regional Planning Agency (TRPA) Rules of Procedure, Federal Endangered Species Act (FESA), and California Endangered Species Act (CESA). He has extensive experience in the coordination and preparation of biological resource assessments, impact assessments, management plans, mitigation programs, and habitat conservation planning and permitting associated with special-status species.

TECHNICAL CAPABILITIES

- Experienced with the statutory requirements and guidelines for federal Endangered Species Act Section 7 Consultations, Section 10(a)(1)(B) incidental take permits, Section 10(a)(1)(A) safe harbor agreements, and California Fish and Game Code Section 2081 management agreements and Section 2080.1 consistency determinations.
- Experienced in the preparation of biological assessments and conservation strategies for state and federal threatened and endangered species and other special-status species.
- Managed and conducted surveys for species including, but not limited to: *valley elderberry longhorn beetle, California tiger salamander, arroyo toad, western spadefoot, mountain yellow-legged frog, California red-legged frog, desert tortoise, western pond turtle, blunt-nosed leopard lizard, giant garter snake, San Joaquin kit fox, California clapper rail, spotted owl, northern goshawk, burrowing owl, Swainson's hawk, least Bell's vireo, southwestern willow flycatcher, California gnatcatcher.*
- Experienced in the management and preparation of environmental documents that comply with CEQA, NEPA, and the TRPA Rules of Procedure.
- Experienced with impact analyses involving sensitive habitats and special-status species, designing feasible mitigation measures to reduce significant impacts on biological resources, and resolving project conflicts with biological resources.
- Serves on the Science Subteam of the US Fish and Wildlife Service's Recovery Team for the Santa Barbara County DPS of *California tiger salamander*.
- Served as guest lecturer for course on Ecological Methods (Sierra Community College) and Conservation Biology (California State University - Sacramento).

EDUCATION AND AFFILIATIONS

B.S., Zoology, June 1980, University of California at Davis, California

Registrations

Federal Scientific Take Permit No. TE-785564-6 for California Gnatcatcher (*Polioptila californica californica*), Southwestern Willow Flycatcher (*Empidonax trailii extimus*), California Clapper Rail (*Rallus longirostris obsoletus*), and California Tiger Salamander (*Ambystoma californiense*)

California Department of Fish and Game Scientific Collector's Permit #801214-01 and Letter of Agreement for Yellow-billed Cuckoo (*Coccyzus americanus*), Willow Flycatcher (*Empidonax trailii*), California Gnatcatcher (*Polioptila californica californica*), California Black Rail (*Laterallus jamaicensis coturniculus*), and California Clapper Rail (*Rallus longirostris obsoletus*)

PROJECT EXPERIENCE

State and Federal Endangered Species Act Compliance

Cape Horn Tunnel Rehabilitation Project *California Tiger Salamander* Drift Fence Study and Monitoring, CH2M HILL and Oakdale Irrigation District

Avian Baseline Surveys and Mitigation Strategy for Aero Energy's Tehachapi Wind Energy Project, McCormick Biological and Aero Energy LLC

Sespe Oil Field Endangered Species Act/Permitting Assistance in Regards to *California Condor*, Seneca Resources

Kettleman Hills North Dome Oil Field *Blunt-Nosed Leopard Lizard* Surveys, McCormick Biological and Chevron

California Red-legged Frog Monitoring, Salvage, and Relocation for the Marsh Creek Bridge Repairs, Sycamore Environmental Consultants and Contra Costa County Planning Department

San Joaquin Kit Fox Potential Den Surveys and Clearance for the Vernalis-Thoming 3 & 4 Aggregate Mining Sites, Teichert Materials

Least Bell's Vireo and *Southwestern Willow Flycatcher* Surveys within Recreation Residence Tracts of the Angeles National Forest, Angeles National Forest

San Joaquin Kit Fox Potential Den Surveys on 2,700+ Acres within The Villages at Laguna San Luis SUDP, Berryman Ecological LLC

Review of Coachella Valley Multi-Species Habitat Conservation Plan and EIR/EIS (particularly for *Peninsular Bighorn Sheep*), Pacific Municipal Consults and City of Palm Springs

Review and Comment on Proposed Critical Habitat for *Southwestern Willow Flycatcher*, Southern California Edison

Soledad Canyon Sand and Gravel Mine Expert Witness Services, Jeffer, Mangels, Butler, and Marmaro LLP

Northwest Casmalia Enhanced Oil Recovery Project *California Tiger Salamander* and *California Red-legged Frog* Habitat Assessment and Endangered Species Act Compliance, Santa Maria Pacific, LLC

Kettleman Hills Waste Management Facility Class 1 Landfill Expansion *Blunt-nosed Leopard Lizard* Surveys and Endangered Species Act Compliance, TRC Solutions

Zeneca Richmond Facility Saltmarsh Remediation Project *California Clapper Rail* Focused Survey and Habitat Evaluation/Impact Assessment, LFR Levine Fricke

Los Flores Ranch Remediation Project *California Tiger Salamander* Habitat Evaluation, Impact Assessment, and Alternative Land Use Development Strategy, Chevron

White Paper on the Known Historic and Current Distribution of the *San Joaquin Kit Fox* in Eastern Merced and Stanislaus Counties and Western Madera County, Merced County

UC Merced/University Community Federally Listed *Vernal Pool Crustacean*, *California Tiger Salamander*, *Special-Status Plant*, and *San Joaquin Kit Fox*/*Fresno Kangaroo Rat* Survey Programs and Biological Assessment, University of California and Merced County

Stewart Tract Section 2081 Habitat Management Plan for *Swainson's Hawk*, Califia Development

Milpitas Recycled Water Pipeline Project Passive Relocation Program for *Burrowing Owl*, Santa Clara Valley Water District

Natural Resource Management Projects

California Tiger Salamander Distribution Study in Southern San Luis Obispo County, U.S. Fish and Wildlife Service

Tulare Basin Wildlife Management Area Planning Assistance, U.S. Fish and Wildlife Service

Hansen Creek (Nevada) Biological Monitoring Program, Getchell Gold Mine

Lawrence Berkeley National Laboratory Biological Baseline Database, U.S. Department of Energy

Environmental Baseline Study for a 10-year comprehensive plan that addresses 280+ petroleum-related projects in eastern Venezuela, Petroleos de Venezuela, S.A.

Utility and Infrastructure Projects

Biological Assessments and Monitoring for Various Projects on the U.S. Bureau of Reclamation's Delta-Mendota Canal, San Luis & Delta-Mendota Water Authority

Avenal Energy Project Application for Certification and Endangered Species Act Compliance, TRC Solutions

Elk Grove Routine Stormwater Channel Maintenance Program Biological Assessment for *Giant Garter Snake* and *Valley Elderberry Longhorn Beetle*, City of Elk Grove

Habitat Assessments for *Southwestern Willow Flycatcher* at Southern California Edison Facilities in the Santa Ana River Watershed, Southern California Edison

Alba Phase 3 LNG Plant Preliminary Impact Analysis, Alternatives Analysis, and Environmental Impact Assessment (EIA) (Equatorial Guinea), Marathon Oil Company

Mill Creek 2/3 Hydroelectric Project FERC Relicensing *Southwestern Willow Flycatcher* Expert Witness Services, Downy, Brand, Seymour, and Rohwer

Santa Rosa Subregional Long-Term Wastewater Project EIR and Biological Assessment, City of Santa Rosa

Southern Nevada Water Authority Treatment and Transmission Facility EIS and Biological Assessment, Southern Nevada Water Authority (Nevada)

Biological Evaluations for Several Wastewater Infrastructure Projects on National Forest lands in the Lake Tahoe Basin, South Tahoe Public Utility District

Echo Lake Dam Stabilization Environmental Assessment, PG&E

Mining Projects

California Red-legged Frog Survey and Endangered Species Act Compliance Strategy for the Gardner Ranch Mining and Processing Facility, Granite Construction Company

California Red-legged Frog Survey for the Bee Rock Quarry and Adjacent Drainages, Granite Construction Company

Day Creek-Inland Rock Mine Expansion *San Bernardino Kangaroo Rat* Trapping Study, West Coast Environmental & Engineering and Hanson Aggregates

Los Alamos Sand Mine *California Tiger Salamander* and *California Red-legged Frog* Surveys, Biological Assessment, and Safe Harbor Agreement, Los Alamos Sand Company

Williams Quarry Expansion Project Biological Resources Report, Resource Design Technology, Inc.

Madera Ranch Quarry *California Tiger Salamander* Biological Assessment and Draft Biological Opinion, Pacific Municipal Consultants

Ozena Valley Ranch Surface Mining Site Biological Resources Report, West Coast Environmental & Engineering

Santa Maria River Surface Mining Site Biological Resources Report, West Coast Environmental & Engineering

Diamond Rock Surface Mining Site Biological Resources Report and *Blunt-nosed Leopard Lizard* Impact Avoidance Program, West Coast Environmental & Engineering

Transportation Projects

Analysis of Impacts to *Willow Flycatcher* Habitat from Emergency Washout Repairs on the Caliente Line along Meadow Valley Wash (Nevada), Union Pacific Railroad

Analysis of Impacts to *Willow Flycatcher* Habitat from Emergency Washout Repairs on the Clifton Branch of the Lordsburg Line along the Gila River (Arizona), Union Pacific Railroad

Biological Evaluations for 18 Union Pacific Railroad Bridge Replacement Projects in California, Olsson Consulting

Hill Slough Bridge Replacement Project *California Clapper Rail* Surveys, Sycamore Environmental Consultants

Union Pacific Railroad Yolo Bypass North Track Project Biological Assessment, Parsons Corporation

Kowloon-Canton Railway Corporation Lok Ma Chau Spurline (Hong Kong) Expert Witness Services, Denton Wilde Sapte (Legal Counsel, London)

Kowloon-Canton Railway Corporation Lok Ma Chau Spurline Environmental Impact Assessment Defensibility Review and Response to Comments, California Environmental Consulting Associates

US Highway 101 Auxiliary Lanes Project Wetlands Delineation, Natural Environment Study, and Biological Assessment, San Mateo County Department of Transportation

TRPA Projects

Heavenly Ski Resort Master Plan EIR/EIS, Biological Resources Surveys, Biological Evaluation, and Annual Monitoring Programs, Heavenly Ski Resort and Tahoe Regional Planning Agency

Golden Bear Park Master Plan EIR/EIS, Tahoe Regional Planning Agency and El Dorado County

Harootunian Trust Land Transfer Biological Evaluation, Lake Tahoe Basin Management Unit, USDA Forest Service

Department of Defense Projects

California Gnatcatcher Surveys for the Santa Margarita River Conjunctive Use Project within MCB Camp Pendleton, Fallbrook Naval Weapons Station, and City of Fallbrook, North State Resources, Inc.

Brooks Air Force Base (Texas) Inventory of Avian Species, U.S. Air Force Center for Environmental Excellence (AFCEE)

Hohenfels Combat Maneuver Training Center (Germany) Integrated Natural Resources Management Plan-Fish and Wildlife and Threatened and Endangered Species Management Programs, U.S. Army Europe (USAEUR)

Andrews Air Force Base and Davidsonville and Brandywine Communication Sites (Maryland) Biological Inventory and Integrated Natural Resources Management Plan, AFCEE

Fort Leonard Wood (Missouri) BRAC US Army Chemical School and Military Police School Relocation Mitigation Monitoring Framework and Adaptive Management Strategy, U.S. Army

U.S. Fish and Wildlife Service World-listed, and Portuguese Government Listed Species Surveys and Integrated Natural Resources Management Plan (Azores), AFCEE and U.S. Air Force Air Combat Command (ACC)

Dyess Air Force Base (Texas) Threatened and Endangered Species, Fish and Wildlife, and Outdoor Recreation Component Plans of the Integrated Natural Resources Management Plan, ACC

Vandenberg Air Force Base (California) Fiber Optic Cable Route Biological Assessment, U.S. Air Force Space Missile Command

Camp Pendleton Relocation of Baseline Road and Case Springs Access Road Habitat Suitability and Assessment for the *Stephen's Kangaroo Rat*, *California Gnatcatcher*, *and Least Bell's Vireo,* U.S. Marine Corps

B.F. Sisk Dam Corrective Action Project

California Red-Legged Frog Site Assessment

B.F. Sisk Dam
Central Valley Project, California

January 2010

U.S. Department of the Interior
Bureau of Reclamation

State of California
Department of Water Resources

Mission of the Bureau of Reclamation

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Department of Water Resources Mission Statement

To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.

B.F. Sisk Dam Corrective Action Project

California Red-Legged Frog Site Assessment

B.F. Sisk Dam
Central Valley Project, California

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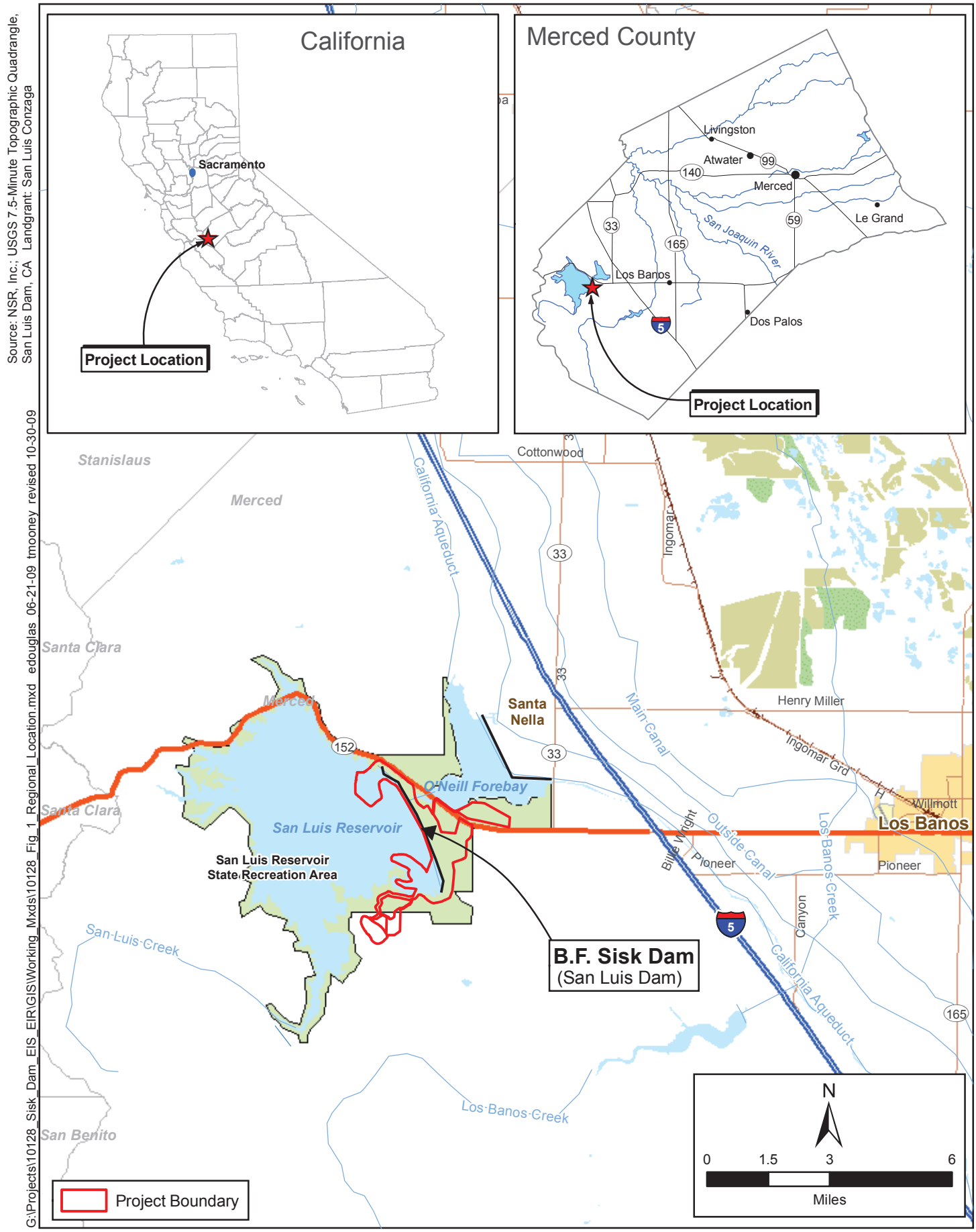
Chapter 1
Introduction

On behalf of the U.S. Bureau of Reclamation (Reclamation), North State Resources, Inc. (NSR) conducted a California red-legged frog site assessment for the 2,578.80-acre B.F. Sisk Dam Corrective Action Project (project). The project is located on the west side of California's Central Valley, approximately 12 miles west of Los Banos, in Merced County, California, and includes portions of the San Luis Reservoir and O'Neill Forebay (Figure 1). The project site is located within the San Luis Dam, California 7.5-minute U.S. Geological Survey (USGS) quadrangle, Township 10 South, Range 8 East, Sections 13, 27, 28, 33, and 34 Mount Diablo Base and Meridian as well as portions of the Gonzaga land grant.

Sisk Dam is part of the San Luis Joint-Use Complex, which was designed and constructed by the federal government and is operated and maintained by the California Department of Water Resources (DWR). The project area is surrounded by a variety of land uses. Residential and commercial uses exist in nearby Santa Nella to the northeast of O'Neill Forebay. Lands to the southeast of the project area between San Luis Reservoir and Los Banos Reservoir include large, privately owned ranchlands, agricultural lands, an electrical substation, and scattered nonresidential uses. A national cemetery is located to the northeast of O'Neill Forebay, and immediately west of San Luis Reservoir is Pacheco State Park, owned by the California Department of Parks and Recreation. California Department of Fish and Game (CDFG) properties are located north of the San Luis Reservoir, and east and west of O'Neill Forebay.

This California red-legged frog site assessment was conducted by NSR biologists between September 28 and October 22, 2009. Fifty aquatic features were documented, mapped, and analyzed.



Source: NSR, Inc.; USGS 7.5-Minute Topographic Quadrangle, San Luis Dam, CA Landgrant: San Luis Conzaga

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North State Resources, Inc.

Figure 1
Regional Location

Chapter 2
Project Description

The dam and reservoir are located in an area of high potential for severe earthquake loading from active faults. A recent series of studies and analyses, including a probabilistic seismic analysis completed in 2006, determined that corrective actions were justified at Sisk Dam to reduce risk to the downstream public. Reclamation and DWR seek to mitigate potential safety concerns identified in previous and ongoing studies by modifying water retention structures at Sisk Dam in order to reduce the seismic, static, and hydrologic risk.

The project will involve two main components: stability berms (buttresses) and a dam raise. Project construction will require a large amount (on the order of between 2 million and 20 million cubic yards) of earth material, all of which would be obtained from a number of borrow sites within the project boundary.

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Chapter 3
Environmental Setting

The elevation in the project area ranges from approximately 230 feet near the waterline of the O'Neil Forebay to a height of approximately 1,650 feet near the top of the Basalt Hill quarry. Habitats within the project boundary were characterized based on descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer Jr. 1988). Annual grassland is the most dominant habitat type within the project area; however, there is a wide diversity between stands in this broad category. In addition to annual grassland, the following habitat types were mapped: alkali desert scrub, barren, coastal scrub, eucalyptus, fresh emergent wetland, lacustrine, mixed chaparral, and valley foothill riparian.

The study area is characterized by cool, moist winters and hot or warm, dry summers. Precipitation primarily falls as rain. Average annual rainfall is approximately 9.5 inches (Western Regional Climate Center 2009). Air temperatures in the project area range between an average January high of 55 degrees Fahrenheit (ºF), and an average July high of 96 ºF. The year-round average high is approximately 76 ºF (Western Regional Climate Center 2009).

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Chapter 4
California Red-Legged Frog Biology

4.1 Range of the California Red-legged Frog

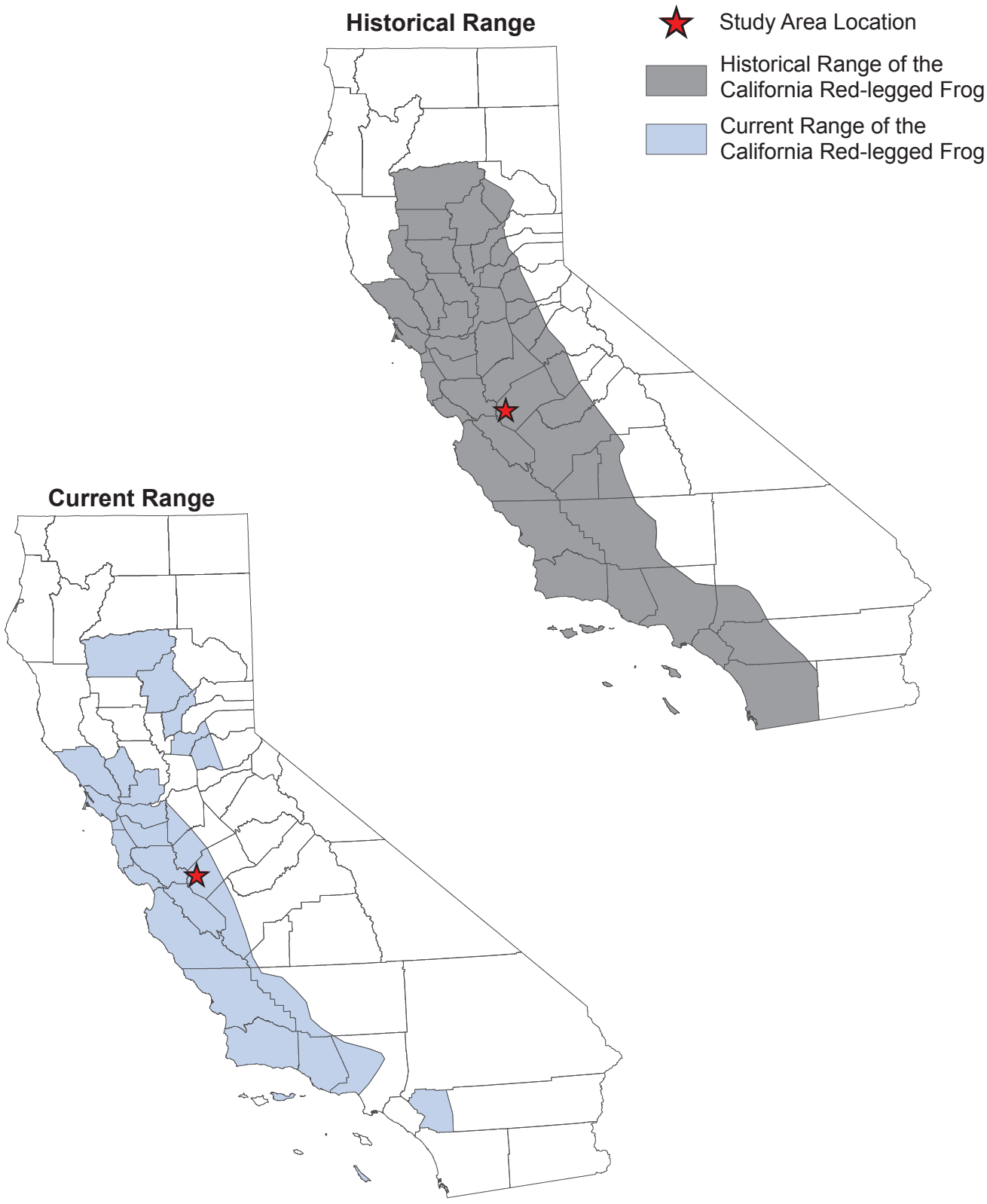
Historically, the California red-legged frog ranged from Point Reyes National Seashore in Marin County inland to the Central Valley and the Redding vicinity and south to northwestern Baja California, Mexico. It occurred in 46 counties in California. Today, that range has been reduced to 31 counties (U.S. Fish and Wildlife Service 2007). Populations outside of the San Francisco Bay area and central coast areas are isolated, and the species is predominantly extirpated from the southern Transverse and Peninsular ranges in California, although some populations persist. A map of the historical and current range of the California red-legged frog is presented as Figure 2. The study area is located within the current known range of the California red-legged frog (U.S. Fish and Wildlife Service 2002).

4.2 Life History

The California red-legged frog is a member of the family Ranidae within the order Anura, and is one of two subspecies of the red-legged frog (*Rana aurora*) (U.S. Fish and Wildlife Service 2002). The red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), with adults obtaining a length of 3.4 to 5.4 inches from the tip of the snout to the rear of the vent (Jennings and Hayes 1994). Adult red-legged frogs have prominent dorsolateral folds, a bright red dorsum, and a well-defined stripe running along the upper lip. Juvenile frogs are 1.5 to 3.4 inches from the tip of the snout to the rear of the vent and have the same coloration as adults except that the dorsolateral folds are normally yellow or orange colored, especially in very young individuals (Stebbins 2003). Larval frogs range from 0.6 to 3.1 inches in length.

Adult California red-legged frogs have been observed to breed from late November through early May after the onset of warm rains (Storer 1925; Jennings and Hayes 1994). Females attach an egg mass of 2,000 to 6,000 moderate-sized (0.08 to 0.11 inch diameter) eggs to an emergent vegetation brace such as tule stalks (*Scirpus* spp.), annual grasses (Poaceae), or willow (*Salix* spp.) roots just below the water surface (Livezey and Wright 1947; Storer 1925).

Embryos of California red-legged frogs hatch 6 to 14 days after fertilization and the resulting larvae require 3.5 to 7 months to attain metamorphosis at a total



Source: U.S. Fish and Wildlife Service. 2002. Recovery plan for the California red-legged frog (Rana aurora draytonii). Portland: U.S. Fish and Wildlife Service

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Figure 2
Historical and Current Range of the California Red-legged Frog

length of 2.6 to 3.4 inches (Storer 1925). Larvae are thought to graze on algae, but they are rarely observed because they are often concealed in submergent vegetation or detritus (Jennings and Hayes 1994). Most larvae metamorphose into juvenile frogs between July and September. Post-metamorphic frogs grow rapidly by feeding on a wide variety of invertebrates. Adult frogs apparently eat a variety of animal prey including invertebrates, small fishes, frogs, and small mammals (Hayes and Tennant 1985; Arnold and Halliday 1986).

California red-legged frogs have been observed in a number of aquatic habitats throughout their historic range. The key to their occurrence in these habitats is the presence of perennial, or near perennial, water and the general lack of introduced aquatic predators such as crayfish (*Pacifastacus leniusculus* and *Procambarus clarkii*), bullfrogs (*Rana catesbeiana*), bluegill (*Lepomis macrochirus*), and other centrarchid fishes such as largemouth bass (*Micropterus salmoides*) (Jennings and Hayes 1994). Adults need dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2.3-foot deep) still or slow-moving water (U.S. Fish and Wildlife Service 2007). In addition to aquatic habitats, juvenile and adult California red-legged frogs use areas of riparian vegetation within a few yards of water. The species also uses small mammal burrows in or under vegetation, willow root wads, and the undersides of old boards and other debris within the riparian zone (Jennings and Hayes 1994).

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Chapter 5
Methodology

This California red-legged frog site assessment was conducted in accordance with the U.S. Fish and Wildlife Service (USFWS) *Revised Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* (U.S. Fish and Wildlife Service 2005). Information for the assessment was gathered through a combination of literature review, database searches, review of topographic mapping and aerial photographs, and field visits to the site. The literature review identified the historic and current range of the California red-legged frog and provided information on specific habitat preferences of the species. California Natural Diversity Data Base (CNDDB) records (California Department of Fish and Game 2009) and the USFWS *Recovery Plan for the California Red-legged Frog* (U.S. Fish and Wildlife Service 2002), provided information regarding the known existing and historic populations of California red-legged frogs in the region.

A review of topographic mapping, aerial photographs, and a preliminary wetland delineation report, provided information regarding vegetation communities and land uses occurring in the vicinity. NSR biologists Brandon Amrhein and Terra Perkins conducted the field assessment. The project area and publicly accessible areas of the surrounding vicinity (areas within 1 mile of the project area) were characterized and evaluated for the presence of potentially suitable habitat for the California red-legged frog. Aquatic habitats were mapped and characterized (e.g., ponds vs. creeks, pool vs. riffle, ephemeral vs. permanent, vegetation type and characteristics, water depth, substrate, and description of bank), and the presence of bullfrogs and other aquatic predators documented (see Appendices A and B). Upland habitats were also characterized (e.g., vegetation communities, land uses, and potential barriers to California red-legged frog movements).

5.1 California Red-Legged Frog Identification

Identification of all amphibians was done visually *in situ*. Positive diagnostic marks used to identify adult California red-legged frogs include prominent dorsolateral folds, bright red dorsum, and a well-defined stripe running along the upper lip. Positive diagnostic marks used to identify California red-legged frog tadpoles include eyes set well in from the outline of the head [contrasts with chorus frogs (*Pseudacris* spp.)] and generally mottled body and tail with few or no distinct black spots on tail fins (contrasts with bullfrogs).

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Chapter 6
Results

6.1 Regional Assessment

The project area is not located within a designated critical habitat area for the California red-legged frog. The nearest critical habitat unit (Unit MER 1A and 1B) occurs approximately 3 miles west of the project area. There are four CNDDB recorded occurrences of California red-legged frogs within 5 miles of the project area (California Department of Fish and Game 2009) (Figure 3). The most recent sighting occurred in 2008 at a location within designated critical habitat approximately 4.87 miles northwest of the project area. The nearest recorded occurrence is from 1999 at a location approximately 2.95 miles southwest of the project, just past the southern arm of San Luis Reservoir along San Luis Creek.

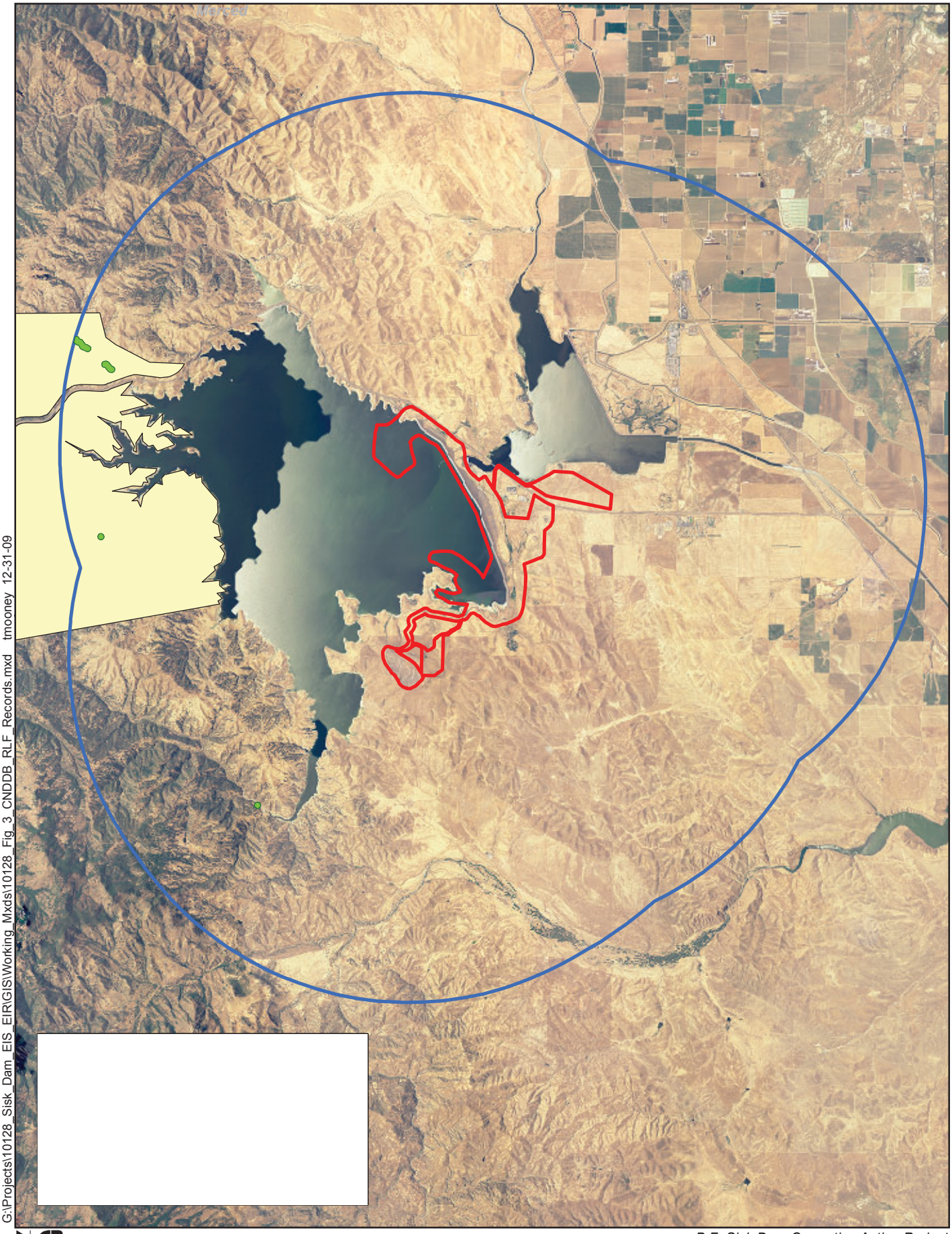
6.2 Project Area and Local Area Assessment

The project area and local area (the area within a 1-mile radius of the project boundary) assessments included any area that appeared to retain even a minor amount of water. Fifty locations were assessed (Figures 4a and 4b). Each of the assessment locations are discussed in more detail below. Site Assessment Data Sheets are provided in Appendix B and photographs of each site are provided in Appendix C.

6.2.1 Project Area

Ephemeral Drainage (Locations 6 and 11).
The features assessed at Locations 6 and 11 are part of a network of drainages that are designed to channel lake seepage water to O'Neil Forebay. These features are regularly maintained and kept clear of vegetation and were dry at the time of the assessment. Lake levels are currently too low to allow for dam seepage to occur and have been deficient for several years. Until lake levels increase substantially these features will remain dry and, therefore, will not function as red-legged frog breeding habitat.

Ephemeral Drainage (Location 26, 27, 28, 29, and 30)
The feature assessed at Locations 26, 27, 28, 29, and 30 is a drainage fed by a network of smaller drainages. Its primary function is to hold and transport lake seepage water to O'Neil Forebay. This feature varies in width between 3 and 15 feet. Portions are channelized with steep narrow banks, while other portions are wider and flatter. Large trees and shrubs are mostly absent from its banks;



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North State Resources, Inc.

B.F. Sisk Dam Corrective Action Project

Figure 3
CNDDB California Red-legged Frog Records

however, a few overhanging willows and cottonwoods are present. During the time of the assessment, the entirety of this feature lacked surface water. According to DWR representatives, the lake has been especially low for 3 to 4 years. Until lake levels increase dramatically, lake seepage will be minimal and this feature will remain predominately dry. The current lack of water in this feature makes it unsuitable as California red-legged frog breeding habitat.

Seasonal Wetland (Location 31)

The feature assessed at Location 31 is a wetland comprised of two main depressions that contain remnant emergent vegetation, such as cattails (*Typha* sp.) and mule fat (*Baccharis salicifolia*). Overhanging vegetation is present and includes cottonwoods and willows with coyote bush (*Baccharis pilularis*) in the upland areas. One depression is approximately 15 feet x 30 feet in size and the other is larger, at approximately 150 feet x 25 feet. This wetland derives its water from dam seepage. It was dry at the time of the assessment and appears to have been dry for some time. This feature has a maximum depth of approximately 1 foot, significantly less than the 2.3 feet required for breeding by California red-legged frogs (U.S. Fish and Wildlife Service 2007). Thus, this wetland does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Wetlands (Locations 32 and 34)

The features assessed at Locations 32 and 34 are wetlands that occur on the toe of the slope at the southern end of the dam. They are areas that become saturated with dam seepage, facilitating the growth of wetland vegetation. The features do not appear to retain any surface water, instead excess water drains down slope via drainage ditches to a larger drainage network. Thus, they do not provide suitable breeding habitat for the California red-legged frog.

Quarry Depression (Location 35)

The feature assessed at Location 35 has been excavated and is within the boundary of proposed Borrow Site 1. The depression has a rock aggregate substrate similar to the surrounding quarry substrate. Upland grasses and forbs grow in and out of the feature (e.g., vinegar weed (*Trichostema lanceolatum*), tarweed (*Hemizonia congesta*), and wild oats (*Avena barbata*)). The pool is approximately 10 feet x 4 feet in size with a 3 foot depth. No water was present at the time of the assessment. Based on the presence of upland vegetation in the feature, the rock aggregate soil drains very effectively and no water is retained in the pool for any significant length of time. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

San Luis Reservoir (Location 45)

San Luis Reservoir has a water storage capacity of more than 2 million acre-feet and depths up to 300 feet. Habitat types and substrates vary along the lake's perimeter. This assessment location was selected based on the low gradient shoreline and the presence of significant amounts of emergent vegetation in the form of young willows and cocklebur (*Xanthium* sp.). The substrate at this

location is primarily sand. No large overhanging vegetation occurs around the lake edge because water levels are significantly lower than in previous years. Currently, there are several hundred feet of barren shoreline. Further, the reservoir contains many predatory fish (e.g., striped bass (*Morone saxatilis*), channel catfish (*Ictalurus punctatus*), largemouth bass, crappie (*Pomoxis* sp.), and bluegill), which significantly reduce the quality of the lake as habitat for the California red-legged frog. Thus, California red-legged frogs are not expected to occur in this feature.

6.2.2 Local Area

Ephemeral Drainage (Location 1)

The feature assessed at Location 1 is an approximately 75-foot long drainage that captures runoff from hill slopes north of Hwy 152. It has formed between the base of a dirt road and the highway and transports rainwater to a concrete lined ditch that runs parallel to the highway (southeast). This drainage has a natural substrate and contains grassland vegetation. It was dry at the time of the assessment and does not appear to retain water for a significant length of time. This ditch is no more than 2 feet wide and has a maximum depth of 1.5 feet. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 3)

The feature assessed at Location 3 is a large drainage channel that runs parallel to Hwy 152. The channel and banks are heavily vegetated with coyote bush. There was no water in the channel when the assessment was conducted. This feature is part of a network of drainages that collect lake seepage from the reservoir as it percolates through the dam wall; however, this only occurs when lake levels are high. For the last several years lake levels have been too low to allow for any seepage to reach this feature. Thus, under current conditions, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 7)

The feature assessed at Location 7 is a large ditch located north of Hwy 152. It receives water from a network of drainages on the other side of the freeway via a culvert. The ditch contains upland grasses and lacks any sign of emergent vegetation. The function of this feature is to transport dam seepage water to a larger drainage feature (Location 10) that drains to O'Neil Forebay. For the last three to four years, lake levels have been too low to allow any dam seepage to occur, causing this feature to remain dry. Currently, due to the general lack of water, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 13)

The feature assessed at Location 13 is a drainage that exits the pond at Location 12. The drainage appears to remain dry unless the pond reaches capacity, at

which point water flows through a culvert and drains into this feature. It appears that the drainage is steep enough to drain effectively and most likely rarely retains any substantial levels of water. The lack of emergent vegetation within the feature supports this conclusion. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 17)

The feature assessed at Location 17 is a natural drainage that transports rainwater. Small pockets of remnant wetland vegetation, such as cattails and curly dock, are present; however, the feature was dry at the time of the assessment and does not appear to retain more than 6 inches of water at any given time. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Location 22)

The feature assessed at Location 22 is a small drainage that travels under an access road via a culvert. The drainage flows northeast approximately 100 feet ending in a wetland at the edge of O'Neil Forebay. The channel substrate is natural soil with abundant leaf litter, which is derived from an abundance of overhanging trees, including willows and sycamores. There is little undergrowth along the feature except for a few patches of facultative grass species within the shallow channel. Maximum water depth in this feature is less than 1 foot. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Locations 40, 41, and 43)

The feature assessed at Locations 40, 41, and 43 is a natural drainage that has been diverted through culverts to accommodate a dirt road. It appears to hold some water as is evidenced by patches of remnant cattails. However, the predominant vegetation in and around this feature is upland grasses and forbs, including wild oats and thistles. The source of water for this feature appears to be storm water runoff. The drainage has low points where up to 18 inches of water could collect; however, this is probably a rare occurrence. Thus, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Drainage (Locations 49 and 50)

The feature assessed at Location 49 and 50 is a natural drainage that passes just east of Basalt Campground. It appears to drain water effectively, which explains the lack of emergent vegetation within the channel. The grade varies between 3 and 10 percent and the drainage is fully vegetated with upland grasses. This feature was dry at the time of the assessment but appears to have a maximum depth of less than 1 foot. Thus, because of its shallow depth and lack of emergent vegetation, this feature does not provide suitable breeding habitat for the California red-legged frog.

Ephemeral Pond (Location 2)

The pond at Location 2 is a man-made feature created within a natural drainage that has been artificially damned with a soil berm. Rainwater is the primary hydrologic input. Remnant facultative vegetation (plants preferring wet conditions) within the feature were observed during the assessment (i.e., smartweed (*Polygonum* sp.) and cocklebur); however, the feature was dry at the time of the assessment and all of the facultative vegetation was long dead, signifying an extended period of relative dryness. This approximately 50 foot x 50 foot feature likely holds shallow water for a portion of the year, but the evidence suggests that it is not retained long enough to support California red-legged frog breeding. Additionally, if the feature does retain water during the breeding season, it appears that water depths (1-2 foot maximum) would not be sufficient for California red-legged tadpole survival.

Water Treatment Ponds (Locations 4 and 5)

Two wastewater treatment ponds are associated with the San Luis Reservoir Visitors Center. At the time of the assessment, the northernmost pond had vegetation growing within its basin; however, no surface water was visible. The second pond was completely dry and had no live vegetation within it. This pond does not appear to be in use. Both ponds are enclosed in a chain-link fence topped with barbed wire and have exposed (probably maintained) upland banks. There is no overhanging vegetation on or adjacent to the ponds banks. The ponds have a maximum depth of approximately 14 feet. If sufficient water depths are maintained in these ponds during the breeding season, they may provide suitable California red-legged frog breeding habitat.

Ephemeral Wetland Drainage (Location 8 and 9)

The feature assessed at Locations 8 and 9 is one of the main collection points for a series of drainage ditches. Water seepage escaping the dam, which occurs when lake levels are high, primarily drains to this location because it is the lowest point in the area. Additionally, water appears to back up at this point because the pathway for the water to pass to the other side of Hwy152 is a relatively small culvert that is slightly elevated from the lowest point in the drainage. This ponding allows enough water to collect to provide proper conditions for emergent plant growth. Cattail, rabbits-foot grass, and several species of sedges were observed growing in the bed of this drainage. Further indication of past ponding was evidenced by the presence of deep cracks in the clay-like soil. The water source for this feature is primary dam seepage and secondarily rainwater runoff. Because the lake levels have been very low for several years, this drainage feature contained no standing water at the time of the assessment. Thus, currently, this feature does not provide suitable California red-legged frog breeding habitat.

Seasonal Wetland (Location 10)

The feature assessed at Location 10 is the main drainage system low point (before the forebay) for the areas north of the highway and west of the forebay. It also receives all dam seepage and rainwater runoff collected from the south

side of the highway north of the dam spillway via a series of drainages (specifically the features at Locations 7, 8, and 9). This roughly 2.5-acre seasonal wetland drains directly to the neck of the O'Neil Forebay when it reaches capacity. It contains patches of emergent vegetation, such as cattail and rush, in low pockets and a group of large riparian trees (e.g., willows and cottonwoods) overhangs a large portion of the feature. No water was observed in this wetland at the time of the assessment. Because current lake levels are low and dam seepage is at a minimum, this wetland does not currently provide suitable breeding habitat for the California red-legged frog. Additionally, the wetland depth appears to be less than 1 foot when functioning, below that required for suitable California red-legged frog breeding habitat.

Perennial Pond (Location 12)

The feature assessed at Location 12 is a man-made pond within a natural drainage area. The pond was formed when a berm was created across the natural drainage pathway. A culvert is installed near the top of the berm to allow excess water to drain downstream after the pond reaches capacity. The banks of the pond are steep and mostly bare. Sporadic emergent vegetation is present in a few locations along the waters edge, but density is minimal. The pond appears to be at least 4 feet deep at its center and provides drinking water for deer and cattle during at least a portion of the year, as is evidenced by prints and scat. This feature may provide a perennial water source with sufficient water depth for red-legged frog breeding habitat; however, the amount of emergent vegetation present for egg attachment is minimal.

Water Treatment Ponds (Locations 14 and 15)

The features assessed at Locations 14 and 15 are two water treatment ponds. Both ponds are approximately 160 feet x 100 feet. The banks are gravel-lined and devoid of vegetation, and both are enclosed by a chain-link fence topped with barbed wire. The basin of the southernmost pond is densely vegetated with cattails but no standing water was observed at the time of the assessment. The northernmost pond was also dry and no emergent vegetation was present. The maximum depth of these pools is approximately 4 feet; however, the typical operating depth appears to be approximately 18 inches, based on water lines and staining. Thus, under the current conditions, it appears that these ponds would be unable to support red-legged frog breeding due to their ephemeral nature and shallow water depths.

Emergent Wetland (Location 18)

The feature assessed at Location 18 is a large wetland that borders O'Neil Forebay. The wetland is hydrologically connected to the forebay and only receives water when the forebay water level rises to the point at which water is able to spill over a slight berm into the wetland. At the time of the assessment, O'Neil Forebay was approximately 3 feet too shallow for this connection to occur. The wetland is large, approximately 2.25 acres in size, and contains abundant emergent vegetation (primarily cattail) with overhanging willows along one side. Portions of the wetland appear to be up to 4 feet deep. During

the assessment, several green herons (*Butorides virescens*) were observed foraging in the wetland and crayfish were observed in shallow areas. Although favorable habitat components are present at this site (permanent water deeper than 2.3 feet deep with abundant emergent vegetation), it is unlikely that red-legged frogs utilize it as a breeding area. The large number of predatory birds, the presence of crayfish in high density, and the likelihood of predatory fish migrating from the forebay to the wetland significantly reduces its quality as California red-legged frog habitat.

O'Neil Forebay (Location 19)

O'Neil Forebay is approximately 18 acres in size with a maximum depth of approximately 57 feet. Large portions of the forebay have dense wetlands along the edges, and riparian areas containing large cottonwoods and willows border the forebay at several locations. The forebay connects to a large pump house at the base of San Luis Reservoir where water is transferred to and from the lake to produce energy. Several predators of the California red-legged frog were observed foraging within the forebay, including great blue herons (*Ardea herodias*), great egrets (*Ardea alba*), mergansers (*Mergus* sp.), and several species of fish. In addition, according to fishing records striped bass, channel catfish, largemouth bass, crappie, and bluegill are regularly caught in the forebay. The large number of predators occurring in the forebay significantly reduces its quality as California red-legged frog habitat.

Ephemeral Pond (Location 20)

The feature assessed at Location 20 is an excavated cattle pond. It is devoid of vegetation and cracked mud is visible in its basin. Upland grasses surround the feature. Water for this feature appears to be artificially fed from a nearby electrical facility. This feature was dry at the time of the assessment. When full, its maximum depth is less than 6 inches. Due to its shallow depth, the feature would not provide suitable California red-legged frog breeding habitat.

Ephemeral Pond (Location 21)

The feature assessed at Location 21is a large pond at the base of a hill. Some manipulation of the earth in this area to help retain water for cattle use is apparent. The source of water for this pond is a water tower located directly south of the feature. Water was released from the water tower between field visits to the site. When the initial assessment was conducted, there was no water at this location. When full, the pond is approximately 160 feet x 75 feet in size. No evidence of emergent vegetation was observed in the feature. The maximum depth of the pond is approximately 1 foot. This feature lacks emergent vegetation, water of sufficient depth, and likely water of sufficient duration, to support California red-legged frog breeding.

Treatment Ponds (Locations 23, 24, and 25)

Locations 23, 24, and 25 represent three treatment ponds associated with a pump-house facility. Because of restricted access, these features were assessed from the top of Sisk Dam. The two westernmost ponds are located in the corner

of a large crushed aggregate pad associated with the power lines and pump-house electrical facility. The westernmost pond is approximately 30 feet x 50 feet. This pond seems to be the only pond in use, based on the green vegetation and the presence of a 10 foot x 10 foot shallow pool present within its basin. The pond to the east is larger, approximately 30 feet x 100 feet in size, and does not appear to be in use, based on the lack of standing water. The slopes and surrounding upland areas adjacent to these ponds are devoid of vegetation. The third pond, east of the two previously described, is a small depression in a naturalized area just beyond the aggregate pad at the base of the dam slope. This feature is approximately 20 feet x 15 feet in size and was dry at the time of the assessment. This pond has upland grasses growing within and up its banks. The max depth of the two pools on the aggregate pad is approximately 4 feet and the maximum depth of the third pool is estimated to be less than 2 feet deep. It is unlikely that these pools retain water at sufficient depth and for a sufficient duration to provide suitable California red-legged frog breeding habitat.

Ephemeral Pond (Location 33)

The feature assessed at Location 33 is an excavated hole that may retain marginal rainwater runoff for a short time. Currently, the feature appears to be associated with a nearby OHV recreational track and to be used as an obstacle/jump. Within the basin of the feature, there is little vegetation and several rodent burrows were evident. The feature is approximately 8 feet deep but it is highly unlikely that water levels would ever reach this capacity due to a general lack of water sources in the area. Additionally, the feature is suspected to drain efficiently, heightened by the numerous ground squirrel burrows in the depression. Lack of emergent vegetation and the apparent ephemeral nature of the feature make this site an unlikely candidate for California red-legged frog breeding.

Quarry Depressions (Location 36)

Location 36 represents three depressions in close proximity to each other. All of the features have been excavated and are within the boundary of Borrow Site 1. All three depressions have a rock aggregate substrate similar to the surrounding quarry substrate; upland grasses and forbs grow in and out of these features (e.g., vinegar weed, tar weed, wild oats). The pools are 15 feet x 3 feet, 12 feet x 4 feet, and 100 feet x 30 feet, and each is 2-3 feet deep. No water was present in any of the depressions at the time of the assessment. Based on the vegetation present, the rock aggregate soils drain very effectively and no water is retained within these pools for any significant length of time. Thus, these features would not provide the long-term water source needed for successful California red-legged frog breeding.

Perennial Wetland (Location 37)

The feature assessed at Location 37 is a wetland adjacent to a dirt road. An upslope spring provides water to this linear feature (70 feet x 4 feet), which has a maximum depth of 4 inches. The wetland contains emergent vegetation such

as bulrush (*Scirpus* sp.), nutsedge (*Cyperus* sp.), cocklebur, duckweed (Lemnaceae), rabbits-foot grass (*Polypogon* sp.), and cattails. However, the feature does not have sufficient depth to provide suitable California red-legged frog breeding habitat.

Perennial Pond (Location 38)

The pond at Location 38 was assessed from aerial photographs because the site is located on private property and access was not available. Based on inspection of several historic aerial images, the pond is estimated to be approximately 5,000 square feet in size. The feature appears to be manmade, probably for cattle, and no bank vegetation was visible on the aerials. The substrate and maximum depth of the pond could not be determined. Based on this information, it is possible that this pond could be used as California red-legged frog breeding habitat; however, emergent and bank vegetation for egg attachment and cover appears to be limited and water depth may be insufficient for successful tadpole survival during metamorphosis.

Perennial Pond (Location 39)

The pond at Location 39 was assessed from aerial photographs because the site is located on private property and access was not available. Based on inspection of several historic aerial images, the pond is estimated to be approximately 5,200 square feet in size. The feature exists at the base of surrounding hill slopes in a natural path for rainwater drainage, and appears to have been created by damming of this natural drainage. The pond has a main pool with a long "finger" channel on its western end. No emergent or overhanging vegetation was visible on the aerials. The substrate and maximum depth of the pond could not be determined. Based on this information, it is possible that this pond could be used as California red-legged frog breeding habitat; however, emergent and bank vegetation for egg attachment and cover appears to be limited and water depth may be insufficient for successful tadpole survival during metamorphosis.

Water Treatment Pond (Location 42)

The feature assessed at Location 42 appears to be a treatment pond associated with the Basalt Campground facility. It is a concrete lined pool approximately 25 feet x 8 feet in size, and is permanently inundated to a depth of approximately 2.5 feet. Large boards cover 90 percent of the water surface; only small gaps and cracks remain accessible between the boards and 5-inch wire mesh fence encloses the feature. The water appears stagnant and no emergent vegetation is present. Primarily upland grasses grow around the feature with a few sedges growing near the pool edge. This feature lacks the emergent vegetation needed for California red-legged frog breeding habitat. Further, the water may be contaminated.

Treatment Ponds (Locations 16 and 44)

The features assessed at Locations 16 and 44 are treatment ponds. Each pond is 100 feet x 30 feet in size and has a substrate of rock and gravel. No vegetation grows in or around these ponds and a chain-link fence surrounds them. There

was no water in these features at the time of the assessment. The ponds are estimated to have a maximum depth of 5 feet. The source of water for these features is unclear; however, the Basalt Campground, which is several hundred feet down slope of these ponds, has the nearest facilities. These features have insufficient perennial water levels and emergent vegetation to support California red-legged frog breeding habitat.

Ephemeral Pond (Location 46)

The pond at Location 46 was assessed from aerial photographs because the site is located on private property and access was not available. Based on inspection of several historic aerial images, the pond is estimated to be approximately 2,500 square feet in size. The pond appears to have been created by damming of the natural drainage. It is probably used by cattle, and no bank vegetation was visible on the aerials. The substrate and maximum depth of the pond could not be determined. Based on this information, it is possible that this pond could be used as California red-legged frog breeding habitat; however, emergent and bank vegetation for egg attachment and cover appears to be limited and water depth may be insufficient for successful tadpole survival during metamorphosis.

Perennial Pond (Location 47)

The pond at Location 47 was assessed from the top of basalt hill with binoculars because access to the feature was limited and would interrupt a local herd of tule elk (*Cervus elaphus nannodes*) that were foraging there. The feature is a large depression along the reservoir bottom that remained filled after the reservoir receded. It also receives some water input from rain events and spring runoff. The feature is estimated to be at least 150 feet x 50 feet in size and is surrounded by an approximate 40-foot buffer of herbaceous vegetation that touches the waters edge on all sides. Substrate and maximum depth could not be determined. This feature could be utilized as California red-legged frog breeding habitat; however, the feature may be absorbed by the reservoir if water levels return to historic elevations (levels have remained at current elevations for approximately 3 to 4 years). In addition, there is a high likelihood that predatory fish were stranded in the feature when lake levels dropped, which reduces the quality of the habitat for California red-legged frogs.

Perennial Pond (Location 48)

Because of restricted access, the pond at Location 48 was assessed from the top of basalt hill. Based on the inspection of several historic aerial images, the pond is estimated to be approximately 2,500 square feet in size when full; however, at the time of the assessment the feature was only about 300 square feet in size. The pond appears to have been created by damming of the natural drainage, probably for use by cattle. No emergent vegetation was visible; however, the water was very green and contained dense algae. No overhanging vegetation exists and the banks are mostly bare with patches of upland grasses. The substrate appears to be soil and the depth at the time of the assessment was estimated at less than 12 inches. The maximum depth of the pond appears to be no more than 3.5 feet, based on water lines. Based on current conditions, the

pond appears to lack the emergent or overhanging vegetation necessary to be suitable as California red-legged frog breeding habitat.

Chapter 7
Summary

NSR conducted a California red-legged frog site assessment for the 2,578.80-acre B.F. Sisk Dam Corrective Action Project in Merced County, California. The site assessment was conducted in accordance with the USFWS *Guidance on Site Assessment and Field Surveys for California Red-legged Frogs* (2005).

The project area is located within the currently known range of the California red-legged frog. The nearest designated critical habitat occurs approximately 3 miles west of the project area. A review of the CNDDB revealed four reported occurrences of the species within 5 miles of the project site (California Department of Fish and Game 2009).

Survey results indicate that no suitable California red-legged frog breeding habitat [i.e., dense, shrubby, or emergent riparian vegetation closely associated with deep (greater than 2.3-feet deep) still or slow-moving water] is present within the project area.

Further, survey results indicate that the majority of the sites in the local assessment area (the area within 1 mile of the project boundary) are unsuitable as California red-legged frog breeding habitat, primarily due to water of insufficient depth and/or duration. Those features retaining enough water to support the frog often had other problematic characteristics that would eliminate, in most cases, the possibility of red-legged frogs utilizing the site as breeding habitat.

If reservoir levels rise significantly and dam seepage increases substantially, some of the features that currently do not hold water of sufficient depth or for a sufficient duration may begin to retain enough water to warrant reconsideration as potential habitat for the California red-legged frog. However, based on current trends and recent lake data over the last 5 years, it is doubtful that San Luis Reservoir water levels will return to historic highs any time in the near future

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Chapter 8
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Appendix A

Resume for Lead Assessment Biologist

BRANDON AMRHEIN
Biologist/Environmental Analyst

EDUCATION: BA in Environmental Studies with a minor in Biological Sciences
California State University Sacramento.

ADDITIONAL TRAINING:

- Biology and Management of the California Red-legged frog workshop - 2008
- Certified Wetland Delineator: 2003 (Wetland Training Institute)
- Studied and worked under the supervision of an ISA Certified Arborist for approximately 3 years.

SYNOPSIS:

Mr. Amrhein has over 4 years of experience as a professional biologist, conducting environmental/biological services for development projects and municipal planning projects, including research, preparation of environmental documentation, and fieldwork such as biological assessments, tree surveys, wetland delineations, special-status species investigations, valley elderberry longhorn beetle surveys, nest surveys, environmental monitoring of construction sites, and monitoring for mitigation requirements. In 2008, Mr. Amrhein attended a California red-legged frog training workshop which included instruction on the proper handling and identification of adult and larval stages of red-legged frogs, bull frogs, and western toads; day and nighttime survey protocols and participation; and a review of various frog calls.

RELEVANT EXPERIENCE:

Soda Bay Road Bridge Replacement Project — Lake County, CA. Wildlife Biologist. Conducted protocol-level California red-legged frog surveys for the project. Completed 2 daytime and 4 nighttime surveys. Fieldwork was conducted under the supervision of an NSR biologist authorized under a U.S. Fish and Wildlife Service Recovery Permit for the California red-legged frog.

Sly Park Road Bridge Replacement Project — El Dorado County, California. Wildlife Biologist. Conducted a California red-legged frog site assessment and completed protocol-level field surveys. Twelve aquatic sites were identified within 1-mile of the project site and evaluated for habitat suitability.

Business Park Drive/Durock Road Intersection Improvement Project — El Dorado County, California. Wildlife Biologist. Conducted a red-legged frog site assessment in which three aquatic sites were evaluated for habitat suitability. The specific focus of these sites was to determine if introduced aquatic predators such as bullfrogs and bass were present at these locations.

Kamps Ranch Biological Resource Assessment — Madera County, California. Wildlife Biologist. Working with a California tiger salamander (CTS) permit holder, Mr. Amrhein discovered a small population of larval stage CTS in several cattle ponds. Habitat characteristics, GPS coordinates, and photographs were submitted to the state for entry into the CNDDB database.

Lewis Stein Bridge Project – Elk Grove, California. Monitoring Biologist. Monitored all construction activities at the project site while construction was in progress. Project activities were conducted in a sensitive giant garter snake (GGS) mitigation area. Mr. Amrhein provided worker training for the identification of sensitive wildlife species and the proper procedures to follow when sensitive species were detected within the project boundaries. Mr. Amrhein worked with Mr. Eric Hanson (Recovery Permit holder for GGS) to identify GGS and report potential GGS sightings.

Biological Investigations for Environmental Impact Reports of various projects in California. Mr. Amrhein performs site reconnaissance level surveys, and writes biological evaluations to be included as part of Environmental Impact Reports for various projects throughout California. To complete these tasks he conducts research using the California Natural Diversity Database and California Wildlife Habitat Relationship System database, as well as consulting with the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, California Department of Fish and Game, California Native Plant Society, local government officials, and local environmental agencies to address site-specific natural resources.

Wetland Delineation for various projects in California. Mr. Amrhein conducts wetland delineations, following the U.S. Army Corps of Engineers guidelines. He considers hydrology, vegetation, and soil to determine if habitat meets the requirements to be considered an official wetland per the U.S. Army Corps requirements.

Special Status Species investigations and consultations for various projects in California. Mr. Amrhein confirms the presence/absence of special status plant and animal species and potential habitat for these species (e.g., Swainson's hawk, burrowing owl, and giant garter snake) at various project locations in California. He consults with the U.S. Fish and Wildlife Service, California Department of Fish and Game, and U.S. Army Corps of Engineers (when appropriate) regarding appropriate survey/reporting protocols for specific species.

Appendix B

Habitat Assessment Data Sheets

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 11/22/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 1

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 2ft.
Depth at bank full: 1.5 ft.
Stream gradient: 7%

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: upland grasses (no emergent)

Substrate: soil (natural) + concrete segment

Bank description: open canopy. gradual slope.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature appears to be a Hwy drainage runoff ditch. Feature is natural b/w DFO fence + Hwy connects to concrete lined ditch (3ft wide)
- Water: Natural source (runoff)
- upland grasses, no veg.
- Dry @ time of assessment

Necessary Attachments: Photo #7260-7263

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10/22/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amchein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

location 2

POND:
Size: 50ft x 50ft. Maximum depth: 1-2 ft.

Vegetation: emergent, overhanging, dominant species:
smartweed, cocklebur, dock, thistle (milk?)
bottle brush (?- refer to photo) fennel.

Substrate: Soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: ?

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is a damned natural drainage. (Impounded) Broad, flat gradual slope near dam
- No water present @ time of assessment. Feature appears to have been dry for several years.
- Not CRLF breeding habitat.
- No culvert present for water drainage through dam (impounded side collection feature only.

Necessary Attachments: Photo #s: 7264-68

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/21/09
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 3

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 15'
Depth at bank full: 2'
Stream gradient: 3%

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____
Dominant: coyote bush
some upland grasses/weeds
Substrate: soil

Bank description: densely covered w/ vegetation

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: dependent on lake levels.

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature runs parallel to 152. No water present. Does not appear to hold water for a long time period: therefore unlikely to support CRLF habitat.

- Dense canopy cover of coyote bush.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 09/30/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 6 & 11

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3ft.
Depth at bank full: 18 in.
Stream gradient: 5%.

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: glide

Vegetation: emergent, overhanging, dominant species: mowed remnants of emergent veg. (rush sp.)

Substrate: dirt/soil

Bank description: exposed, steep banks

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: seep is wet when lake levels are high.

Photo #'s 6966, 6989, 6990, 7007 see also: 6691-6692

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Ditch is maintaing + kept clear of vegetation. Some upland grasses along upper bank.
- This seep has been dry approximately 3yrs. (per DWR) due to low lake levels.
- Water source = lake.
- During time of assessment, water feature appears to have been dry for 6+ months. Not suitable for ART habitat (due to lack of water).

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 09/30/09
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 4&5

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: A - 30yd. circle.
Size: B - 4yds x 2E yds. Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____
A - unidentified grasses. (green)
B - unidentified grasses/weeds (dry/dead).

Substrate: soil/gravel/fine sand.

Perennial or (Ephemeral *(circle one)*. If ephemeral, date it goes dry: dependend on treatment use.

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature appears to serve as water treatment ponds for visitor center
2 ponds connected by culvert. 1st pond drains to second.
Pond 1 has no visible surface water. Emergent veg (weeds, grasses) is green. Water meter in center of pond (max depth of meter is 14ft)
Pond 2 is dry; has no green vegetation. Doesn't appear to be in use.
- Both features have exposed upland banks, enclosed by barbed wire fence.
- Photo #'s: 7008 - 7010

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/21/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name) Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name) _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 1

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 1-2ft.
Depth at bank full: 5-6 ft.
Stream gradient: 3%.

Are there pools (circle one)? YES (NO)
If yes,
Size of stream pools: ~~/~~
Maximum depth of stream pools: ~~/~~

Characterize non-pool habitat: run, riffle, glide, other: ~~/~~

Vegetation: emergent, overhanging, dominant species: minimal emergent

Substrate: soil.

Bank description: upland grasses along banks; dominant upland veg = coyote bush
disturbed / altered erosion is minimal (open + exposed)

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: depend on lake levels

Other aquatic habitat characteristics, species observations, drawings, or comments:

Feature is part of seepage system. Water source is derived from lake seepage when lake water level is high.
Drains eventually to feature 10.
Feature dry @ time of survey. Feature does not appear to retain water (evident by lack of emergent veg) Doesn't appear to support CRLF breeding hab.
Parallels Hwy / barbed wire fence
extends through feature (Disturbed)

- water turbid (murky)

Necessary Attachments:

Photo #: 7240 - 46

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

* Roadside drainage ditch appears to tie into this feature

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 09/30/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION
(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 8&9

POND: A 40ft x 25ft.
Size: B 60ft x 50ft. Maximum depth: 3ft.

Vegetation: emergent, overhanging, dominant species: EMERGENT: Cattail Rabbit's Foot Grass, Sedge (Juncus sp.?) ⇒ see wetland delineation report. OVERHANG: Coyote bush

Substrate: soil / very dry w/ large, deep cracks.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: dependent on lake levels.

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is comprised of multiple ditches draining to a depression containing cattails + other wetland. This feature passes under freeway + dirt road via culvert.
- Feature has been dry for several years per DNR.
- Dam seepage @ higher lake levels may act as a water source for this feature. However, lake levels are too low for enough water to support CRLF breeding habitat.
- Maint. road bordering one edge of feature (free of vegetation.)

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Photo #'s: 6993 - 7004

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 09/28/2009 (mm/dd/yyyy)

Site Assessment Biologists: Anthes (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. In an unsectioned portion of the San Luis Gonzaga land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 10

POND: within drainage. — Dry on assessment date

Size: ~ 2.5 Acres when full Maximum depth: 1'

Vegetation: emergent, overhanging, dominant species: EMERGENT: Cattail, rush.
OVERHANG: Willow, Cottonwood

Substrate: soil

Perennial or (Ephemeral) *(circle one).* If ephemeral, date it goes dry: August

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature sits in a low drainage depression. Dense overhanging veg (mostly willow). → Not artificially impounded (feature gradually
- Water source: ground appears to be moist @ time of assessment. Natural runoff.
- Deer, jack rabbit, morning dove.
- Upland habitat: grassland.

road boarders

Photo#: 6922-6927

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/22/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Terra
(Last name) (first name) (Last name) (first name)

_____ _____
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. In an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 12

POND: (tear-drop shaped)
Size: 35ft long x 35 wide Maximum depth: 4ft.

Vegetation: emergent, overhanging, dominant species: Emergent: nut sedge, smartweed, rabbit's foot grass, wooley marble, doc, underwater vegetation.

Substrate: soil. (rock + silt.)

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature exists in a hill recess: Excavated + impounded/culvert connected to and draining into ditch (feature #13) @ time of survey, culvert is 1ft above water surface + 60-90% clogged w/silt.
- Macroinvert present: water striders. (No other animals observed) Deer + wildlife trails present
- Water source: likely natural.
- Open canopy. Steep bank mostly bare. Some sparse emergent vegetation exists along feature edges.
- Photo #'s: 7250-54 - CRLF potential hab?

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/22/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon Perkins Tetra
(Last name) (first name) (Last name) (first name)

_____ _____
(Last name) (first name) (Last name) (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location B

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 6 ft.
Depth at bank full: 1 ft - 3 ft.
Stream gradient: 5%

Are there pools (circle one)? YES (NO)
If yes,
Size of stream pools: ~~_____~~
Maximum depth of stream pools: ~~_____~~

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: upland grasses: Lolium (sp?)

Substrate: soil.

Bank description: open canopy, covered in upland grasses. Gradual slope.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: dry @ time of assessment

Other aquatic habitat characteristics, species observations drawings, or comments:

- Feature's water source is #12 DFO pond when the feature reaches current level. (in addition to natural source)
- Feature follows a natural topography + is joined by other similar topographic drainages.
- Dry @ time of assessment. Little to no emergent veg.
- Wildlife trails present.
  Photo #: 7255 → 7259

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 09/28/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

location 14 & 15

POND: Size: Pool 1 160 x 100 ft; Pool 2 160 x 100 ft

Maximum depth: 4ft (typical depth <18 in.)

Vegetation: emergent, overhanging, dominant species: EMERGENT: Cattails unknown low growing weed; tumbleweed.

Substrate: Gravel w/ layer of sediment

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: Varies based on use

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is two water treatment ponds. Pond 2 appears to overflow into pond 1. Ponds are excavated and surrounded by barbed wire fencing. Steep, gravel lined banks.

- Pond 1 (Southmost) has cattails densley vegetated. Pond 2 (Northmost) appears to receive less water. Vegetated w/ bumble weeds.

Photo #: 6916 + 6917

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 09/28/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 17

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM: / Drainage

Bank full width: 3ft.

Depth at bank full: 6 in.

Stream gradient: 3%

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____

Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: glide

Vegetation: emergent, overhanging, dominant species: pockets of wetland vegetation along feature. Ex: Dock, cattails.

Substrate: soil

Bank description: upland grasses. low area along natural drainage

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: May (very dry @ time of assessment)

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Deer observed. Evidence of prior burn in area.
- Area may be barrow site for treatment pond. Possibly excavated.
- Unlikely to support water levels needed for CRLF breeding habitat.

Photo #: 6918 connects to 6919-6921

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 09/28/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 13
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:
Due to seismic concerns the Bureau of Reclamation and DWR are making corrective improvements to the dam structure to alleviate risks to the downstream public.

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 18

POND:

Size: ~2.25 Acres Maximum depth: 4'

Vegetation: emergent, overhanging, dominant species: EMERGENT: Cattails, Willows, Rush, Curly Dock, Crab Grass, Cocklebur
OVERHANGING: Willows sp.

Substrate: Soil with algae matting.

(**Perennial**) **or Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:
- Wildlife: green heron nest; rookery. Crayfish, Killdeer

- Feature separated from forebay @ time of assessment. Viable fish habitat not likely in wetland feature when forebay water level is low. CRLF predators= shore birds + crayfish + possibly fish

- one Pacific chorus frog call heard during assessment.
- water source: forebay overflow + natural drainage.

Photo #: 68886 - 68916

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 09/28/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R09E Sec. 18
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 19

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: ~18 Acres Maximum depth: 57'

Vegetation: emergent, overhanging, dominant species: EMERGENT: hydrophytic grass.
OVERHANGING: Willows (Salix sp.)
Bullrush, Cattail, Curly Dock along portions of shoreline.

Substrate: Sand / gravel
Algae mats on bank

Perennial or **Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Wildlife: Merganser, Gulls, Ravens, Fish (~~striped~~ bass, sunfish), Osprey, Coots, Aq. snails, FW clams, Egrets, Cormerants, Blackbirds, (Brewers, Red wing) Mallards.
- Fishermen present, recreational use (camping)
- Excavated + impounded: man-made forebay to San Luis Reservoir
- Surrounding-upland habitat: grassland / riparian zone (willows, Sycamore, oak, cottonwood, black walnut

Photo #: 6879 – 6881; 6884-6885;

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 09/28/2009
(mm/dd/yyyy)

Site Assessment Biologists: Ancheta Brandon (Last name, first name) Perkins Terra (Last name, first name)

_____ (Last name, first name) _____ (Last name, first name)

Site Location: Merced Co. T10S R09E Sec. 19
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 20

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 20ft x 20ft. Maximum depth: 6in.

Vegetation: emergent, overhanging, dominant species: no veg. upland grasses around feature.

Substrate: soil/cracked mud

Perennial or (Ephemeral *(circle one)*. If ephemeral, date it goes dry: June

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Devoid of vegetation. Feature appears to be artificially fed for cattle.
- Excavated / man-made.
- Feature is unlikely to hold enough water for CRLF breeding habitat.
- Ground squirrels observed in nearby upland area.

Photo #s: 6902 - 6905

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 09/28/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Section 24
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 21

POND:

Size: 80 yds x 25 yds. Maximum depth: ≈ 1 ft.

Vegetation: emergent, overhanging, dominant species: Bare surrounded by upland grasses.

Substrate: soil

Artificially fed → feature filled 2 weeks prior to assessment. (Speculate water will evapo 1 month from filling

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry:

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is an active cattle pond. Likely fed from water tank uphill. 10-12 cows.

- Feature occurs in a natural depression. Drainage to feature has been manipulated to retain more water (impounded)

Photo #'s: 6906-6910; 6591, 6593, 6594

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 09/28/2008
(mm/dd/yyyy)

Site Assessment Biologists: Amchein Brandon (Last name, first name) Perkins Terra (Last name, first name)

_____ (Last name, first name) _____ (Last name, first name)

Site Location: Merced Co. in an unsectioned portion of the San Luis Conzaga Land Gra.
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

location 22

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3ft.
Depth at bank full: 6-18in.
Stream gradient: 3%.

Are there pools (circle one)? (YES) NO

If yes,

Size of stream pools: 3ft x 6ft.
Maximum depth of stream pools: 18in.

Characterize non-pool habitat: run, riffle, glide, other: glide

Vegetation: emergent, overhanging, dominant species: DOMINANT/OVERHANGING: Willow sp. Sycamore. Little to no undergrowth / emergent grasses.

Substrate: soil

Bank description: bare soil w/ leaf litter on upland areas.

Perennial or (Ephemeral) *(circle one)*. If ephemeral, date it goes dry: July

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Primary water source from San Luis reservoir seepage. Seepage minimal for the past four years (per DWR) due to low water levels.
- Channel does not appear to have sufficient water levels to support viable breeding habitat of CRLFS.
- Feature drains to emergent wetland area of forebay.

Photo #s: 0897 - 6900

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/1/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

location 23, 24, 25

POND:

Size: ① 30' x 50' ② 30' x 100' ③ 20' x 15'

Maximum depth: ①② 4ft. ③ 2ft.

Vegetation: emergent, overhanging, dominant species: ①+② lacking emergent, misc. green veg in small patches where enough sediment has collected.
③

Substrate: ①+②: rock aggregate (w/ some sediment)
③: soil + aggregate (grasses in + around feature

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

①+②: Feature consists of two pools within the power facility @ base of dam. ① has small pool of water @ time of assessment (4" water 10ft x 10ft). ② is dry with some green veg in bottom. Bank slopes are bare aggregate rock w/small patches of upland grasses. open + exposed banks.
water source = forebay pump facility.

③: Feature does not appear to be in current use as treatment pond. Lacks emergent veg. upland grass growing within feature bottom + along slopes. Sits between dam and storage yard. Pipe extending to feature. May serve as entrapment point for wash station.

enclosed by chain link barbed wire fence.

no wildlife observed.

Necessary Attachments:

Photo #: 7095 - 7097

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/01/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 26, 27, 28, 29, 30

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.

California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3ft to 15ft.
Depth at bank full: varies
Stream gradient: 4-5%

Are there pools (circle one)? YES (NO) → empty into wetland.
If yes,
Size of stream pools: ~~_____~~
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: portions are channelized with steep narrow banks. Others are flat wide and create emergent / wetland habitat.
Vegetation: emergent, overhanging, dominant species: Ditch has patches of overhanging: willow, cottonwood. Flat/wetland portions has smartweed, cattails, willows
Substrate: soil

Bank description: steep narrow + "maintained" possibly excavated exposed. Other locations appear to be naturalized, more flat.

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: conditional on lake levels.

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature spans most of dam base in which a network of side ditches / seeps flow into it. Ditch eventually drains near the western end of forebay. Fairly sophisticated network of culverts + ditches.
- man made - excavated/impounded @ points.
- Feature dry @ time of assessment, but may retain more water when lake levels are higher. consult wetland report
wetland areas are densely vegetated, ditch near forebay is open + exposed.
- Upland habitat consists of grasses w/ coyote bush.

Photo #'s: 7098-7100, 7105-7111

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/1/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein Brandon (Last name, first name) Perkins Terra (Last name, first name)

_____ (Last name, first name) _____ (Last name, first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 31

POND:

Size: ① 30' x 15' ② 150' x 25' Maximum depth: < 1 ft.

Vegetation: emergent, overhanging, dominant species: EMERGENT: cattails, false willow (look-up) Overhanging: cottonwood + willow @ S edge of ② UPLAND: grasses + coyote bush

Substrate: soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: unknown ?

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Features have clay soils (deep hoof marks) dry. Patches of cattail were still green indicating recent moisture. Zero surface water present.
- Unlikely to hold sufficient water levels for CRLF breeding habitat.
- Watersource: (ditches from unknown source; no visible culverts.) (Maybe nat. runoff from roads

Photo: 7120+21 ① 7122-7125 ②

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/01/2009
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 32 & 34

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: associated
Size: ditch is 100-ft long x3ft wide, Maximum depth: n/a

Vegetation: emergent, overhanging, dominant species: See wetland delineation info.

Substrate: soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

→ conditional on lake levels.

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Features are dam seepage locations where water collects & passes to culvert leading to large drainage ditch.
- these features have been dry (likely for 3-4 yrs due to low lake levels - per PWR.)
- As of assessment date, insufficient water to support CRLF breeding habitat.
- No wildlife observed.

Photo #'s 17101 - 7104

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 09/28/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R09E Sec. 19
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? YES NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 33

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Excavated hole. May retain marginal rainwater/runoff.
- Recreational use. OHV park just north of feature. Tire tracks passing through feature. Appears to be used as a jump.
- Feature contains several ground squirrel burrows. Significant upland grasses. Unlikely to hold water for more than a few days.

Photo #'s: 6590

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10/01/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 33
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B F Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 35 & 36

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND: 1- 10ft x 4ft
2- 16ft x 3ft
3- 12ft x 4ft
4- 100ft x 30ft.

Size: _____ Maximum depth: n/a

Vegetation: emergent, overhanging, dominant species: no emergent veg in depressions. Dominant comprised of upland grasses growing in features (vinegar weed, tar weed, oat, thistles)

Substrate: rock aggregate (3-8inches) with rock sediment

Perennial or (Ephemeral) *(circle one).* If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Features occur within quary. Man-made depressions (excavated/trailings.)
- Substrate appears to drain water quickly. Features not expected to retain water for more than a few days. (ie) no restrictive layer.
- Watersource: rainwater/natural
- No wildlife observed. No hydrophytic veg occuring in or around features

Photo's: 7094, 7024, 7025, 6974-76, 6983

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10/1/09 (mm/dd/yyyy)

Site Assessment Biologists: Amchen Brandon (Last name) (first name) ; Perkins Terra (Last name) (first name)

_____ (Last name) _____ (first name) ; _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 27
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B, F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 37

POND:

Size: 70ft x 4ft Maximum depth: 4in.

Vegetation: emergent, overhanging, dominant species: EMER: Bullrush, Nutsedge, cocklebu
Duckweed, Rabbit's Foot grass, Cattails, OVERHANG: Willows.
UPLAND: grasses, sedge

Substrate: soil w/ clay

(Perennial) or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature exists in a man-made road cut below natural grade. Feature is enclosed @ west by dirt road + hill slope @ the east. Feature is open + exposed; some overhanging veg @ N (willow). Dense emergent veg within feature.
- water source is natural runoff/rain. (Spring/seep is upslope from featu
- wildlife: sparrows evidence of deer/elk (prints + scat). No amphibs heard or observed.
- Upland Hab: feature associated with quary tunnel/mine entrance. Banks contain upland grasses w/bare soil. steep slopes may provide some shad
- As feature fills it drains down slope towards lake.

Photo #'s: 7035-7040

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10-22-09 (mm/dd/yyyy)

Site Assessment Biologists: Amchein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 35
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 38

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 5,000 sq. ft. (Based on aerials) Maximum depth: assumed 4 ft

Vegetation: emergent, overhanging, dominant species: None visible on aerial imagery

Substrate: assumed soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

Feature was assessed from aerial imagery because it was located on private property.

Feature may be man-made and appears to be maintained for cattle.

No visible vegetation in or around the feature

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10-22-09 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 34
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

Location 39

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: 5,200 Sq.ft. (based on aerials) Maximum depth: assumed 4 ft

Vegetation: emergent, overhanging, dominant species: Based on aerial imagery there is little to no vegetation present within the pond. No overhanging vegetation visible

Substrate: assumed soil

(**Perennial** or **Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

Feature exists at base of surrounding hill slopes where rainwater would naturally collect.

Feature was assessed from aerial imagery because feature is located on private property.

Feature may be man-made and appears to be maintained for cattle.

Feature has a main pond and a long "finger" channel that is approximately 220 feet long and up to 10 feet wide on its western side.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/1/09
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name) Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name) _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 26 and 35
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 40, 41, 43

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3ft.
Depth at bank full: 18in.
Stream gradient: 7%

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: other

Vegetation: emergent, overhanging, dominant species: OVERHANG: Fig
EMERG: cattail
UPLAND: grasses (oat, thistle)
Substrate: soil

Bank description: steep w/ upland grasses; open + exposed w/ low grass cover

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature occurs in a natural drainage. Dead cattails indicate that moisture levels were greater in past. Feature is lacking live emergent veg @ time of assessment. Feature runs 10ft. from #69.
- Flatted depression near fig tree may retain some water
- watersource: natural runoff
- Upland habitat: dirt road boarders drainage. (30ft. to the west)
- Feature more deeply incised upstream from fig tree.

Photo #'s: 7064, 7066, 7067

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10-22-09 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 26
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 1/2

POND:

Size: 25ft x 8ft. Maximum depth: 2.5ft.

Vegetation: emergent, overhanging, dominant species: none
upland: grasses / sedge around enclosed/boarded area.

Substrate: concrete lined

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is a treatment pond, Water of feature is covered by wooden boards / deck. Area is inclosed by fencing (5in x 5in) man-made.
- water appears stagnant + is likely toxic for amphibians
- Wildlife: several dead animals observed w/in feature (cottontail, ground sq.

Photo's #: 0595 - 0599

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/01/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Gonzaga Land Gra
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 16944

POND: ① 100' x 30'
Size: ② 100' x 30' Maximum depth: 5ft.

Vegetation: emergent, overhanging, dominant species: no veg.

Substrate: asphalt, rock/gravel

Perennial or (Ephemeral) *(circle one)*. If ephemeral, date it goes dry: as used

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature is man-made (excavated + impound). Consists of two pools. No water or vegetation in pools @ time of assessment.
- Banks + upland habitat consists of asphalt + rock surrounded by chain linked fence w/ barbed wire @ top. Open + exposed.
- Water source piped in. Not suitable CRLF habitat.
- Wildlife: red tail + crows

Photo: 7117 - 7118

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10/1/09 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. in an unsectioned portion of San Luis Conzaga Land Grant
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B. F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 45

POND:

Size: ~ 12,250 Acres Maximum depth: 270'-300'

Vegetation: emergent, overhanging, dominant species: EMERGENT: Willow, cocklebur, Smartweed, sparse grasses.

Substrate: sand / rocks

Perennial or **Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Reservior has sparse vegetation w/ willow, cocklebur + smartweed where water permeates sandy/rocky banks. (Banks open + exposed.) Little to no overhanging veg.
- Feature is entrapped @ NE edge by dam.
- Dried algae mats on bank. Presence of bivalves
- watersource: water levels have been low for past 3-4 yrs per DWR. Source is canal/forebay in addition to natural runoff.
- Wildlife: fish (rec. use), deer, racoon, coyote, various birds (brewers black?), gulls.
- No frogs observed/heard

Photos: 7078 – 7094

Upland hab - grassy hills, dirt roads surrounding lake

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10-22-09 (mm/dd/yyyy)

Site Assessment Biologists: Ancheta (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 25
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 46

POND:

Size: ~ 2,500 sq. ft. (based on aerials) Maximum depth: assumed 3 ft.

Vegetation: emergent, overhanging, dominant species: None visible on aerial imagery

Substrate: assumed soil

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: Assumed March based on historic aerial imagery

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

Feature was assessed from aerial imagery because it was located on private property.

Feature appears to be man-made. Evidence of artificial damming on aerials.

No visible vegetation in or around the feature.

Probably used by cattle.

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10/1/09 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 32
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 47

POND:

Size: 150ft x 50ft Maximum depth: 6ft.

Vegetation: emergent, overhanging, dominant species: Unidentified grasses. assessed from a distance

Substrate: soil/silt

(**Perennial**) **or Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____

Vegetation: emergent, overhanging, dominant species: _____

Substrate: _____

Bank description: _____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature assessed from quary (from 1,500 ft elevation). Feature occurs in a natural depression, typically covered by water when lake is fuller.
- Watersource: natural rain water / water left from receeding lake levels.
- Green vegetation, mostly grasses, growing in a 40ft buffer around pool → all the way to the feature edge.
- Wildlife: tule elk observed foraging + drinking in feature 30+ individuals several animal trails visible (from all directions) going to the pond
- Lake edge appears to be 3/4 mile from feature @ time of assessment

Photos: 7016 - 7023

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____ (FWS Field Office) _____ (date) _____ (biologist)

Date of Site Assessment: 10/1/2009 (mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name); Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name); _____ (Last name) _____ (first name)

Site Location: Merced Co. T11S R08E Sec. 4
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)**

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

Location 48

POND:

Size: 20' x 15' Maximum depth: 3.5 ft

Vegetation: emergent, overhanging, dominant species: no vegetation steep slopes w/ animal trails entering from the sides

Substrate: soil

(**Perennial**) **or Ephemeral** *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: _____
Depth at bank full: _____
Stream gradient: _____

Are there pools (circle one)? YES NO
If yes,
Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: _____
_____
_____

Vegetation: emergent, overhanging, dominant species: _____
_____
_____

Substrate: _____
_____

Bank description: _____
_____
_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Feature assessed from quary

- Man-made feature. Standing water in feature @ time of assessment. Appears to be no more than 12" deep. entraped @ west edge.

- Water source: runoff/natural. During wet conditions, feature appears to reach 3-4ft max depth.

- Coyote seen leaving feature.

Photo's: 6978 - 6979

[Water appears stagnant and contains dense algae.]

- upland habitat: bank slopes mostly bare w/ patches of upland grasses

Dirt road on berm. Steep slopes @ bank w/ animal tracks entering from the sides

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

Site Assessment reviewed by _____
(FWS Field Office) (date) (biologist)

Date of Site Assessment: 10/1/09
(mm/dd/yyyy)

Site Assessment Biologists: Amrhein (Last name) Brandon (first name) Perkins (Last name) Terra (first name)

_____ (Last name) _____ (first name) _____ (Last name) _____ (first name)

Site Location: Merced Co. T10S R08E Sec. 26 and 35
(County, General location name, UTM Coordinates or Lat./Long. or T-R-S).

****ATTACH A MAP** (include habitat types, important features, and species locations)****

Proposed project name: B.F. Sisk Dam Corrective Action Project
Brief description of proposed action:

1) Is this site within the current or historic range of the CRF (circle one)? (YES) NO

2) Are there known records of CRF within 1.6 km (1 mi) of the site (circle one)? YES NO
If yes, attach a list of all known CRF records with a map showing all locations.

location 49 & 50

GENERAL AQUATIC HABITAT CHARACTERIZATION

(if multiple ponds or streams are within the proposed action area, fill out one data sheet for each)

POND:

Size: _____ Maximum depth: _____

Vegetation: emergent, overhanging, dominant species: _____

_____

_____

Substrate: _____

_____

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: _____

Appendix D.
California Red-legged Frog Habitat Site Assessment Data Sheet

STREAM:

Bank full width: 3 ft.
Depth at bank full: <1ft.
Stream gradient: 10% - 3%

Are there pools (circle one)? YES (NO)

If yes,

Size of stream pools: _____
Maximum depth of stream pools: _____

Characterize non-pool habitat: run, riffle, glide, other: other (dry n/a)

Vegetation: emergent, overhanging, dominant species: No emergent veg in channel. UPLAND - grasses

Substrate: dirt/soil

Bank description: steep w/upland grasses + exposed soil contains some burrows. Banks prone to erosion (erode easily) open + exposed

Perennial or Ephemeral *(circle one)*. If ephemeral, date it goes dry: n/a

Other aquatic habitat characteristics, species observations, drawings, or comments:

- Natural drainage feature of upland hills, soils appear to drain water quickly ∴ lacks emergent/hydraphytic vegetation
- Watersource: natural/runoff.
- No wildlife observed. Several small mammal burrows on banks
- Feature does not appear to retain water long enough to support viable breeding habitat.

Photo: 7068 - 7071

Necessary Attachments:

1. All field notes and other supporting documents
2. Site photographs

Maps with important habitat features and species location

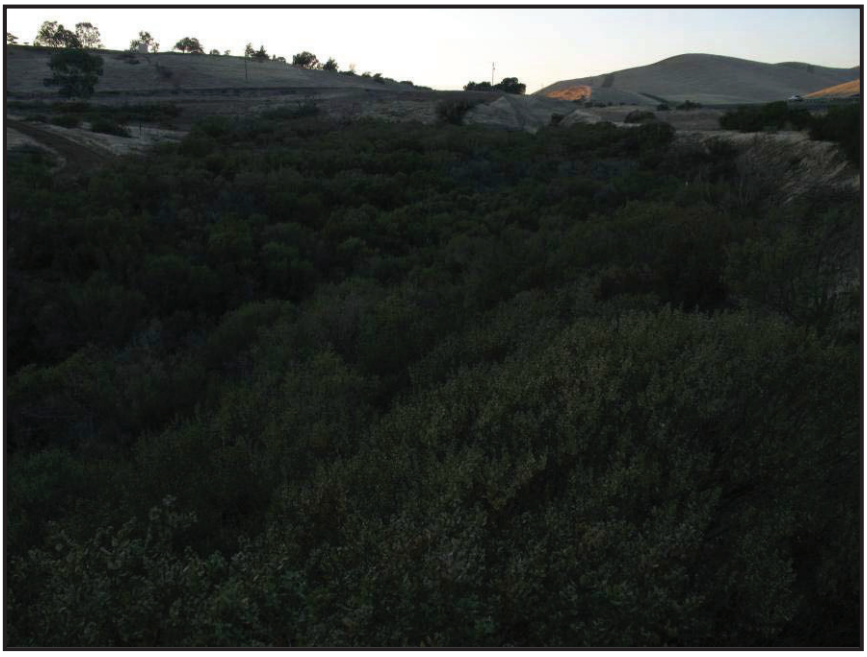
APPENDIX C

Assessment Site Photographs

Location 1a. Looking north. CDFG road is visible beyond the feature..

Location 1b. Looking southeast. Highway toe of slope on right. Concrete drainage visible in background.

Location 2. Looking north. Constructed berm on right side of image.



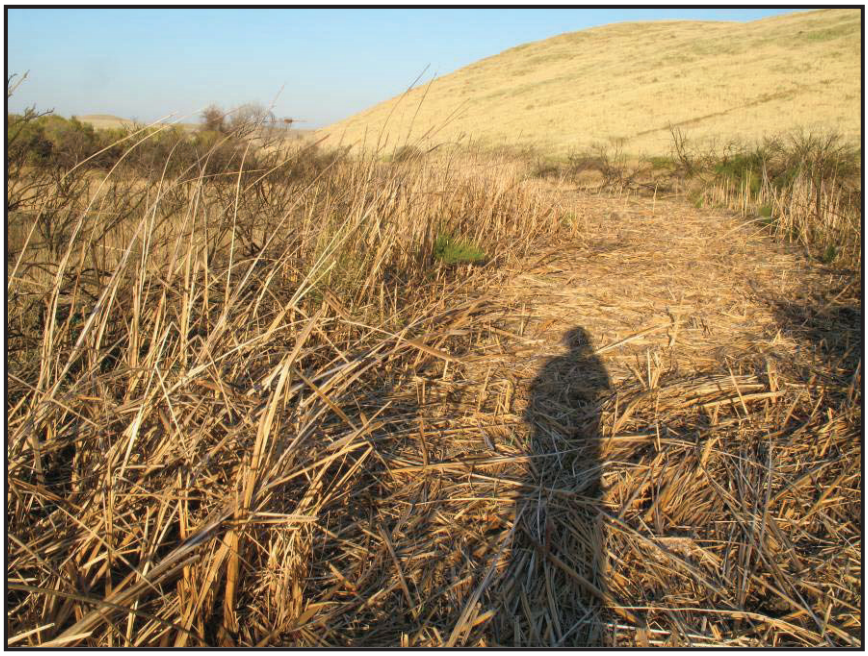
Location 3. Looking northwest. Highway visible on right.

Locations 4 and 5. Looking north.

Location 6. Looking east.

Location 7. Looking northeast from highway shoulder.

Location 8. Looking west. Base of dam is in background.



Location. 9. Looking northeast.

Location 10. Looking east.

Location 10. Looking north.

Location 11. Looking northeast. Highway 152 in background.

Location 12. Looking southwest

Location 12. Looking west

Location 13. Looking northeast. Culvert exiting pond (Location 12) in foreground.

Location 14. Looking west.

Location 15. Looking northwest.

Location 16. Looking east.

Photograph Location 17. — Looking north.

Location 18. — Looking north.

Location 1b. — Looking north. This image shows the inlet depression that connects O'Neil Forebay to the emergent wetland.

Location 19. — Looking north.

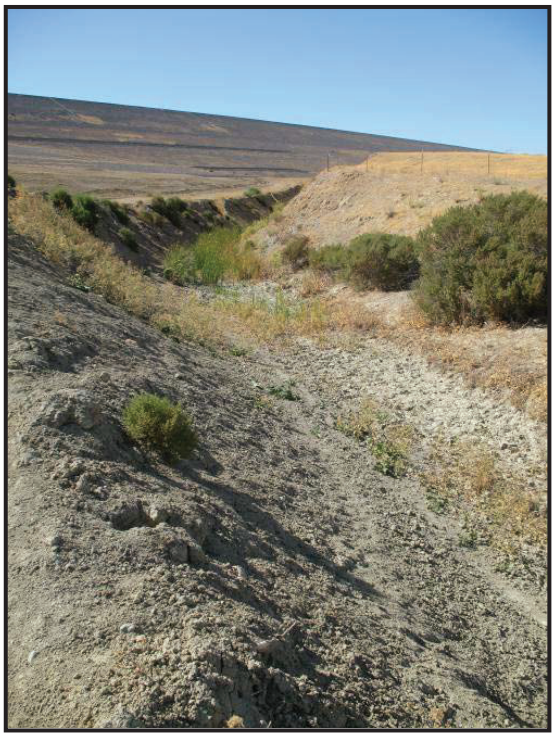
Location 20. Looking south.

Location 21. Looking southeast.

Location 22. — Looking southwest.

Locations 23 and 24. Looking northeast.

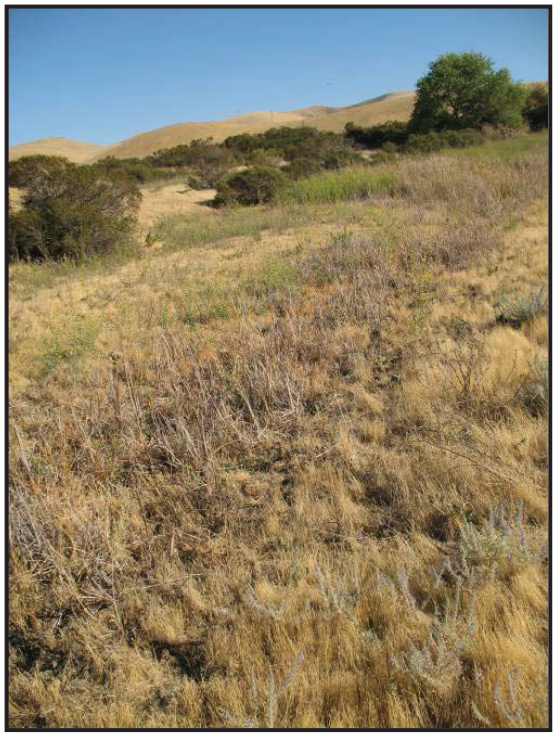
Location 25. Looking northeast.



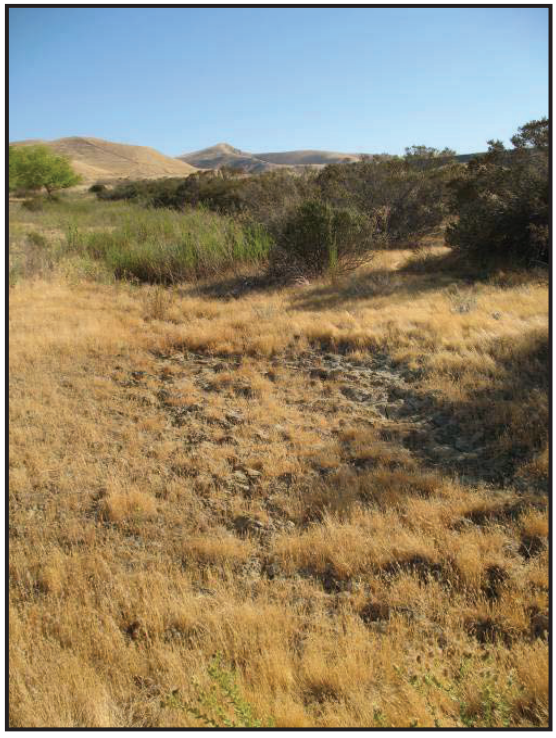
Locations 26 and 27. Looking northeast.

Location 28. Looking north.

Locations 29 and 30. Looking west.



Location 31. Looking north at larger feature.



Location 31. Looking north at smaller feature.

Location 32. Looking west.

Location 34. Looking west.

Location 33. No photo.

Location 35. Looking west.

Location 36. Pool 2 on data sheet.

Location 36. Looking north. Pool 3 in foreground and pool 4 in background.

Location 37. Looking south.

Location 38. No photo.

Location 39. No photo.

Location 40. Looking southwest.

Location 41. Looking north.

Location 42. Looking east.

Location 43. Looking south.

Location 44. Looking northeast.

Location 45. Looking west.

Location 46. Aerial image.

Location 47. Looking west.

Location 48. Looking southwest.

Location 49. Looking northwest.

Location 50. Looking southeast.

B.F. Sisk Dam Corrective Action Project

California Tiger Salamander Site Assessment

B.F. Sisk Dam
Central Valley Project, California

March 2010

U.S. Department of the Interior
Bureau of Reclamation

State of California
Department of Water Resources

Mission of the Bureau of Reclamation

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Department of Water Resources Mission Statement

To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.

B.F. Sisk Dam Corrective Action Project

California Tiger Salamander Site Assessment

B. F. Sisk Dam
Central Valley Project, California

Prepared by:

North State Resources, Inc.
5000 Bechelli Lane, Suite 203
Redding, CA 96002

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Appendices

Appendix A. Representative Photographs of the Project Site

B. F. Sisk Dam Corrective Action Project

California Tiger Salamander Site Assessment

1. Introduction

North State Resources, Inc. (NSR) conducted a site assessment of the B.F. Sisk Dam Corrective Action Project (project) to determine if the site could be utilized by the California tiger salamander (*Ambystoma californiense*). As required by the *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (U.S. Fish and Wildlife Service 2003), the field survey and other information compiled address three elements relevant to the potential occurrence of the California tiger salamander on the site. These elements are (1) is the project site within the range of the California tiger salamander, (2) what are the known localities of CTS within the project site and within 3.1 miles of the project boundaries, and (3) what are the habitats within the project site and within 1.24 miles of the project boundaries.

This Site Assessment Report is organized into the following sections:

I. Introduction
II. General Project Description
III. Methodology
IV. Overview of California Tiger Salamander Biology
V. Results of Site Assessment
VI. Conclusions
VII. References

2. General Project Description

The project site (Figure 1) is located on the west side of California's Central Valley, near the community of Santa Nella, approximately 12 miles west of Los Banos, California. It is located in the *San Luis Dam, California* 7.5-minute U.S. Geological Survey quadrangle.

Sisk Dam is part of the San Luis Joint-Use Complex, which was designed and constructed by the federal government and is operated and maintained by the California Department of Water Resources (DWR). The complex was constructed to provide supplemental irrigation water storage for the federal Central Valley Project (CVP) and storage of municipal and industrial water for the California State Water Project (SWP).

Figure 1. Project Location

The dam impounds San Luis Reservoir, which, with a total water storage capacity of more than 2 million acre-feet, is one of the largest off-channel storage facilities in the country and a key component of the water supply system in California. Water is lifted into the reservoir for storage by the Gianelli Pumping-Generating Plant from the California Aqueduct and is diverted from the Delta-Mendota Canal via O'Neill Forebay.

The dam and reservoir are located in an area of high potential for severe earthquake loading from active faults. A recent series of studies and analyses, including a probabilistic seismic analysis completed in 2006, determined that corrective actions were justified at Sisk Dam to reduce risk to the downstream public. The Bureau of Reclamation (Reclamation) and DWR seek to mitigate potential safety concerns identified in previous and ongoing studies by modifying water retention structures at Sisk Dam in order to reduce the seismic, static, and hydrologic risk.

The project will involve two main components: stability berms (buttresses) and a dam raise. Project construction will require a large amount (on the order of between 2 million and 20 million cubic yards) of earth material, all of which would be obtained from a number of borrow sites within the project boundary (Figure 2).

3. Methodology

Database Search and Literature Review

The California Natural Diversity Database (CNDDB) (California Department of Fish and Game 2009) was reviewed for the project area. The intent of the database review was to determine the closest documented occurrences of California tiger salamander to the project site. Additionally, NSR biologists reviewed the best available data pertaining to California tiger salamander local occurrences, life requirements, and cause of decline, as well as the *Designation of Critical Habitat for the California Tiger Salamander, Central Population, Final Rule* (70 FR 49379), including current range maps and designated critical habitat units.

Field Surveys

Mike Bumgardner, Principal Biologist of Bumgardner Biological Consulting and North State Resources biologists Brandon Amrhein, Terra Perkins, and Julian Colescott conducted a field survey in September 2009. The objective of the survey was to determine if suitable California tiger salamander upland and/or breeding habitat is present on the project site. Transects were walked to achieve 100 percent visual coverage of the project site and burrow locations were mapped. Representative photographs were taken of all upland and aquatic habitats on the site (Appendix A).

Figure 2. Proposed Project Activity Areas

4. Overview of California Tiger Salamander Biology

The California tiger salamander is a large (adult males are about 8 inches long, females a little less than 7 inches (Barry and Shaffer 1994)), stocky, terrestrial salamander with a broad, rounded snout. It is an endemic member of the California grassland community, inhabiting the Central Valley and surrounding foothills and valleys, from Sonoma County to Santa Barbara County (Trenham et al. 2000). Historically, California tiger salamanders probably relied exclusively on shallow vernal pools for breeding habitat, but they now make extensive use of ponds constructed for cattle, particularly in foothill habitat (Shaffer and Trenham 2005). Ponds that contain populations of exotic fishes and bullfrogs (*Rana catesbeiana*) appear unsuitable as breeding habitat (Shaffer et al. 1993; Fisher and Shaffer 1996; Shaffer and Trenham 2005).

Ecologically, this species has an obligate biphasic life cycle. Although larvae develop in the pools and ponds in which they were born, they are otherwise terrestrial salamanders that spend most of their postmetamorphic lives in widely dispersed, underground retreats (Trenham 2001). Adult California tiger salamanders are rarely encountered, even where they are known to be abundant, spending most of the year in or near upland refugia (Storer 1925; Barry and Shaffer 1994; Shaffer and Trenham 2005). Seasonal migration of adults to pools and ponds occurs only for the purposes of breeding.

California tiger salamanders aestivate during the dry months of summer and autumn. They are poor burrowers, using burrows excavated by ground squirrels (*Spermophilus beecheyi*) and other burrowing mammals. California tiger salamanders emerge from aestivation only after autumn rains commence. Adults then engage in nocturnal migrations, congregating at breeding sites. Eggs are deposited singly or in small groups of 2–4, submerged in relatively shallow water (Storer 1925; Twitty 1941). Following breeding, adults move away from breeding ponds to upland refugia. Eggs hatch 2–4 weeks after deposition (Storer 1925; Twitty 1941). Larvae feed on algae and aquatic invertebrates, grow rapidly, and metamorphose as the pond water level recedes in late spring or summer (Storer 1925). A minimum of approximately 10 weeks is required to complete development through metamorphosis (Anderson 1968 and Feaver 1971, as cited in Jennings and Hayes 1994). Following metamorphosis, juveniles emigrate at night from the drying breeding site to upland refugia. Juveniles and adults emerge from refugia on cool, moist, or foggy nights to feed on a wide variety of invertebrate and small vertebrate prey (Shaffer et al. 1993).

5. Results of California Tiger Salamander Assessment

Element 1. Is the project site within the range of the California tiger salamander?

The project site is located within the range of the Central Population of California tiger salamander (federally listed as threatened) but is not located within a designated critical habitat unit (70 FR 49379).

Element 2. What are the known localities of California tiger salamander within the project site and within 3.1 miles of the project boundaries?

Protocol-level surveys for California tiger salamander have not been conducted on the project site and the CNDDB has no records within the project boundaries. As shown in Figure 3, the CNDDB contains one record of California tiger salamander within 3.1 miles of the project site (approximately 2 miles south of the project boundary). In addition, there are undocumented reports of adult salamanders from the Basalt Use Area approximately 0.5 mile south of the project boundary (Bureau of Reclamation and California Department of Parks and Recreation 2005).

Element 3. What are the habitats within the project site and within 1.24 miles of the project boundaries?

PROJECT SITE BIOLOGICAL CHARACTERISTICS

The topography of the 2,480-acre project site varies from relatively flat or gently rolling in the northeast, to steep and mountainous in the southwest. Elevation ranges between 230 feet above mean sea level (msl) near O'Neal Forebay to almost 1,600 feet above msl in the quarry near Basalt Hill. Fossorial mammals, including the American badger (*Taxidea taxus*) and California ground squirrel were observed within the project boundaries and burrows are present throughout the project site.

Many areas of the project site are open and undeveloped. However, there are several developed areas in and adjacent to project boundaries to support water and recreation operations. The operations and maintenance facilities for DWR and the Four Rivers Sector within the Central Valley District of the California Department of Parks and Recreation are at Gonzaga Road, off State Route (SR) 152 at the base of San Luis Reservoir dam. This area is developed with the Gianelli Pumping Plant (operated by DWR) administrative offices, maintenance garages, and work areas. Other developed areas include the Basalt Use Area to the south of the Gonzaga

Figure 3. California Tiger Salamander Occurrences in the Region

Road entrance, which contains camping, a picnic area, boat ramp, and parking. Nearby is the boat launching area for San Luis Reservoir. A quarry, used for gravel extraction during the construction of the dam, is located at the southeast corner of San Luis Reservoir. The quarry is used by DWR for any facilities (e.g., dam and canal) repairs on DWR's systems. The California Departemnt of Forestry and Fire Protection operates a fire protection station east of the State Recreation Area Administrative Offices, south of Gonzaga Road.

Terrestrial Habitats

Terrestrial habitats were characterized based upon descriptions provided in *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer Jr. 1988). Annual grassland is the dominant upland habitat. In addition to annual grassland, the following upland habitat types were mapped within the project site: alkali desert scrub, barren, coastal scrub, mixed chaparral, and valley foothill riparian.

Annual Grassland

Annual grassland habitat is the dominant terrestrial habitat occurring within the project boundaries (1,074.68 acres) and is dominated by non-native annual grasses and forbs. This habitat occurs on all the soil map units and the land types present on the site with minor differences in species composition based on location. The dominant non-native grasses include wild oats (*Avena barbata*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*). The dominant non-native forbs include black mustard (*Brassica nigra*) and broad-leaved pepperweed (*Lepidium latifolium*). These dominants are representative of nearly all of the areas mapped as annual grassland, except for areas adjacent to and within the intermittent drainages along the toe of Sisk Dam. On the steep hillsides to the south of the reservoir, the native forb, hayfield tarweed (*Hemizonia congesta*), is also relatively abundant.

The annual grassland within the intermittent drainages along the toe of Sisk Dam has the greatest diversity of native plants and the greatest concentration of broad-leaved pepperweed. Non-natives present in these more mesic areas include Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), curly dock (*Rumex crispus*), horehound (*Marrubium vulgare*), and cocklebur (*Xanthium strumarium*). Native grasses and forbs are a minor component in the annual grassland as a whole, but are most abundant in the more mesic areas. Natives include vinegar weed (*Trichostema lanceolatum*), salt heliotrope (*Heliotropium curassavicum*), purple needle grass (*Nassella pulchra*), and gum plant (*Grindelia camporum*).

Alkali Desert Scrub

Alkali desert scrub habitat occurs as scattered clusters and moderately dense linear stands along intermittent drainages and portions of the reservoir shorelines (3.60 acres). This habitat is distinguished by near monotypic stands of big saltbush (*Atriplex lentiformis*). The largest and densest stand adjacent to the project area occurs along the southern shoreline (bank full) of the San Luis Reservoir. This stand includes hundreds of individuals of big saltbush that are concentrated at the base of a drainage and extend along the reservoir shoreline for approximately a quarter mile. The large stand of big saltbush near the toe of Sisk Dam is associated with adjacent stands of coyote bush and the lone honey mesquite (*Prosopis glandulosa* ssp.

torreyana). Grasslands adjacent to alkali desert scrub stands have higher concentrations of salt heliotrope than the grasslands at large within the project site. Big saltbush, salt heliotrope, and honey mesquite are associated with the halophytic phase of the alkali scrub plant assemblage.

Coastal Scrub

Coastal scrub habitat (46.00 acres) is distinguished by dense stands of coyote bush (*Baccharis pilularis*). Big saltbush is a minor component of the coastal scrub habitat and occurs at the upper and drier edges of the coastal scrub habitat.

Valley Foothill Riparian

The valley foothill riparian habitat type (5.44 acres) is dominated by native trees, including Fremont cottonwood (*Populus fremontii* spp. *fremontii*), red willow (*Salix laevigata*), and black willow (*Salix gooddingii*). The dominant shrub in this habitat type is mule fat (*Baccharis salicifolia*), which forms dense stands surrounding the cottonwoods and willows.

Mixed Chaparral

Mixed chaparral habitat (0.99 acres) is comprised of a single stand of dense shrubs on a steep slope northwest of Borrow Area 1. The dominant shrub in this stand is silver buffaloberry (*Shepherdia argentea*). Subdominant shrubs in this stand are blue elderberry (*Sambucus mexicana*) and wild rose (*Rosa* sp.).

Barren

Barren habitat (357.96 acres) is comprised of the disturbed areas that have less than 2 percent total vegetative cover.

Aquatic Habitats

The hydrology and floodplain of the watershed have been significantly altered by the development of the reservoir. The project area lies in the Panoche-San Luis Reservoir watershed, part of the San Joaquin River Basin, which drains into San Luis Creek. Historically, San Luis Creek flowed into the San Joaquin River, which then emptied into San Francisco Bay. Since completion of San Luis Dam, runoff from San Luis Creek has been captured in San Luis Reservoir and diverted for SWP and CVP purposes.

Aquatic habitats within the project boundaries include ephemeral drainages, seasonal wetlands, ephemeral wetlands, and the San Luis Reservoir. These features are described below.

Ephemeral Drainages

Three ephemeral drainages occur within the project boundaries. These drainages are part of a network that was designed to channel lake seepage water to O'Neil Forebay. The drainages are regularly maintained and kept clear of vegetation, although a few overhanging willows and cottonwoods are present along the largest of the three drainages. All three features were dry at the time of the assessment. According to DWR representatives, the lake has been especially low for 3 to 4 years. Until lake levels increase dramatically, lake seepage will be minimal and this

feature will remain predominately dry. Because of the ephemeral nature of these features, they are unlikely to provide suitable California tiger salamander breeding habitat.

Seasonal Wetland

One seasonal wetland is present within the project boundaries. It is comprised of two main depressions that contain remnant emergent vegetation, such as cattails (*Typha* sp.) and mule fat (*Baccharis salicifolia*). Overhanging vegetation is present and includes cottonwoods and willows with coyote bush (*Baccharis pilularis*) in the upland areas. One depression is approximately 15 feet x 30 feet in size and the other is larger, at approximately 150 feet x 25 feet. This wetland derives its water from dam seepage and has a maximum depth of approximately 1 foot. It was dry at the time of the assessment and appears to have been dry for some time. Until lake levels increase dramatically, lake seepage will be minimal and this feature will remain predominately dry and unsuitable as California tiger salamander breeding habitat.

Ephemeral Wetlands

Two ephemeral wetlands are present within the project boundaries. The features occur on the toe of the slope at the southern end of the dam. They are areas that become saturated with dam seepage, facilitating the growth of wetland vegetation. The features do not appear to retain any surface water, instead excess water drains down slope via drainage ditches to a larger drainage network. Thus, the ephemeral wetlands within the project boundaries do not provide suitable California tiger salamander breeding habitat.

Quarry Depression

A depression has been excavated within the boundary of proposed Borrow Site 1. It has a rock aggregate substrate similar to the surrounding quarry substrate. Upland grasses and forbs grow in and out of the feature (e.g., vinegar weed (*Trichostema lanceolatum*), tarweed (*Hemizonia congesta*), and wild oats (*Avena barbata*)). The pool is approximately 10 feet x 4 feet in size with a 3 foot depth. No water was present at the time of the assessment. Based on the presence of upland vegetation in the feature, the rock aggregate soil drains very effectively and no water is retained in the pool for any significant length of time. Thus, this feature does not provide suitable California tiger salamander breeding habitat.

San Luis Reservoir

San Luis Reservoir has a water storage capacity of more than 2 million acre-feet and depths up to 300 feet. Habitat types and substrates vary along the lake's perimeter. This assessment location was selected based on the low gradient shoreline and the presence of significant amounts of emergent vegetation in the form of young willows and cocklebur (*Xanthium* sp.). The substrate at this location is primarily sand. No large overhanging vegetation occurs around the lake edge because water levels are significantly lower than in previous years. Currently, there are several hundred feet of barren shoreline. The reservoir contains many predatory fish (e.g., striped bass (*Morone saxatilis*), channel catfish (*Ictalurus punctatus*), largemouth bass, crappie (*Pomoxis* sp.), and bluegill) and is not suitable breeding habitat for the California tiger salamander.

Biological Characteristics of the Surrounding Area

The project area is surrounded by a variety of land uses. Residential and commercial uses exist in nearby Santa Nella to the northeast of O'Neill Forebay. Lands to the southeast of the project area between San Luis Reservoir and Los Banos Reservoir include large, privately owned ranchlands, agricultural lands, an electrical substation, and scattered nonresidential uses. A national cemetery exists to the northeast of O'Neill Forebay, and immediately west of San Luis Reservoir is Pacheco State Park, owned by the California Department of Parks and Recreation. California Department of Fish and Game properties are located north of the San Luis Reservoir and east and west of the O'Neill Forebay.

The area surrounding the project site is characterized by sparse development and large expanses of undeveloped land. Similar to the project site, the surrounding area is characterized by rolling hills vegetated with annual grasses and abundant burrows. Given the presence of burrows on the project site, it is expected that burrows occur in the surrounding grasslands. Based on aerial photography, four stock ponds appear to be present within 1 mile of the project site. Given the use of the surrounding grasslands for cattle grazing, it is expected that additional stock ponds are present in the project vicinity.

The project site has a high-level of continuity with surrounding habitats given the limited extent of development and the large expanses of surrounding grasslands. Wildlife can currently move throughout the project site and without restriction to surrounding grassland habitats to the south and west. Interstate 5 (I-5), Highway 152, the California Aqueduct, and the Delta-Mendota Canal likely pose some hindrance to wildlife movement to the north and east.

6. Conclusions

The project site is within the range of the California tiger salamander and the nearest documented occurrence (CNDDB) of the species is approximately 2 miles to the south of the project site. However, there are undocumented reports of adult California tiger salamanders from the Basalt Use Area approximately 0.5 mile south of the project boundary (Bureau of Reclamation and California Department of Parks and Recreation 2005). The only permanent aquatic feature within the project boundary is San Luis Reservoir. Ephemeral and seasonal wetlands are present but do not currently appear to provide suitable California tiger salamander breeding habitat. The grasslands on the project site contain abundant mammal burrows suitable for California tiger salamander aestivation. In addition, grassland habitat that is expected to contain stock ponds and small mammal burrows surrounds the project area and provides dispersal opportunities for California tiger salamanders to or from the project site.

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Appendix A

Representative Photographs of the Project Site

Photograph 1 – The photograph shows Sisk Dam and O'Neill Forebay in the background, San Luis Reservoir in the middle ground, and annual grasslands in the foreground.

Photograph 2 – The photograph shows the dense, annual grassland that is located in the low rolling hills north of the existing rock quarry. The photo also shows the steep, rocky slopes below the rock quarry.

Photograph 3. Looking southwest from the eastern edge of the project area, south of State Route 152 and Gonzaga Road. Visible in the photograph is the dam, the seep wetlands at the base of the dam, and Basalt Hill Road

Photograph 4. Seepage wetlands occur in the lands east of the foot of the dam. These wetland features are connected via a series of ditches that help to convey the waters to O'Neill Forebay.

Photograph 5. A number of seasonal wetlands, such as the one in this photograph, occur east of the dam.

Photograph 6. Several ephemeral drainages exit the hills surrounding the project area, including this 2-foot wide ephemeral drainage.

Photograph 7. This photograph shows the single "mixed chaparral" stand of silver buffaloberry.

Photograph 8. This photograph shows the San Luis Reservoir below the full pool elevation. The dam can be seen in the background, and a temporary road in the foreground.

Appendix B
Biological Survey Forms and Project Area Vegetation

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Biological Survey Forms

The following forms are from reconnaissance-level field surveys by EDAW in September 2002 and June 2003.

San Luis Reservoir State Recreation Area
Survey Form

Date: September 12, 2002 **Surveyors:** Leo Edson, Linda Leeman

Park: ☐ Pacheco SP ☐ SLR ☒ LBC ☐ other: _____

Survey location: Los Banos Reservoir

Water feature type: ☐ stockpond ☐ intermittent drainage ☐ perennial stream ☐ lacustrine ☒ other: Artifical wetland (overflow/leakage from dam)

Map ID #: LB-1 **Photo #:** Ø

Weather
Time: 1020
Air Temp: 80°
Wind Speed: Ø
Cloud Cover: Ø

Vegetation Adjacent to Water Feature
☒ grassland ☐ oak woodland ☒ riparian woodland (circle dominant trees: willow, cottonwood, sycamore, mixed)
☐ freshwater marsh ☐ vernal pool ☐ other: _____
Notes: mulefat

Site Quality
Degradation ? ☐ Yes ☒ No **Evidence of cattle?** ☐ Yes ☒ No **Evidence of pigs?** ☐ Yes ☒ No
Grazing? ☐ Severe ☐ Moderate ☒ None **Weed infestation?** ☐ Yes ☒ No **Species:** _____
Notes:

Special-status Amphibians/Reptiles

Foothill Yellow-legged Frog
Observed during survey? ☐ Yes ☒ No If yes, number of individuals: _____ Size class observed: _____
Suitable habitat present? ☐ Yes ☒ No *Cobble?* ☐ Yes ☒ No *Shallow, flowing water?* ☐ Yes ☒ No

California Red-legged Frog
Observed during survey? ☐ Yes ☒ No If yes, number of individuals: _____ Size class observed: _____
Suitable habitat present? ☒ Yes ☐ No *Slow water?* ☒ Yes ☐ No *Permanent water in area?* ☒ Yes ☐ No
Riparian veg ☒ Yes ☐ No *Submergent or emergent veg?* ☒ Yes ☐ No

California Tiger Salamander
Suitable habitat present? ☐ Yes ☒ No *Temp. pools?* ☐ Yes ☒ No *Fish present?* ☒ Yes ☐ No

Western Spadefoot
Suitable habitat present? ☐ Yes ☒ No *Temp. pools?* ☐ Yes ☒ No *Fish present?* ☒ Yes ☐ No

Western Pond Turtle
Observed during survey? ☐ Yes ☒ No If yes, number of individuals: _____ Size class observed: _____
Suitable habitat present? ☒ Yes ☐ No *Slow water?* ☒ Yes ☐ No *Basking sites?* ☒ Yes ☐ No

Other wildlife observations/comments: Bass observed in pond.

San Luis Reservoir SRA B-1
Resource Management Plan/Preliminary General Plan

San Luis Reservoir State Recreation Area
Survey Form

Date: 8 June 2003 **Surveyors:** Edson

Park: ☐ Pacheco SP ☒ SLR ☐ LBC ☐ other: _____

Survey location: Medeiros use area located on the south shore of the O'Neill Forebay

Water feature type: ☐ stockpond ☐ intermittent drainage ☐ perennial stream ☐ lacustrine ☐ other: N/A

Map ID #: SL-1 **Photo #:** _____

Weather
Time: _____
Air Temp: _____
Wind Speed: _____
Cloud Cover: _____

Vegetation Adjacent to Water Feature
☒ grassland ☐ oak woodland ☐ riparian woodland (circle dominant trees: willow, cottonwood, sycamore, mixed)
☐ freshwater marsh ☐ vernal pool ☐ other: _____
Notes: An adult Swainson's hawk was observed perched on a fence post approximately ¼-mile south of the forebay shoreline.

Site Quality
Degradation ? ☒ Yes ☐ No **Evidence of cattle?** ☒ Yes ☐ No **Evidence of pigs?** ☐ Yes ☒ No
Grazing? ☐ Severe ☒ Moderate ☐ None **Weed infestation?** ☐ Yes ☒ No **Species:** _____
Notes: Grazing activity limited to the area south of the Mediros use area.

Special-status Amphibians/Reptiles
Foothill Yellow-legged Frog
Observed during survey? ☐ Yes ☐ No If yes, number of individuals: _____ Size class observed: _____
Suitable habitat present? ☐ Yes ☐ No *Cobble?* ☐ Yes ☐ No *Shallow, flowing water?* ☐ Yes ☐ No

California Red-legged Frog
Observed during survey? ☐ Yes ☐ No If yes, number of individuals: _____ Size class observed: _____
Suitable habitat present? ☐ Yes ☐ No *Slow water?* ☐ Yes ☐ No *Permanent water in area?* ☐ Yes ☐ No
Riparian veg ☐ Yes ☐ No *Submergent or emergent veg?* ☐ Yes ☐ No

California Tiger Salamander
Suitable habitat present? ☐ Yes ☐ No *Temp. pools?* ☐ Yes ☐ No *Fish present?* ☐ Yes ☐ No

Western Spadefoot
Suitable habitat present? ☐ Yes ☐ No *Temp. pools?* ☐ Yes ☐ No *Fish present?* ☐ Yes ☐ No

Western Pond Turtle
Observed during survey? ☐ Yes ☐ No If yes, number of individuals: _____ Size class observed: _____
Suitable habitat present? ☐ Yes ☐ No *Slow water?* ☐ Yes ☐ No *Basking sites?* ☐ Yes ☐ No

Other wildlife observations/comments: This was the only Swainson's hawk observed at Medeiros. At least one Swainson's hawk was also observed at O'Neill Forebay, where they have been documented as nesting in previous years.

B-2
San Luis Reservoir SRA
Resource Management Plan/Preliminary General Plan

San Luis Reservoir State Recreation Area
Survey Form

Date: 8 June 2003 **Surveyors:** Edson

Park: ☐ Pacheco SP ☒ SLR ☐ LBC ☐ other: _____

Survey location: Medeiros use area located on the south shore of the O'Neill Forebay

Weather
Time: _____
Air Temp: _____
Wind Speed: _____
Cloud Cover: _____

Water feature type: ☐ stockpond ☐ intermittent drainage ☐ perennial stream ☒ lacustrine ☐ other: _____

Map ID #: SL-2 **Photo #:** _____

Vegetation Adjacent to Water Feature
☐ grassland ☐ oak woodland ☒ riparian woodland (circle dominant trees: willow, cottonwood, sycamore, mixed)
☒ freshwater marsh ☐ vernal pool ☐ other: _____
Notes: The shoreline has a nearly contiguous, narrow band of willows. Patches of emergent vegetation (dominated by cattails and tules) are present at several locations. The only large area of emergent vegetation at Medeiros is found in a large depression, possibly artificial, that is located adjacent to the forebay and just east of the overhead transmission lines.

Site Quality
Degradation ? ☒ Yes ☐ No **Evidence of cattle?** ☐ Yes ☒ No **Evidence of pigs?** ☐ Yes ☒ No
Grazing? ☐ Severe ☐ Moderate ☒ None **Weed infestation?** ☐ Yes ☒ No **Species:** _____
Notes: Degradation limited to roads and vegetation management activities.

Special-status Amphibians/Reptiles
Foothill Yellow-legged Frog
Observed during survey? ☐ Yes ☐ No If yes, number of individuals:_____ Size class observed:_____
Suitable habitat present? ☐ Yes ☐ No *Cobble?* ☐ Yes ☐ No *Shallow, flowing water?* ☐ Yes ☐ No

California Red-legged Frog
Observed during survey? ☐ Yes ☐ No If yes, number of individuals:_____ Size class observed:_____
Suitable habitat present? ☐ Yes ☐ No *Slow water?* ☐ Yes ☐ No *Permanent water in area?* ☐ Yes ☐ No
Riparian veg ☐ Yes ☐ No *Submergent or emergent veg?* ☐ Yes ☐ No

California Tiger Salamander
Suitable habitat present? ☐ Yes ☐ No *Temp. pools?* ☐ Yes ☐ No *Fish present?* ☐ Yes ☐ No

Western Spadefoot
Suitable habitat present? ☐ Yes ☐ No *Temp. pools?* ☐ Yes ☐ No *Fish present?* ☐ Yes ☐ No

Western Pond Turtle
Observed during survey? ☐ Yes ☐ No If yes, number of individuals:_____ Size class observed:_____
Suitable habitat present? ☐ Yes ☐ No *Slow water?* ☐ Yes ☐ No *Basking sites?* ☐ Yes ☐ No

Other wildlife observations/comments:

Approximately 1,000 tricolored blackbirds observed during this one-day survey. Most were found in groups of 50+ forging along the shoreline or perched in the cottonwoods and willows. Approximately 200 were found nesting in the depression described above. Many fledging were observed in the willows surrounding the depression. Adults retuning with food to the emergent marsh indicated that some of the nestling had not yet fledged their nests.

San Luis Reservoir SRA
Resource Management Plan/Preliminary General Plan
B-3

Project Area Vegetation

The following describes the vegetation of San Luis Reservoir State Recreation Area and the DFG-managed wildlife areas. These areas include land around San Luis Reservoir, the O'Neill Forebay, Los Banos Reservoir and the San Luis and O'Neill Forebay Wildlife Areas. The vegetation of these areas consists of riparian woodland, blue oak woodland and savanna, coast live oak woodland, ornamental trees, California sagebrush scrub, grasslands, mesic herbaceous (wetland), iodine bush scrub (alkali sink scrub), and ruderal (non-native and weedy) plant communities, The grassland is the dominant vegetation of the park with the only woodland observed outside park boundaries on distant hills. The riparian woodland and mesic herbaceous types occur at the edge of the reservoirs and along watercourses, The iodine bush scrub occurs at Salt Spring, a tributary to Los Banos Reservoir. Where appropriate, the naming system used in *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995), was incorporated into the name of the vegetation types in this report.

Black Willow Riparian Woodland
Black willow riparian woodland occurs at the edges of San Luis Reservoir, Los Banos Reservoir, and O'Neill Forebay; along watercourses but below the level of high water at San Luis Reservoir; and along Los Banos Creek as it flows into Los Banos Reservoir. It also occurs at O'Neill Forebay Wildlife Area. The black willow riparian woodland is particularly well developed along Los Banos Creek immediately upstream from Los Banos Reservoir. It consists of black willow trees *(Salix gooding11)* trees, which are 8 to 12 inches in diameter at breastheight (4.5 feet, dbh) and up to 40 feet tall. The trees grow from 6 to 10 feet apart with a canopy cover that varies from 60 to 100 percent.

The shrub understory consists of mulefat *(Baccharis sp.)* and a few salt cedar plants *(Tamarisksp.).* Herbaceous species in the understory are dominated by crabgrass *(Cynodon dactylon)*, cocklebur *(Xantium strumarium),* and Italian thistle *(Carduus pycnocephalus)*, Below the high water mark of San Luis Reservoir, black willow riparian scrub occurs in watercourses. The willow trees are able to survive inundation during years of normal rainfall and years of drought. These willows are able to persist from upstream runoff flowing in the watercourses for at least part of the spring and summer. The trees are typically 3 to 6 inches in diameter and 20 feet tall. During wet winters, the reservoir remains full for a long duration and the willow trees die because they cannot survive such prolonged inundation. This vegetation is generally thick, with 100 percent cover, but is narrow in width.

The riparian vegetation at the edge of the shore of the reservoirs includes a mixture of black willow, Fremont cottonwood *(Populus Fremont 11)*, western sycamore *(Platanus racemosa)*, sandbar willow *(Salix exigua),* and mulefat. These species grow mostly sparsely along the edge of the shore of the reservoirs, but occasionally they will grow in clumps. The understory of these areas consists of mesic herbaceous vegetation. In some areas, broad-leaf pepper-grass *(Lepidtum latifoltum)* occurs beneath or at the edge of the canopy ofthe riparian trees.

California Sycamore Riparian Woodland
The California sycamore riparian woodland occurs in a limited area along one of the watercourses at San Luis Wildlife Area This woodland consists of mature western sycamore trees growing in a sparse array along the watercourse. Canopy cover approximates 70 percent. The sycamores grow to 40 feet tall and at least 24 inches in diameter at breastheight (4.5 feet, dbh). The understory consists of coyote brush *(Bacharis pilularis)* and poison oak *(Toxicodendron diversilobum).*

Blue Oak Woodland and Savanna
The blue oak woodland and savanna occurs in San Luis W ildlife Area. Blue oak *(Quercus douglas11)* is the dominant tree of this woodland. An occasional coast live oak *(Quercus agnfo/ia)* also occurs in the blue oak woodland. The blue oak woodland occurs on the tops and sides of the ridges in small clumps. This cover of the blue oak woodland ranges from 80 to approximately 20 percent. Nevertheless, the blue oak woodland also grades into the blue oak and savanna vegetation type, which consists of a sparse cover of trees growing within grassland.

The understory of the blue oak woodland mostly consists of various species of non-native grasses and occasional native species of forbs (non-grassy plants). The non-native species of grass include wild oats *(Avena fatua)* and ripgut brome *(Bromus diandrus).* Blue dicks *(Dichelostemma capitatum)* and clarkia *(Clarkia* sp.) also occur in the understory. Understory shrubs include California sagebrush *(Artemesia californica)*, redberry *(Rhamnus crocea)*, and eriophyllum *(Enophyllum confertiflorum).*

Coast Live Oak Woodland
The coast live oak woodland occurs in San Luis Wildlife Area. It consists of both blue and coast live oak tree s with California bay *(Umbellularia californica)*, valley oak *(Quercus lobata)* , and California buckeye *(Aesculus californica).* Stands of this woodland type are generally not very large and occur in the canyon bottoms and on the shadier slopes. This oak woodland is very similar to the blue oak woodland except that the blue oaks are much fewer.

The understory of the coast live oak woodland tends to support shrubs and forbs as opposed to grass. Species present in the understory include woodland sanicle *(Sanicula crassicaule)*, blue wildrye *(Elymus g/aucus)*, miner's lettuce *(Claytonia perfoliata),* fiesta flower *(Pholistoma auritum),* chickweed *(Stellaria media),* sweet pea *(Lathyrus* sp.), and bedstraw *(Ga/ium apairne).* Shrubs that occur in the understory are poison oak, toyon *(Heteromeles arbutifolia),* and redberry.

Ornamental Trees
Ornamental trees have been planted at the Basalt Campground, on the Madeiros site, and the picnic areas of the San Luis Creek site. These trees include red ironbark gum *(Eucalyptus sidiroxylon)*, allepo pine *(Pinus halpensis),* false pine *(Casurina* sp.), Chinese pistache *(Pistachia chlnensls)*, eucalyptus *(Eucalyptus* spp.), and others. The trees at Madieros are planted in a rectangular array, while those in the other areas conform to picnic tables or campsites.

Iodine Bush Scrub
Iodine bush scrub occurs at Salt Spring, a tributary to Los Banos Reservoir. This area is very distinctive because of the presence of water and the pronounced salt deposits along the banks of the watercourse. The vegetation occurs within the banks of the watercourse at Salt Spring. This vegetation is dominated by iodine bush *(Allenrolfea occidentalis)*, quail bush *(Atriplex lentiforms)*, alkali heath *(Frankenia salina),* and salt grass *(Distichlis spicata).* Other species present include bassia *(Bassia hyssopifolia)*, Fitch's spikeweed *(Hemizonia fitch11)* , and various species of saltbushes *(Atriplex* spp.).

California Sagebrush Scrub
California sagebrush scrub occurs on the shallow soils of hillsides above Los Banos Reservoir and Los banos Creek in dry areas. It is dominated by California sagebrush *(Artemisia californica)* and California buckwheat *(Enogonum fasciculatum).* The cover of the California sagebrush scrub

varies between 25 and 50 percent and the height of the vegetation is generally less than 3 feet. The understory of the California sagebrush scrub mainly consists of grassland growing between the shrubs. The area beneath the shrubs is bare.

Mesic Herbaceous
Mesic herbaceous vegetation occurs in seeps, within watercourses, and at the edges of the reservoirs. It consists of species adapted to seasonally, as well as permanently, wet conditions. This mesic herbaceous vegetation consists of tall vegetation such as cattails and tules to short vegetation such as crabgrass and knotgrass *(Paspalum distichum).* The cattails *(Typha latifolia* and unidentified species) and tules *(Scirpus acutus* spp. *occidentalis)* grow in extensive patches along the edges of the reservoirs within standing water. These stands can be small patches 10 by 20 feet in size to several hundred feet long and 30 feet wide. Often water parsley *(Oenanthe sarmentosa)* and water smartweed *(Polygonum pundatum)* occur with the cattails and tules.

Mexican rush *Juncus mexicanus)* commonly occurs at the edges of the reservoirs above the reservoir's edge. The iris-leaved rush *(Juncus xiphioides)* also occurs in watercourses, and seeps. The rushes often grow as dense mats of single species stands. Meadow barley *(Hordeum brachyantherum)* and creeping wildrye *(Leymus triticoides)* are adapted to drier conditions than the iris-leaved rush and grow at the edge of seeps and other wet areas.

Cocklebur often grows in dense aggregations at the areas where watercourses flow into stock ponds, and spiny clot-bur *(Xantium spinosum)* occurs in low-density aggregations within drawdown and disturbed areas.

Seeps and watercourses often support water cress *(Rorippa nasturtium-aquaticum)* growing in areas of ponded water. Rabbit's foot grass *(Polypogon monspeliense)* and curly dock *(Rumex crispus)* also grow in wet areas onsite.

Grassland
The grassland vegetation type occurs extensively throughout the areas surrounding San Luis and Los Banos reservoirs and O'Neill Forebay. This grassland varies in height from a few inches and 25 to 50 percent cover in sites with shallow soils, to 1.5 feet and I00 percent cover in the sites with deeper soils.

Different species dominate the grassland in different areas. The occurrence of a particular species as a dominant may be the result of particular edaphic, climatic, and moisture conditions. Most of the dominants are non-native species but purple needlegrass *(Nasella pulehra),* a native species, occurs throughout the park in various densities. It occasionally grows as a dominant on the slopes of San Luis and Los Banos reservoirs. The other dominants include ripgut brome, hare barley *(Hordeum murinum* ssp. *leporinum),* wild oats *(Avena* sp.), and Italian ryegrass *(Loltum multif!orum)*, Various species of tarweeds also occur in various densities ranging from low to high in the grassland. They also occur as dominant or subdominant species of small areas. The species of tarweeds are Fitch's spikeweed, common spikeweed *(Hemizonia pungens)*, and San Joaquin tarweed *(Holoearpha obeoniea).* Big tarweed *(Blepharizonia plumosa* ssp, *viscida)* occasionally occurs in the grassland and vinegar weed *(Trichostemma lanceo/atum)* often occurs as a subdominant in the grassland.

Some portions of the grassland are dominated by native species of grass. Often these native areas are correlated with sloping areas and shallow soil. Natives such as pine bluegrass often grow beside the California sagebrush scrub on the slopes of Los Banos Reservoir. Creeping wildrye, a native species, can dominate moist areas.

Ruderal
Ruderal vegetation consists of non-native species of plants. It is commonly associated with herbaceous species but the non-native salt cedar will also be discussed here. The ruderal vegetation occurs in disturbed areas such as campground and picnic areas, It also occurs at the edge of the reservoirs.

Herbaceous Species. The most common ruderal species are broad-leaved pepper-grass, cocklebur, spiny clot-bur, yellow star-thistle *(Centaurea solstitialis)*, Italian thistle *(Carduus pycnoeephalus)*, bristly ox-tongue *(Picris echiodes)*, and short-pod mustard *(Hirsehfeldia incana).* The broad- leaved pepper-grass, cocklebur, spiny clot-bur, and bristly ox-tongue occur within or at the edge of wet lands, often at the edge of the reservoirs. Yellow star-thistle, Italian thistle, and short-pod mustard occur in drier areas.

Woody Species. Salt cedar grows abundantly at Los Banos Reservoir often in dense thickets at the edge of the reservoir and often adjacent to the riparian vegetation. It also occurs as an occasional plant in the black willow riparian woodland along Los Banos Creek Two individual salt cedar plants were observed along the shore of O'Neill Forebay.

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Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Pacheco Pass (3712112) OR Pacheco Peak (3712113) OR Three Sisters (3612183) OR San Luis Dam (3712111) OR Mariposa Peak (3612182) OR Los Banos Valley (3612181) OR Crevison Peak (3712122) OR Mustang Peak (3712123) OR Howard Ranch (3712121))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Agelaius tricolor tricolored blackbird	G2G3 S1S2	None Candidate Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	155 600	951 S:12	4	2	0	0	1	5	3	9	11	1	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	600 1,360	1156 S:6	0	0	0	0	0	6	5	1	6	0	0
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	360 360	409 S:1	0	0	0	0	0	1	1	0	1	0	0
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	170 870	1942 S:10	2	4	2	0	0	2	3	7	10	0	0
Buteo regalis ferruginous hawk	G4 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	480 1,140	107 S:18	0	0	0	0	0	18	16	2	18	0	0
Buteo swainsoni Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	145 1,274	2431 S:11	0	3	1	0	0	7	1	10	11	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
California macrophylla round-leaved filaree	G3? S3?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	250 250	204 S:2	0	0	0	0	0	2	1	1	2	0	0
Campanula exigua chaparral harebell	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	3,800 3,800	32 S:1	0	0	0	0	0	1	1	0	1	0	0
Caulanthus lemmonii Lemmon's jewelflower	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	400 400	86 S:1	0	0	0	0	0	1	1	0	1	0	0
Circus cyaneus northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	80 1,400	52 S:3	2	1	0	0	0	0	0	3	3	0	0
Delphinium californicum ssp. interius Hospital Canyon larkspur	G3T3 S3	None None	Rare Plant Rank - 1B.2	750 750	28 S:1	0	1	0	0	0	0	1	0	1	0	0
Desmocerus californicus dimorphus valley elderberry longhorn beetle	G3T2 S2	Threatened None		420 420	271 S:1	0	0	0	0	0	1	1	0	1	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	400 1,600	1249 S:16	0	10	4	0	0	2	2	14	16	0	0
Eremophila alpestris actia California horned lark	G5T4Q S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	165 440	93 S:5	0	2	0	0	0	3	2	3	5	0	0
Eryngium spinosepalum spiny-sepaled button-celery	G2 S2	None None	Rare Plant Rank - 1B.2	545 545	90 S:1	0	0	0	0	0	1	0	1	1	0	0
Eumops perotis californicus western mastiff bat	G5T4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern WBWG_H-High Priority	415 415	294 S:1	0	0	0	0	0	1	1	0	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Falco mexicanus prairie falcon	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	400 3,300	458 S:12	1	0	0	0	0	11	11	1	12	0	0
Gambelia sila blunt-nosed leopard lizard	G1 S1	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	300 610	317 S:2	0	0	0	0	0	2	2	0	2	0	0
Great Valley Cottonwood Riparian Forest Great Valley Cottonwood Riparian Forest	G2 S2.1	None None			56 S:1	0	0	0	0	0	1	1	0	1	0	0
Haliaeetus leucocephalus bald eagle	G5 S3	Delisted Endangered	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	1,098 1,098	327 S:1	0	0	0	0	0	1	0	1	1	0	0
Malacothamnus hallii Hall's bush-mallow	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	280 1,300	36 S:8	0	0	0	0	0	8	6	2	8	0	0
Masticophis flagellum ruddocki San Joaquin coachwhip	G5T2T3 S2?	None None	CDFW_SSC-Species of Special Concern	425 725	93 S:2	0	0	0	0	0	2	2	0	2	0	0
Myotis yumanensis Yuma myotis	G5 S4	None None	BLM_S-Sensitive IUCN_LC-Least Concern WBWG_LM-Low-Medium Priority	800 800	263 S:1	0	1	0	0	0	0	0	1	1	0	0
Navarretia gowenii Lime Ridge navarretia	G1 S1	None None	Rare Plant Rank - 1B.1	950 950	3 S:1	0	0	0	0	0	1	1	0	1	0	0
Navarretia nigelliformis ssp. radians shining navarretia	G4T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	760 860	72 S:3	0	0	0	0	0	3	3	0	3	0	0
North Central Coast Drainage Sacramento Sucker/Roach River North Central Coast Drainage Sacramento Sucker/Roach River	GNR SNR	None None		450 450	4 S:1	1	0	0	0	0	0	1	0	1	0	0
Perognathus inornatus San Joaquin Pocket Mouse	G2G3 S2S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern	520 600	122 S:3	0	0	0	0	0	3	3	0	3	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Phrynosoma blainvillii coast horned lizard	G3G4 S3S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	1,080 1,080	758 S:1	0	1	0	0	0	0	0	1	1	0	0
Puccinellia simplex California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2	600 600	71 S:1	0	0	0	0	0	1	1	0	1	0	0
Rana boylii foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	400 1,000	1140 S:4	0	0	0	0	1	3	4	0	3	1	0
Rana draytonii California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	260 1,800	1408 S:49	7	28	9	2	0	3	1	48	49	0	0
Spea hammondii western spadefoot	G3 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	580 580	454 S:1	0	1	0	0	0	0	0	1	1	0	0
Streptanthus insignis ssp. lyonii Arburua Ranch jewelflower	G3G4T2 S2	None None	Rare Plant Rank - 1B.2	1,100 1,700	18 S:7	0	1	0	0	0	6	7	0	7	0	0
Sycamore Alluvial Woodland Sycamore Alluvial Woodland	G1 S1.1	None None		320 500	17 S:2	0	0	0	0	0	2	2	0	2	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	320 1,350	542 S:11	1	6	0	0	0	4	0	11	11	0	0
Vulpes macrotis mutica San Joaquin kit fox	G4T2 S2	Endangered Threatened		150 1,720	982 S:22	2	11	1	0	0	8	17	5	22	0	0

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

Plant List

27 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3712122, 3712121, 3712028, 3712112, 3712111, 3712018, 3612182 3612181 and 3612088;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Acanthomintha lanceolata	Santa Clara thorn-mint	Lamiaceae	annual herb	Mar-Jun	4.2	S4	G4
Amsinckia furcata	forked fiddleneck	Boraginaceae	annual herb	Feb-May	4.2	S4	G4
Androsace elongata ssp. acuta	California androsace	Primulaceae	annual herb	Mar-Jun	4.2	S3S4	G5?T3T4
Atriplex cordulata var. cordulata	heartscale	Chenopodiaceae	annual herb	Apr-Oct	1B.2	S2	G3T2
Atriplex coronata var. coronata	crownscale	Chenopodiaceae	annual herb	Mar-Oct	4.2	S3	G4T3
Atriplex coronata var. vallicola	Lost Hills crownscale	Chenopodiaceae	annual herb	Apr-Sep	1B.2	S2	G4T2
Campanula exigua	chaparral harebell	Campanulaceae	annual herb	May-Jun	1B.2	S2	G2
Caulanthus lemmonii	Lemmon's jewelflower	Brassicaceae	annual herb	Feb-May	1B.2	S3	G3
Chloropyron molle ssp. hispidum	hispid bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	1B.1	S1	G2T1
Clarkia breweri	Brewer's clarkia	Onagraceae	annual herb	Apr-Jun	4.2	S4	G4
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	S4	G4
Cryptantha rattanii	Rattan's cryptantha	Boraginaceae	annual herb	Apr-Jul	4.3	S4	G4
Delphinium californicum ssp. interius	Hospital Canyon larkspur	Ranunculaceae	perennial herb	Apr-Jun	1B.2	S3	G3T3
Delphinium recurvatum	recurved larkspur	Ranunculaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Eryngium spinosepalum	spiny-sepaled button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.2	S2	G2
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	4.2	S3	G3
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May	4.2	S3	G3

Lessingia tenuis	spring lessingia	Asteraceae	annual herb	May-Jul	4.3	S4	G4
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	Apr-Sep	1B.2	S2	G2Q
Malacothamnus hallii	Hall's bush-mallow	Malvaceae	perennial evergreen shrub	(Apr)May-Sep(Oct)	1B.2	S2	G2
Navarretia gowenii	Lime Ridge navarretia	Polemoniaceae	annual herb	May-Jun	1B.1	S1	G1
Navarretia nigelliformis ssp. radians	shining navarretia	Polemoniaceae	annual herb	(Mar)Apr-Jul	1B.2	S2	G4T2
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	Apr-Aug	4.2	S3	G3
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Streptanthus insignis ssp. lyonii	Arburua Ranch jewelflower	Brassicaceae	annual herb	Mar-May	1B.2	S2	G3G4T2
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	2B.2	S3	G5T5

Suggested Citation

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 27 March 2018].

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To:
Consultation Code: 08ESMF00-2017-SLI-3393
Event Code: 08ESMF00-2017-E-09320
Project Name: San Luis Reservoir Dam Maintenance

September 26, 2017

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to

utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2017-SLI-3393

Event Code: 08ESMF00-2017-E-09320

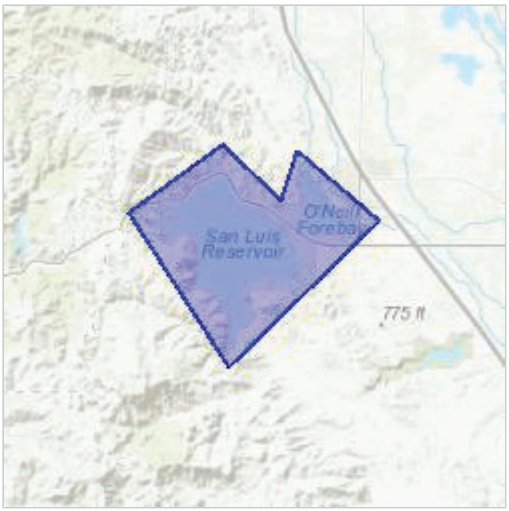
Project Name: San Luis Reservoir Dam Maintenance

Project Type: DAM

Project Description: Dam maintenance for seismic safety

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.04911407544098N121.10566056028921W



Counties: Merced, CA

Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on this species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Fresno Kangaroo Rat *Dipodomys nitratoides exilis* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5150	Endangered
Giant Kangaroo Rat *Dipodomys ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6051	Endangered
San Joaquin Kit Fox *Vulpes macrotis mutica* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor *Gymnogyps californianus* Population: U.S.A. only, except where listed as an experimental population There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8193	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard *Gambelia silus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/625	Endangered
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final designated** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Steelhead *Oncorhynchus (=Salmo) mykiss* Population: Northern California DPS There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1007	Threatened

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7850 Habitat assessment guidelines: https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf	Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened
Vernal Pool Tadpole Shrimp *Lepidurus packardi* There is **final designated** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2246	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
California Red-legged Frog *Rana draytonii* https://ecos.fws.gov/ecp/species/2891#crithab	Final designated