Lost Hills Solar Project

Habitat Conservation Plan

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Appendix A Adaptive Management at the Palo Prieto Conservation Bank
## Acronyms

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<th>Description</th>
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<tbody>
<tr>
<td>AC</td>
<td>alternating current</td>
</tr>
<tr>
<td>amsl</td>
<td>above mean sea level</td>
</tr>
<tr>
<td>APN</td>
<td>Assessor’s Parcel Number</td>
</tr>
<tr>
<td>applicant</td>
<td>CED Lost Hills, LLC</td>
</tr>
<tr>
<td>ASR</td>
<td>Annual Status Report</td>
</tr>
<tr>
<td>BESS</td>
<td>Battery Energy Storage System</td>
</tr>
<tr>
<td>Blackwell</td>
<td>Blackwell Solar Park, LLC</td>
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<tr>
<td>CALFIRE</td>
<td>California Department of Forestry and Fire Protection</td>
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<td>CDFW</td>
<td>California Department of Fish and Wildlife</td>
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<tr>
<td>CEQA</td>
<td>California Environmental Quality Act</td>
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<td>CESA</td>
<td>California Endangered Species Act</td>
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<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>CNDDDB</td>
<td>California Natural Diversity Database</td>
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<tr>
<td>CO₂</td>
<td>carbon dioxide</td>
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<tr>
<td>DC</td>
<td>direct current</td>
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<tr>
<td>EA</td>
<td>Environmental Assessment</td>
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<td>EIR</td>
<td>Environmental Impact Report</td>
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<td>ESA</td>
<td>Endangered Species Act (federal)</td>
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<td>FEMA</td>
<td>Federal Emergency Management Agency</td>
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<tr>
<td>HCP</td>
<td>Habitat Conservation Plan</td>
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<tr>
<td>I-</td>
<td>Interstate</td>
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<tr>
<td>ITP</td>
<td>Incidental Take Permit (CDFW, Section 2081)</td>
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<tr>
<td>MW</td>
<td>megawatt</td>
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<tr>
<td>LSAA</td>
<td>Lake or Streambed Alteration Agreement</td>
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<tr>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>PDF</td>
<td>Portable Document Format (Adobe)</td>
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<tr>
<td>project</td>
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<tr>
<td>PV</td>
<td>photovoltaic</td>
</tr>
<tr>
<td>QCR</td>
<td>Quarterly Compliance Report</td>
</tr>
<tr>
<td>RPS</td>
<td>Renewables Portfolio Standard</td>
</tr>
<tr>
<td>SB</td>
<td>Senate Bill</td>
</tr>
<tr>
<td>SIJKF</td>
<td>San Joaquin Kit Fox (Vulpes macrotis mutica)</td>
</tr>
<tr>
<td>SR</td>
<td>State Route</td>
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<tr>
<td>Upland Recovery Plan</td>
<td>Recovery Plan for the Upland Species of the San Joaquin Valley, California</td>
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<td>USFWS</td>
<td>U.S. Fish and Wildlife Service</td>
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1.0 Introduction

CED Lost Hills Solar, LLC (the applicant), is proposing to construct and operate the Lost Hills Solar Project (project), a 20-megawatt (MW) solar photovoltaic (PV) power generating facility in northwestern Kern County, California (Figure 1). The project would consist of a PV solar power system that would produce clean, renewable, direct current (DC) electricity and convert it to alternating current (AC).

The applicant has prepared this Habitat Conservation Plan (HCP) to support an application to the U.S. Fish and Wildlife Service (USFWS) for an incidental take permit under the federal Endangered Species Act (ESA) for the San Joaquin kit fox (SJKF; Vulpes macrotismutica).

1.1 Project Background

In 2002, the State of California established its Renewables Portfolio Standard (RPS) Program, with the goal of increasing the proportion of renewable energy in the state's electricity mix to 20 percent of retail sales by 2017. In 2006, under Senate Bill (SB) 107, California’s “20 percent by 2010” RPS goal was codified. The legislation required retail sellers of electricity to increase renewable energy purchases by at least one percent per year with a target of 20 percent renewables by 2010. Publicly owned utilities set their own RPS goals recognizing the intent of the legislature to attain this target. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08 requiring that "...[a]ll retail sellers of electricity shall serve 33 percent of their load with renewable energy by 2020."

In the ongoing effort to codify the ambitious 33 percent by 2020 goal, SB X1-2 was signed by Governor Brown in April 2011. This new RPS goal applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must adopt the new RPS goals of 20 percent of retail sales from renewables by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020. The Lost Hills Solar project is an important component of meeting the RPS goal established under SB X1-2.

Pursuant to the California Environmental Quality Act (CEQA), an Environmental Impact Report (EIR; SCH# 2013091025) was completed for the project and certified by Kern County (the lead agency) on September 23, 2014. The EIR provided much of the information on environmental setting (Section 2 of this HCP), the covered activities (Section 3 of this HCP), and analysis of effects (Section 4 of this HCP). Mitigation measures included in the EIR provided a basis for many of the conservation measures in Section 5 of this HCP.

The plan area contains a drainage path that is subject to the permitting requirements of California Fish and Game Code 1602 (Lake or Streambed Alteration Agreement [LSAA]). This drainage path is described in more detail in Section 2 of this HCP. On December 21, 2015, the California Department of Fish and Wildlife (CDFW) issued its Final Streambed Alteration Agreement (No. 1600-2015-0100-R4) for the project.

The California Endangered Species Act (CESA) prohibits the take of any wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species, except where the CDFW has authorized take through issuance of an Incidental Take Permit (ITP) in accordance with Section 2081 of the California Fish and Game Code. On December 31, 2015, CDFW issued an ITP (No. 2081-2015-054-04) for the project. The ITP includes numerous general and species-specific conditions of approval, as well as monitoring and reporting requirements that were used to develop the conservation strategy for this HCP (Section 5). A request to amend the ITP has been submitted to the CDFW and is currently under review.
Initial planning, permitting, and some on-the-ground work was completed before the project was acquired by the current applicant. The on-the-ground work included collapse of documented SJKF burrows and construction of a wildlife exclusion fence. These activities occurred without an incidental take authorization under Section 10(a)(1)(B) of the ESA. On October 13, 2015, the USFWS and Blackwell Solar Park, LLC (Blackwell), the prior owner, entered into a settlement agreement regarding the potential effects and consequences of these activities. The settlement agreement stipulated that Blackwell would conserve 670 acres of land for the benefit of species affected by their actions. The 670 acres were divided as follows:

1. The Northern Conservation Property (160 acres)
   a. This property will be placed in a perpetual conservation easement conveyed to a holder approved by the USFWS.
   b. The conservation easement for this property will allow use of the site as a solar generating facility for no longer than 40 years, after which such use will be prohibited.
   c. After the project is decommissioned, the property will be managed to conserve habitat for listed species in perpetuity.

2. The Southern Conservation Property (281 acres)
   a. This property will be placed in a perpetual conservation easement conveyed to a holder approved by the USFWS.
   b. The property will be managed to conserve habitat for listed species in perpetuity.

3. Palo Prieto Conservation Bank (230 acres)
   a. Blackwell will purchase credits equivalent to 230 acres from this conservation bank.

The settlement agreement was developed to address activities that had already occurred on and adjacent to the plan area, and any potential take that may have occurred because of those activities. Any further activities would require an incidental take authorization under Section 10(a)(1)(B) of the ESA. The conservation actions included in the settlement agreement are considered part of the environmental setting (Section 2) for this HCP.

1.2 Purpose

The purpose of this HCP is to support an incidental take authorization for the SJKF under Section 10(a)(1)(B) of the ESA during the construction, operation, maintenance, and decommissioning of the project, while protecting and enhancing ecological diversity and function in the region. To this end, this HCP describes how potential effects to the federally listed, endangered SJKF would be avoided, minimized, and mitigated, thereby addressing permitting requirements.

1.3 Plan Area

The plan area for this HCP encompasses 540 acres, including a 477-acre parcel (Assessor’s Parcel Number [APN] 068-191-21), along with a 500-foot buffer around the northern part of the parcel within which monitoring activities would take place (Section 5.5). The plan area is shown in Figure 2. The project will occupy approximately 160 acres of the plan area (project site). The majority of the covered
activities will take place on the project site, except for monitoring and den replacement. Monitoring will take place on the project site and a 500-foot buffer around the project site, as described in **Section 5** (**Measure 24b**). Den replacement will take place in the plan area to the southwest of the project site, as identified in the San Joaquin Kit Fox Den Replacement Plan (McCormick 2016a). The plan area is located one mile east of the intersection of State Route (SR) 46 and SR 33, immediately south of SR 46. The plan area is in portions of Sections 5 and 8 of Township 27 South, Range 20 East, Mount Diablo Base and Meridian. Access to the plan area would be via an existing paved turnout off SR 46 that would be used as the facility’s main entrance.

1.4 Permit Duration

The permit term for this HCP is 45 years. This permit term encompasses all construction and testing activities, as well as the full operational life of the project, and its decommissioning. While the expected life of the project is 40 years, after which it will be decommissioned, an additional five years has been added to the end of the term to account for post-project restoration and monitoring, which are part of the covered activities.

1.5 Covered Species

Three federally listed endangered wildlife species were considered for inclusion in this HCP: the blunt-nosed leopard lizard (*Gambelia sila*), the giant kangaroo rat (*Dipodomys ingens*), and the SJKF. To determine which species should be covered by the Plan, previous biological inventories for the project (Ecology and Environment, Inc. 2013, Quad Knopf 2013, ICF 2015, McCormick 2016b, c, d) were reviewed. A summary of these inventories is provided below for each species.

Based on the review of existing information, this HCP will cover one species, the SJKF. In exchange for the incidental take authorization, the HCP would provide for long-term mitigation, monitoring, and management of the SJKF and its habitat at a level sufficient to offset effects from the covered activities. Although the primary intent of this HCP is to provide mitigation for effects to the SJKF, it would also contribute to the protection of native biological diversity, habitat for native species, natural communities, and local ecosystems. This broad scope would conserve a wide range of natural resources including native species that are common as well as those that are rare.

1.5.1 San Joaquin Kit Fox

The SJKF has been observed on several occasions in and near the plan area. Field surveys documented a varying number of dens, depending on the area surveyed and the year of the survey. Based on the presence of SJKF individuals and dens in and near the plan area, this species has been included in this HCP.

1.5.2 Other Species Considered

The following two species have not been included in this HCP. Rationale for their exclusion is provided in this section.

1.5.2.1 Blunt-nosed Leopard Lizard

A review of existing data indicated the plan area was within the range of, and supported potentially suitable habitat for, the blunt-nosed leopard lizard (Quad Knopf 2013). Surveys for the blunt-nosed leopard lizard were conducted on the plan area in 2012 (Quad Knopf 2013) and 2015 (ICF 2015) in accordance with the **Approved Survey Methodology for the Blunt-Nosed Leopard Lizard** (California...
Department of Fish and Game 2004). Neither of these surveys documented blunt-nosed leopard lizards in the plan area; therefore, this species has not been included in this HCP.

1.5.2.2 Giant Kangaroo Rat

A review of existing data and general observations on the plan area concluded that there was low potential for the giant kangaroo rat to occur based on the distance to the nearest known occupied areas and the lack of observations of precincts typical of this species, although suitable habitat in a general sense was present (Quad Knopf 2013). In granting its Final LSAA, CDFW required avoidance of rodent burrows or protocol-level, pre-construction trapping surveys for the giant kangaroo rat. Small mammal trapping was conducted in 2016 for construction of a project road across the drainage subject to the LSAA. No giant kangaroo rats were detected (McCormick 2016b). Considering the low potential for presence, as well as the negative results of the trapping effort, the giant kangaroo rat has not been included in this HCP.

1.6 Regulatory Setting

Section 9 of the ESA prohibits the take of any listed fish or wildlife species. Take, as defined by the ESA, means “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct”. “Harm” is defined by the USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. “Harass” is defined by the USFWS to include actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering.

The ESA includes mechanisms that provide exceptions to the Section 9 take prohibitions. These are addressed in Section 10 of the ESA for non-federal actions. In cases where federal land, funding, or authorization is not required for an action by a non-federal entity, the take of listed fish and wildlife species can be permitted by USFWS through the Section 10 process. Private landowners, corporations, state agencies, local agencies, and other nonfederal entities must obtain a Section 10(a)(1)(B) permit for take of federally listed fish and wildlife species “that is incidental to, but not the purpose of, otherwise lawful activities.” Under section 10(a)(2)(A) of the ESA, an approved HCP is required before an incidental take permit can be issued.

According to section 10(a)(2)(B) of the ESA and associated Federal regulations, HCPs must meet six requirements before an incidental take permit can be issued. These requirements are:

- All takings must be incidental
- Effects must be minimized and mitigated to the maximum extent practicable
- There must be both adequate funding and provisions to address changed circumstances
- The taking must not appreciably reduce the likelihood of the survival and recovery of the species in the wild
- The applicant must ensure that additional measures required by federal regulators will be implemented
- Federal regulators must be certain that the HCP can and will be implemented
Prior to the approval of an HCP, USFWS is required to undertake an internal Section 7 consultation because issuance of an incidental take permit is a federal action. Elements specific to the Section 7 process that are not required under the Section 10 process (for example, analysis of cumulative effects) are included in this HCP to assist the USFWS in meeting the requirements of Section 7.

The National Environmental Policy Act (NEPA) requires federal agencies to include in their decision-making process appropriate and careful consideration of all environmental effects of a proposed action and possible alternatives. The issuance by the USFWS of an incidental take permit under Section 10 of the ESA constitutes a federal action; therefore, the USFWS must comply with NEPA. To satisfy NEPA requirements, the USFWS has prepared an Environmental Assessment (EA) for this HCP.

1.7 Document Organization

This HCP and supporting information are presented in the sections listed below.

- Section 1, Introduction, discusses the background, purpose, plan area, permit duration, covered species, and regulatory setting for the HCP.

- Section 2, Environmental Setting, presents baseline conditions in and surrounding the plan area. It discusses detailed information on the species covered by this HCP.

- Section 3, Covered Activities, describes the activities covered under this HCP.

- Section 4, Analysis of Effects and Assessment of Take, presents the direct, indirect, and cumulative effects of the covered activities on the covered species. It provides an estimate of the extent of incidental take of the covered species that may be caused by the covered activities.

- Section 5, Conservation Strategy, lists the biological goals and objectives of the HCP, describes the adaptive management process, lists measures to avoid, minimize, and mitigate effects to the covered species, and outlines a monitoring and reporting program.

- Section 6, Funding, provides estimates of the costs associated with implementing this HCP and describes the financial mechanism that will be used to ensure that mitigation and monitoring will be implemented.

- Section 7, Alternatives, presents alternative actions to the take of federally listed species that were considered and the reasons why those alternatives were not selected.

- Section 8, Implementation, outlines the implementation process for the HCP, describes the process that would be used to modify the HCP in the event of changed circumstances, and lists any other measures required by the Director of the USFWS.

- Section 9, Literature Cited, is a comprehensive bibliography of references cited in the text.
2.0 Environmental Setting

This section presents an overview of the environmental setting of the plan area. It describes the baseline physical and biological conditions upon which the analysis of effects (Section 4) and conservation strategy (Section 5) are based.

2.1 Regional Setting

The plan area is located in northwestern Kern County, which is California’s third largest in land area, encompassing 8,202 square miles. Located at the southern end of the San Joaquin Valley, the geography is diverse, with mountainous areas, agricultural lands, and desert areas. Kern County consists of three general areas or regions: the Valley Region, the Mountain Region, and the Desert Region. The plan area is located in the Valley Region.

2.2 Plan Area Setting

This section describes the setting of the plan area including climate, topography, geology, soils, hydrology, vegetation, wildlife, and land use.

2.2.1 Climate

The plan area is characterized by low rainfall, high average summer temperatures, and mild winters. The Valley Region of Kern County, in the rain shadow of the Coastal Range, receives average annual precipitation of about 5.2 inches.

2.2.2 Topography

The plan area is nearly flat with low rolling terrain. The elevation ranges from 590 feet above mean sea level (amsl) to about 630 feet amsl. Slopes across the area range from one to three percent.

2.2.3 Geology

The plan area is located in the southern half of the Great Valley geomorphic province of California, which is a trough where sediments have been deposited almost continuously since the Jurassic period (206 to 144 million years ago). The Great Valley is a broad central 50-miles-wide and 400-mile-long alluvial-filled valley drained by five major rivers and situated between the Sierra Nevada Mountains to the east and the Coast Ranges to the west. Broad alluvial fans originating from the Temblor Range to the west formed the deposits of sediment that underlie the plan area.

2.2.4 Soils

The upper soils on the plan area consist of interbedded sands and clays. The general soil types are classified as Lewkalb (saline alkali-Milham-Kimerlina complex), Milham sandy loam, Kimberlina sandy loam, and Kimberlina fine sandy loam, which are all generally well-drained Quaternary alluvium with a 0 to 6 percent slope.

2.2.5 Hydrology

Drainage in the plan area is generally to the east and northeast. A well-defined, broad drainage path of approximately 18 acres in size, which was observed to have eroded banks approximately 1 to 2 feet tall, crosses the northern portion of the project site from west to east (Figure 2). Runoff is primarily conveyed
through overland sheet flow, with the possibility of some concentrated flow in shallow depressions, especially in the drainage path. The topography of the area, coupled with low precipitation, leads to very little offsite drainage. Normal precipitation causes standing water that largely stays on site and percolates into the soils.

Most of the plan area (approximately 122 acres) is located within Federal Emergency Management Agency (FEMA) designated Flood Zone “X,” indicating it is outside of the 100-year flood hazard area. However, approximately 38 acres in the northern portion of the area, where the drainage path described above crosses the site from west to east, is within FEMA-designated Flood Zone A, which corresponds to the 100-year floodplain (Figure 2).

2.2.6 Vegetation

The San Joaquin Valley can be characterized as predominantly grassland that has undergone extensive agricultural conversion. Historically, native vegetation consisted of perennial grasses, forbs, shrubs, and perhaps some valley saltbush scrub. Most of the native habitat near the plan area has been converted to agricultural production, oil development, and grazing. Residences, commercial development, and associated infrastructure (e.g., highways, water conveyance facilities, and transmission lines) are also present.

The plan area consists entirely of actively grazed rangeland with nonnative annual grasses; it does not support any native vegetation communities. Holland (1996) described this community as a dense to sparse cover of annual grasses, with the flowering parts measuring 8 to 20 inches or more in height. It is often associated with numerous species of showy, native, annual wildflowers, especially in years with favorable rainfall. Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set begin in the winter and continue through spring. With only a few exceptions, the plants are dead through the summer and fall dry season but persist as seeds. The dominant plant species typically identified in nonnative grassland include red brome (Bromus madritensis), rip-gut brome (Bromus diandrus), wild oats (Avena barbata and Avena fatua), foxtail barely (Hordeum jubatum), annual rye (Lolium multiflorum), filaree (Erodium cicutarium), fiddleneck (Amsinckia menziesii), pepperweed (Lepidium nitidum), popcorn flower (Plagiobothrys nothofulvus), and lotus (Lotus micranthus).

2.2.7 Wildlife

Common wildlife species in the San Joaquin Valley are adapted to endure harsh climatic conditions, including extreme aridity, summer heat, and cold winter temperatures. Wildlife diversity in the plan area is relatively low, most likely because of the low habitat diversity. Nineteen species of birds, three species of reptiles, and five species of mammals were observed incidentally during field surveys in the plan area (Quad Knopf 2013; ICF 2015; McCormick 2016b, c, d), not including special status species. Burrowing owls (a state-listed species of concern), mountain plovers (a state-listed species of concern), Nelson’s antelope squirrels (a state-listed threatened species), and short-nosed kangaroo rats (a state-listed species of concern), were also observed in the plan area.

2.2.8 Land Use

Land uses within Kern County are predominantly related to agriculture and oil production, although over the last few decades, urban development has increased in a number of areas, such as the city of Bakersfield and smaller communities throughout the county. The plan area is about two miles south of the unincorporated community of Blackwell’s Corner, west of the towns of Lost Hills and Buttonwillow, and within an unincorporated portion of Kern County.
The plan area is currently used for dry land grazing. The plan area is not designated as prime farmland, unique farmland, or farmland of statewide importance by the Farmland Mapping and Monitoring Program. Soils on the project site are rated as prime farmland, if irrigated; however, the project site has historically been used for dryland grazing because of the lack of available water. The project site is located in a non-service area and is not served by an irrigation district.

The plan area is located in an area of known mineral resources, namely proven oil reserves, but active oil production does not occur at the site. The plan area does not contain any areas that have been designated for mineral recovery uses by the Kern County General Plan, and is not designated or zoned for mineral recovery. The plan area is located in the Blackwell’s Corner oilfield and contains one plugged and abandoned oil well. The larger 477-acre parcel contains one additional plugged and abandoned well. Both wells were in operation during the 1980s. The area’s surroundings also contain other active, plugged, and abandoned oil wells.

The Kern County Fire Department provides fire suppression and emergency medical services to the plan area, which would be served by Station 26, located approximately nine miles east of the site in the community of Lost Hills. The plan area is within the moderate fire hazard severity zone according to the California Department of Forestry and Fire Protection’s (CALFIRE) Fire Hazard Severity Zone Maps.

Police protection services are provided by the Kern County Sheriff’s Office. The closest Kern County Sheriff’s substation is located in the Buttonwillow area, is approximately 26 miles to the southeast of the plan area.

No schools or hospitals are located within one mile of the plan area. The nearest school is Lost Hills Elementary School, approximately eight miles to the east in the community of Lost Hills. Delano Regional Medical Center is the closest emergency medical facility and is approximately 36 miles northeast of the plan area.

There are no public airports or landing strips within two miles of the plan area. Lost Hills-Kern County Airport is about nine miles to the east. There are also several small private airstrips and local airports in the surrounding area, including Belridge Strip Airport, Elk Hills-Buttonwillow Airport, Blackwell Land Company Incorporated Airport, and Paramount Farming Airport.

### 2.3 Covered Species

The SJKF is the only species covered by this HCP. Additional information on this species is provided in this section.

#### 2.3.1 San Joaquin Kit Fox

The SJKF is listed as an endangered species under the ESA and a threatened species under the CESA. No critical habitat rules have been published for the SJKF. The USFWS (1983) San Joaquin Kit Fox Recovery Plan was the initial recovery plan for the species. Subsequently, a recovery strategy for SJKF was included in the Recovery Plan for the Upland Species of the San Joaquin Valley, California (Upland Recovery Plan; USFWS 1998). More recently, USFWS completed a 5-year review for the SJKF, and determined that the kit fox continues to meet the definition of endangered (USFWS 2010).

#### 2.3.1.1 Taxonomy

The SJKF is a subspecies of the kit fox (*Vulpes macrotis*), the smallest member of the dog family in North America. Though there has been some debate as to the taxonomic relationship among North
American arid land foxes, the SJKF is currently considered a distinct subspecies. The details of this debate are outlined in Dragoo et al. (1990) and Schwartz et al. (2005). Descriptions of the species’ physical characteristics can be found in USFWS (1998).

2.3.1.2 Distribution

Although the precise historical range of SJKF is unknown, it is believed to have extended from Contra Costa and San Joaquin Counties in the north to Kern County in the south. By the 1930s, its range had been reduced to the southern and western portions of the Central Valley (Grinnell et al. 1937). Surveys conducted between 1969 and 1975 extended the known range of the kit fox back into portions of its historical range in the northern San Joaquin Valley, including Contra Costa, Alameda, and San Joaquin Counties (USFWS 1998).

Currently, kit foxes occur in some areas of suitable habitat on the floor of the San Joaquin Valley and in the surrounding foothills of the Coast Ranges, Sierra Nevada, and Tehachapi Mountains from Kern County north to Contra Costa, Alameda, and San Joaquin Counties (USFWS 1998). There are known occurrences in Alameda, Contra Costa, Fresno, Kern, Kings, Madera, Merced, Monterey, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Santa Clara, Stanislaus, and Tulare Counties. The largest extant populations of kit fox are in Kern County (Elk Hills and Buena Vista Valley) and San Luis Obispo County in the Carrizo Plain Natural Area (USFWS 1998).

The California Natural Diversity Database (CNDDB) lists 72 SJKF occurrences within 10 miles of the plan area (CDFW 2016). SJKFs and their sign were observed throughout the biological survey area by Quad Knopf (2013), who also documented seven known dens, one natal/pupping den, one atypical den, and one potential den, although none of these were located on the project site. McCormick (2016c) documented three known dens, one natal/pupping den, and two potential dens. The three known dens were located on the project site, while the natal/pupping den and potential dens were located in the plan area, but outside the project site. Kit fox scat was also observed at the known and natal/pupping dens.

2.3.1.3 Natural History

SJKF occupy a variety of habitats, including grasslands; scrublands; vernal pool areas; alkali meadows and playas; and agricultural irrigated pastures, orchards, and vineyards. They prefer areas with loose-textured soils that are suitable for digging and are primarily found in arid grasslands and open scrublands. The southern portion of their range is predominantly shrubland while the northern and western portion of their range is predominantly grassland. Historically and currently, kit fox abundance has been greater in southern shrublands than in northern grasslands (USFWS 1998).

Dens generally are located in open areas with grass and scattered brush, and are seldom found in areas with thick brush. Preferred sites are on relatively flat, well-drained terrain. They are seldom found in areas with shallow soils, high water tables, or impenetrable bedrock or hardpan layers; however, kit fox may occupy soils with high clay content where they can modify burrows dug by other animals, such as ground squirrels (USFWS 1998). Kit foxes will den in small patches of native habitat that are surrounded by intensively maintained agricultural lands and adjacent to dryland farms (USFWS 1998). Highly suitable areas are also characterized by flat to gently rolling terrain (less than five percent slope), with suitability declining as slope increases. Habitat suitability also decreases as vegetation density increases (Cypher et al. 2013). Based on the known habitat preferences of the kit fox, the plan area represents high quality habitat because it has flat or nearly flat terrain with sparse grassland vegetation and soils suitable for den construction.
Kit foxes can, but do not necessarily, breed their first year. Sometime between February and late March, two to six pups are born per litter (Cypher et al. 2000). The annual reproductive success for adults ranges between 20 and 100 percent, with a mean of 61 percent (Cypher et al. 2000).

SJKFs prey upon a variety of small mammals (especially kangaroo rats), ground-nesting birds, and insects. In many parts of their range, SJKF abundance and density is correlated to the abundance and density of kangaroo rats (Cypher et al. 2013). The diet of kit foxes varies by season and geographic locality based on local availability of potential prey. In the northern portion of their range, kit foxes most commonly prey on California ground squirrels, cottontails (*Sylvilagus auduboni*), black-tail jackrabbits (*Lepus californicus*), pocket mice (*Perognathus* spp.), and kangaroo rats (*Dipodomys* spp.), as well as reptiles and insects (USFWS 1998, 2010).

SJKFs are subject to predation by coyotes (*Canis latrans*), non-native red foxes (*Vulpes vulpes*), domestic dogs, golden eagles (*Aquila chrysaetos*), and large hawks (*Buteo* spp.) (USFWS 1998). The main source of kit fox mortality in the natural environment is predation from coyotes (Harrison and Cypher 2011). White et al. (2000) determined that coyotes were responsible for 59 percent of kit fox deaths during a 4-year telemetry study at Camp Roberts in southern Monterey County.

The home range of kit foxes can vary greatly and is thought to be related to prey abundance (USFWS 2010). The species can readily navigate a matrix of land use types and may range up to 20 miles at night during the breeding season and somewhat less (6 miles) during the pup-rearing season (Girard 2001). The home ranges of pairs or family groups of kit foxes generally do not overlap (White and Ralls 1993). This behavior may be an adaptation to periodic, drought-induced scarcity in prey abundance.

Continued fragmentation of habitat is a serious threat to this species. Increasing isolation of populations through habitat degradation and barriers to movement, such as aqueducts and busy highways, can limit dispersal to and occupancy of current and former habitats. The threat of being struck by vehicles is high, particularly for dispersing individuals. Habitat alteration also represents a threat to this species. Oil and gas extraction, mining, conversion of native habitats to agricultural use, changes in vegetation structure caused by non-native species, and altered grazing regimes have the potential to degrade or eliminate suitable habitat (USFWS 2010). Livestock grazing is not thought to be detrimental to the kit fox, but it may affect the abundance of prey species, depending on the intensity of grazing (USFWS 1998). Moderate grazing is thought to benefit the kit fox because it can enhance the prey base and reduce vegetation density, allowing the kit fox to more easily detect and avoid predators. The use of pesticides to control rodents and other pests also threatens kit fox in some areas, either directly through poisoning or indirectly through reduction of prey abundance.
3.0 Covered Activities

This section describes the activities covered by this HCP. The effects of these activities are described and quantified in Section 4. These activities are necessary for the applicant to meet the purpose of the project described in Section 1.

3.1 Project Description

The project is located on 160 acres of a 477-acre parcel (APN 068-191-21) and includes the conversion of unimproved, non-native grassland into a 20 MW solar photovoltaic power-generating facility (Figure 2). The 160-acre project site will be divided as follows:

- Long-term (life of project) disturbance
  - Fenced areas (containing solar arrays, roads, inverters, battery energy storage system, and other project features): 125 acres
  - Two roads that cross the surveyed flood zone: 1 acre
  - Existing substation: 2 acres

- Short-term (construction and decommissioning) disturbance
  - Outside the fenced area, but inside the project site: 5 acres

- Undisturbed
  - Surveyed flood zone and adjacent habitat: 27 acres

Project activities will include installation of access control fences, road construction, pile driving, geotechnical and soil investigations, solar array construction, trenching, operations, maintenance, decommissioning, and other activities. These activities are described in more detail in the following section.

3.2 Activities Covered by the Permit

The covered activities for this HCP include construction, operation, maintenance, and decommissioning of the project, as well as implementation of measures associated with the conservation strategy (Section 5), and monitoring. Each of these activities is described in detail below.

3.2.1 Construction Activities

All excavation and grading will be limited to areas where inverter pads, parking areas, roadways, and conduit will be located, and to restore trenched areas to the pre-existing grade. All areas of the project footprint that are temporarily disturbed will be reseeded following completion of construction. The project will commence commercial operations and begin delivering energy to the grid by the first quarter of 2017.
3.2.1.1 Construction Workers, Hours and Equipment

The construction workforce will consist of laborers, craftsmen, supervisory personnel, and support management personnel. Over a 9-month construction period, the construction workforce is expected to peak at 154 workers. Construction will generally occur during daylight hours (30 minutes after sunrise to 30 minutes before sunset), Monday through Friday, although additional work hours or days may be necessary to compensate for construction delays.

3.2.1.2 Geotechnical and Soil Investigations

The applicant will determine subsurface geotechnical engineering characteristics within the project site by performing soil borings and backhoe test-pits, field penetration testing, and laboratory testing of various samples. Two consecutive days of fieldwork will be required to complete the testing, which will include 12 pile tests, four borings, and 10 test pits. Test pits will be 18 inches wide by 10 feet long by 15 feet deep and borings will be 10 inches in diameter by 10 feet deep. All investigations will be conducted within the project site, but outside of the area subject to CDFW’s LSAA. Bulk samples will be collected from the excavation spoil. Test pits will be excavated using a tractor-mounted backhoe with an 18-inch wide bucket. Borings will be made with a truck mounted drill rig. Penetration testing will be performed using a thick-walled sample tube, which is driven into the ground at the bottom of a borehole with a truck mounted slide hammer.

3.2.1.3 Fencing

Permanent, access-control fences will be installed around the two areas of solar arrays (Figure 2). The surveyed floodplain between the two solar array areas will not be fenced. The fences will be 6 feet tall and constructed using chain-link with three-strand barbwire along the top. All fencing will have a minimum 4-inch opening between the fence mesh and the ground. Manual swing gates will be constructed to allow entry to the solar array areas. Fencing will be installed using vibratory pile driving machines similar to those used to install highway guardrails. The fence posts will be driven to a depth of up to 4 feet. Flatbed trucks, standard pickup trucks, and forklifts will be used to move fence equipment and materials. No concrete will be used during the construction of the fences. All materials and equipment will be staged and stored within the designated site laydown areas. All unused materials will be removed from the plan area immediately following construction.

3.2.1.4 Solar Arrays

The project will use approximately 90,000 solar modules mounted to single axis trackers, which will occupy approximately 108 acres of the project site. The solar modules will be uniformly dark in color, non-reflective, and designed to be highly absorptive of all light that strikes their glass surface. The solar modules will comply with industry standard quality testing and will be electrically connected to a grounding system. The trackers for the solar modules will be installed on 6-inch wide galvanized steel I-beam poles. The poles will be driven from 5 feet to 13 feet into the ground by specialized vibrating or pounding equipment. This equipment will consist of a small tracked machine that is operated by a worker standing alongside. No concrete will be used for the installation of the poles. A total of 28,260 poles will be installed with a minimum of 10-foot spacing between poles. Each solar module array will measure approximately 185 feet in total combined length and approximately 6.5 feet in width. The total height of the system, measured from the ground surface, will range from approximately 5.25 feet to 7.75 feet depending on the time of day.

Solar array tracker poles and solar array components will be delivered to the project site on flatbed trucks. The solar arrays will be assembled by hand with assistance from front-end loaders. Once the solar arrays
are assembled, the solar modules will be installed and wired by hand. Flatbed trucks and forklifts will be used to transport modules for installation. The wiring from each module will be run within the structure of the solar array and gathered into a central collector harness that will feed into the trenched and buried conduit that will run from the array into the underground collection systems located in the road shoulders.

All materials and equipment will be staged and stored within the designated site laydown areas. All unused materials will be removed from the plan area following construction. No earth work (for example, grading, clearing, or grubbing) other than driving of the poles and conduit trenching described above will occur on the project site because the trackers will follow the topography of the land.

3.2.1.5 Underground Collection System

Underground collection systems will be installed under each of the roads, within the outer 2 feet of the 24-foot wide roadway. Underground collection system lines will also run east-west and parallel to one another, from the main underground collection systems to the solar arrays. The underground collection system lines will be buried within trenches 2 feet wide by 3 feet deep. Approximately 100,000 feet of direct current feeder cable and 50,000 feet of medium voltage collector cable will be buried in underground conduit across the project site.

All trenches will be dug using narrow excavating equipment. The excavated material will be temporarily cast alongside the trench while the collection system lines are laid. Depending on soil composition, native soil or thermal backfill will cover the collection system lines, which will be immediately covered by the remaining excavated material before being compacted to the original grade. The amount of thermal backfill used within each trench will be determined by project engineers based on the collection system lines and soil characteristics. Thermal backfill will consist of native soil or cement stabilized sand. Depending on soil composition, thermal backfill and native soils will be used up to a ratio of 50:50. In no instance will more than 50 percent thermal backfill material be used to re-bury the collection system lines. A Ditch Witch or rotary trenching device, compactors, water trucks, forklifts, flatbed trucks, small pickup trucks, and diesel generators will be used to install the underground collection system. All materials and equipment will be staged and stored within the designated site laydown areas. All unused materials will be removed from the plan area following construction.

3.2.1.6 Underground Telecommunication System

The project will connect to the local telecommunication system at the existing utility grid interconnection by wiring into an existing telecom bunker on the property. Copper and fiber telecommunications wire will be pulled through a four-inch all-weather conduit that is buried approximately two feet deep within the road shoulder. The conduit will be placed in the same trench used for the underground collection system. Approximately 4,500 feet of telecommunication conduit will be used. The same construction method, tools, and machinery used to lay the underground collection system will be used to install the telecommunication conduit and the work will be done at the same time. Once the conduit is laid, the trench will be backfilled with native soil and compacted to the original grade.

3.2.1.7 Inverters

Inverters will be distributed approximately every 500 feet along the edge of the solar arrays, near the buried electrical cables, and outside of the area subject to CDFW’s LSAA. Concrete slabs will support the inverters, combiner boxes, and power conditioning equipment. Each inverter pad will be approximately 32.5 feet long by 10.5 feet wide. Each inverter pad location will be excavated to a depth of 12 inches and will be backfilled and compacted with 6 inches of Class II aggregate base. A 12-inch thick rebar reinforced concrete slab will be poured on top of the base material and will extend above the existing
grade by 6 inches. The concrete for the inverter pads will be mixed off-site and will be delivered and poured to fill the foundation frames. Any spilled concrete or debris will be removed immediately and will be disposed of properly. Large anchor bolts or piles will be sunk into the concrete slab to support and attach the inverter equipment to the foundation.

The inverters may be placed in an all-weather housing similar to a utility box casing or covered with an all-weather canopy mounted on a light steel or aluminum structural frame that is secured into the concrete foundation. Trenching equipment, compactors, water trucks, forklifts, flatbed trucks, concrete trucks, backhoes, small pickup trucks, concrete vibrators, and diesel generators will be used to install the inverters and associated equipment.

### 3.2.1.8 Testing and Calibration

Once the solar arrays, underground collection systems, inverters, and other electrical equipment are installed, the project will be commissioned and will start generating electricity. During the commissioning process, the various systems will be tested and calibrated to make sure they are functioning safely and to specifications. While most of this work can be done during daylight hours, some of the testing and calibration must be done at night for safety reasons, when the solar arrays are not generating electricity.

### 3.2.1.9 Battery Energy Storage System

A battery energy storage system (BESS) will be constructed on the project site to provide on-demand energy under various operating conditions. The BESS will be constructed as follows:

- The footprint of the BESS will not exceed 40,000 square feet (less than one acre).
- BESS capacity will range from 500 kilowatts to 20 MW, providing a power discharge range from 1 MW to 30 MW.
- BESS components will consist of a self-contained electrochemical battery system using conventional storage technologies that may include lithium ion, nickel cadmium, zinc chlorine redox flow, or advanced lead batteries.
- Each individual storage unit will be approximately 1 MW capacity rated to 1.5 MW; accordingly, the number of units deployed at any one time could be as few as one unit or up to 24 units.
- Each individual storage unit will be approximately 40 feet long by 8 feet wide by 8.5 feet tall.
- The BESS may need a roof structure to cover the storage units depending on the technology used.
- A concrete slab foundation may be required under the units.
- The BESS will employ a series of high efficiency DC to AC and AC to DC inverters, voltage regulating equipment, and circuit breakers as necessary to integrate the storage facility with the overall solar system and the transmission grid.

The BESS will be designed to draw power for storage from surplus energy generated by the solar system and through a service connection with the local utility provider.
3.2.1.10 Meteorological Data Collection System

One meteorological data collection system will be installed within the project site to collect weather data. The weather data will be collected at the level of the solar panels or at approximately 8 feet above ground. The system will be situated on top of a pile driven post similar to those used to construct the perimeter fence or will be affixed to one of the solar tracker assemblies.

3.2.1.11 70-Kilovolt Generation-tie Line

The project will be interconnected into the existing Pacific Gas and Electric 70-kilovolt Arco-Cameras line just outside the project site (Figure 2). Interconnection activities are not covered by this HCP.

3.2.1.12 Roads

Several roads will be constructed within the project site (Figure 2). Each road will be 24 feet wide and constructed through a combination of compaction and native material removal down to 12 inches below original grade. Construction of the roads will require scarification of the soil using a grader or similar piece of equipment. The roadbed will then be watered and compacted to approximately 12 inches below native grade using graders, rollers, compactors, and water trucks. A 12-inch layer of aggregate will then be poured and compacted to fill the road surface to native grade. Aggregate will consist of Class II material comprised of stone, rocks, or gravel of various sizes from approximately 3/4 inch to 12 inches (with a flat cast), but generally 4 inches to 6 inches along with sand and native fill material. Specifically, aggregate material with a flatter configuration will be used to facilitate the creation of a plane surface for vehicle passage. The entire aggregate and infill matrix will be pressed into a compacted subgrade and the final road surface will be at original grade. Aggregate and scraped native material will be delivered and removed from the work area by dump truck and front loader. All materials and equipment will be staged and stored within the designated site laydown areas. All unused materials will be removed from the plan area immediately following installation.

3.2.1.13 Roads within the CDFW LSAA Permit Area

Two roads will cross the area subject to CDFW’s LSAA, one each on the west and east edges of the project site (Figure 2). Each road will be 24 feet wide and constructed through a combination of compaction and native material removal down to 18 inches below original grade. Construction of these roads will require scarification of the soil using a grader or similar piece of equipment. The roadbed will then be watered and compacted to approximately 18 inches below native grade using graders, rollers, compactors, and water trucks. A 6-inch thick gravel base course, followed by a 12-inch layer of aggregate will be poured and compacted to fill the road surface to native grade. Aggregate will consist of stone, rocks, or cobble of various sizes from approximately 9 inches to 12 inches (with a flat cast), and cobble infill material sized between 4 inches and 6 inches interspersed to provide for vehicle passage. Specifically, aggregate material with a flatter configuration will be used in order to facilitate the creation of a plane surface for vehicle passage. A 3-foot-wide boulder buttress will flank the road on both sides and will be composed of boulders averaging 18 inches in diameter. The entire aggregate and infill matrix will be pressed into the compacted subgrade to bring the final road surface to the original grade. Aggregate material and scraped native material will be delivered and removed from the area by dump truck and front loader. All materials and equipment will be staged and stored within the designated site laydown areas. All unused materials will be removed from the plan area immediately following construction.
3.2.1.14 Staging Areas

All construction parking, storage areas, equipment storage, temporary facilities, and any other temporary surface-disturbing activities will be confined to designated site laydown areas (Figure 2). The site laydown areas will occupy approximately 1.5 acres and are located at the edges of the solar arrays.

3.2.1.15 Hazardous Materials

Distribution transformers will be mounted on concrete pads and co-located with the inverter units and switching gear. Each of the transformers, which convert field voltage to gathering voltage, will contain up to 450 gallons of dielectric fluid (mineral oil). The transformers will be surrounded by 6-inch earthen, fiberglass, or concrete containment berms/curbs. The containment areas will be lined with an impermeable membrane covered with gravel. In accordance with all state and federal regulations, all components will be included in a comprehensive Spill Prevention, Control, and Countermeasure Plan. Stormwater will be inspected for sheen prior to disposal. If sheen is observed, the stormwater will be removed by vacuum truck to an appropriate disposal location outside of the plan area. If no sheen or contaminants are detected, the stormwater will be drained on-site.

3.2.2 Operation and Maintenance

Operation and maintenance activities will include equipment inspection, monitoring, testing, repair, and replacement of the solar panels, along with periodic maintenance of the solar arrays, roads, fencing, and security monitoring. Maintenance activities will include solar panel washing, which will use approximately 1-acre-foot of water per year. Water will be purchased from a local water district, brought to the site by truck, and stored on-site in a covered aboveground water tank.

Daily operation and security of the project site will be from an off-site location with maintenance and security crews (two to three people) dispatched to the site as needed. On-site security monitoring will consist of visual inspections during routine driving patrols. Additional site security measures will include a computer-controlled and pole-mounted video surveillance system with infrared detection and remote monitoring. Finally, motion-activated area lighting will be installed at key locations throughout the facility. Light fixtures will be hooded and directed such that light will not extend beyond the facility.

No heavy equipment will be used during normal operations. Vehicles will consist of trucks (pickups, flatbeds, and dump trucks), forklifts, man baskets, and loaders for routine and unscheduled maintenance, and water trucks for solar panel washing. Large heavy-haul transportation equipment may be brought to the project site infrequently for equipment repair or replacement. The level of vehicle activity entering and leaving the plan area during operation will be limited to scheduled and emergency maintenance visits and monthly delivery vehicles.

A list of specific maintenance activities and the frequency with which they will occur include:

- Visual and mechanical inspections (quarterly)
- Grounds maintenance (e.g., vegetation control through mowing or similar mechanical means, among the solar arrays, to minimize fire risk and control weeds; as needed)
- String testing (annually)
- Cabling, breakers, disconnect, and combiner box inspection and testing (annually)
• Substation calibration (annually)
• Substation maintenance and relay calibration (monthly to annually)
• Infrared scans of modules, combiner boxes, switch gear, and substation (annually)
• Calibration, maintenance, and cleaning of on-site meteorological stations (bi-annually, annually, and bi-weekly, respectively)
• Inverter and tracker maintenance (per manufacture's guidelines)
• Revenue meter verification (per power purchase agreement)
• Solar panel washing (annually)
• Dispatch of maintenance staff (as necessary)

Most operation and maintenance activities can be done during daylight hours; however, maintenance, testing, and calibration of some electrical equipment must be done at night for safety reasons, when the solar arrays are not generating electricity. The annual washing of the solar panels is also typically done at night to avoid disruption of power generation.

Project operations will produce a small amount of solid nonhazardous waste. During operations, workers will generate solid nonhazardous waste (e.g., rags, scrap metal, packing materials from deliveries, empty containers, sanitary wastewater solids, and other miscellaneous solid wastes) from operation and maintenance activities. Solid nonhazardous waste will be removed from the plan area and disposed of in accordance with all local, state, and federal laws.

3.2.3 Decommissioning

Solar equipment has a lifespan of over 35 years; therefore, the project will be decommissioned by year 40 and will not be repowered after the initial 40-year life is expended. The entire project site will be revegetated, reseeded, and restored to pre-project conditions. Decommissioning will include the removal of all project facilities including, but not limited to, access roads, fencing, structures, foundations, concrete pads, underground cabling, wires, conduits, solar panels, mounting systems, and support systems. All materials will be recycled as feasible. The following decommissioning methods will be employed to restore the project site to pre-project conditions:

• Solar Panels - All solar modules will be detached from the racking using hand tools, small power tools, loaders, forklifts, flatbed trucks, and pickup trucks and removed from the attachment point of the panel to the trackers. The panels will be stacked into shippable skids, loaded onto trucks, and shipped off-site for recycling or resale.

• Trackers - The tracker assembly will be cut apart by either cutting machines or track-mounted metal shears. The piers will be pulled from the ground by a puller mounted on a tracked machine. Hand tools, small power tools, loaders, forklifts, flatbed trucks, and pickup trucks will be used to remove trackers and racking devices from the plan area.

• Underground Collection System - All wires and underground collection systems will be excavated and removed from the plan area using backhoes, trenches, hand tools, small power tools, loaders, forklifts, flatbed trucks, and pickup trucks. All foundations associated with
junction boxes will be broken up, reinforcement bar removed; and the concrete removed from the plan area.

- Inverters - Inverters and associated equipment will be removed as one unit using a small-wheeled crane. Equipment will be removed and disassembled at a remote location where any transformer mineral oil can be removed safely. All concrete foundations will be broken up, reinforcement bar removed, and all materials removed from the plan area using hand tools, small power tools, loaders, forklifts, cranes, dump trucks, flatbed trucks, and pickup trucks.

- Substation - All above ground structures will be lowered and removed from the plan area. All steel and wire will be recycled as scrap and the control room and its components will be re-sold or recycled. All oils used for cooling the step-up transformer and any breakers will be pumped out and removed from the plan area and recycled. All concrete foundations will be broken up, reinforcement bar removed, and the concrete removed from the plan area.

- Battery Storage - The BESS and all battery material will be removed from the plan area. Equipment used to remove the BESS and batteries will include small hand tools, power tools, forklifts, loaders, and flatbed trucks.

- Roads - All roads will be reclaimed. Non-native materials will be removed from the plan area using dump trucks and flatbed trucks. Roadways will be restored to pre-project conditions. Loaders, backhoes, graders, and small power and hand tools will be used to restore roadways to pre-project conditions.

- Fencing - All fencing will be removed and the material resold or recycled. The removal process will require the use of small power and hand tools, loaders, pickup trucks, and flatbed trucks to disassemble and remove the fencing material. Any holes created by the removal of the fencing will be filled with native soils and restored to pre-project conditions.

### 3.2.4 Activities Associated with HCP Implementation

Activities associated with HCP implementation include all avoidance, minimization, mitigation, and monitoring actions that have the potential to cause take of SJKF. Management actions that will be applied on-site and off-site are described in detail in Section 5. The primary focus of the conservation measures is to avoid, minimize, or mitigate take of individuals of the SJKF and loss or degradation of suitable habitat. Monitoring was designed to ensure that the objectives of this HCP are achieved and are commensurate with the level of potential effects to SJKF described in Section 4.
4.0 Analysis of Effects and Assessment of Take

This section evaluates the potential effects of the covered activities on the SJKF. Direct, indirect, and cumulative effects and an estimated level of take are described. The analysis of effects is based on the natural history and ecology of the SJKF, which is summarized in Section 2, and the covered activities, which are described in Section 3. In addition to describing the potential effects of the covered activities on the SJKF, this section is intended to meet the requirements of Section 7 of the ESA in order to assist the USFWS with its internal consultation on this HCP.

The surveys summarized in Section 2.3.1.2 indicate that SJKF use the plan area for movement and foraging, and may also use it for breeding. Based on the typical extent of SJKF territories and the fact that the territories of breeding pairs do not generally overlap (Section 2.3.1.3), this analysis assumes that the plan area contains a portion of the home range of one breeding pair of SJKFs.

4.1 Direct Effects

The covered activities may directly affect the SJKF in several ways, including take of individual SJKF during construction, operation and maintenance, and decommissioning. Each of these direct effects is discussed in detail in this section.

4.1.1 Direct Effects of Construction

The covered activities may cause take of individuals during construction. Various construction activities have the potential to incidentally harm or harass individuals, including road construction, boring, and excavation associated with geotechnical and soil investigations; installation of the fences around the solar arrays; delivery and movement of materials to the site laydown areas and around the project site; placement of supports for the solar arrays; trenching and installation of underground utilities including electrical and telecommunication systems; grading of inverter sites and placement of inverters, grading of the BESS site and construction of the BESS; and installation of the meteorological data collection system. In addition to these specific construction activities, there will be extensive equipment and worker traffic throughout the project site during the nine-month construction period, which may incidentally harm or harass individuals.

The conservation strategy, specifically the measures listed in Sections 5.3.1 and 5.3.2, will be implemented to minimize the potential for mortality or injury of individuals. Through completion of pre-activity surveys (Measure 24), placement of appropriate buffers around dens that can be avoided (Measure 25), and excavation of dens that cannot be avoided (Measure 26), the potential for injury or harm will be greatly reduced. Dens that are excavated and destroyed (Measure 26) will no longer be available for shelter, reproduction, and escape; however artificial dens will be constructed (Measure 27) to compensate for this loss. Nevertheless, a small risk of incidental injury or mortality will remain from undetected occupation of dens being excavated, vehicle collisions, and increased vulnerability to predation caused by displacement.

Construction will substantially increase human activity on the project site, which may cause incidental take of any SJKF that are present. Motion, noise, and vibrations from construction may cause stress and displacement, even when all of the avoidance and minimization measures are implemented. The use of biological monitors (Measure 37) will serve to minimize the risk of this type of take during construction. Nevertheless, preventing this type of incidental take can be difficult, if not impossible, for highly mobile species like the SJKF. Implementation of the avoidance and minimization measures, including monitoring, also has the potential to cause stress and displacement.
4.1.2 Direct Effects of Operation and Maintenance

Typical operation and maintenance activities are described in Section 3.2.2. Operation and maintenance activities include the day-to-day function and upkeep of facilities at the project site. Operation activities include inspecting, monitoring, and testing the solar arrays and associated facilities. These activities would involve personnel working at the site and using access roads. Maintenance activities could include repairing or replacing facilities, structures, and access roads. They may also include emergency repair and replacement of facilities as well as vegetation management, such as mowing vegetation around and under the solar arrays and elsewhere across the project site.

Operation and maintenance activities have the potential to cause take of individual SJKF. Kit foxes could be struck by vehicles or equipment if they are moving through or foraging on the project site. If any excavation is needed to repair or replace underground infrastructure, burrows may be collapsed. Measures 25 through 31 (Section 5.3.2) would be implemented to minimize the potential for take from these activities; however, the potential remains for undetected SJKF to be harmed or harassed. This risk will be greatest at night, when their movements are most likely to occur. However, project traffic and other activities will be limited at night (Measure 12).

Operation and maintenance will periodically increase human activity on the project site, which may cause incidental take of any SJKF that are present. Motion, noise, and vibrations from various activities may cause stress and displacement, even when all of the avoidance and minimization measures are implemented. Pre-activity surveys (Measure 25), avoidance (Measures 26 through 31), and the use of biological monitors (Measure 37) will serve to minimize the risk of take. Nevertheless, preventing this type of incidental take can be difficult, if not impossible, for highly mobile species like the SJKF. Implementation of the avoidance and minimization measures, including monitoring, also has the potential to cause stress and displacement.

4.1.3 Direct Effects of Decommissioning

The decommissioning and restoration process will involve the removal of aboveground structures, restoration of topsoil, revegetation, seeding, and monitoring. The level of disturbance, equipment use, and potential for take during decommissioning will be equivalent to the effects during construction. Through completion of pre-activity surveys (Measure 24), placement of appropriate buffers around dens that can be avoided (Measure 25), and excavation of dens that cannot be avoided (Measure 26), the potential for injury or harm will be greatly reduced. Nevertheless, a small risk of incidental injury or mortality will remain from undetected occupation of burrows being excavated, vehicle collisions, and increased vulnerability to predation caused by displacement.

Decommissioning will substantially increase human activity on the project site, which may cause incidental take of any SJKF that are present. Motion, noise, and vibrations may cause stress and displacement, even when all of the avoidance and minimization measures are implemented. The use of biological monitors (Measure 37) will serve to minimize the risk of this type of take. Nevertheless, preventing this type of incidental take can be difficult, if not impossible, for highly mobile species like the SJKF. Implementation of the avoidance and minimization measures, including monitoring, also has the potential to cause stress and displacement.

4.2 Indirect Effects

The covered activities may indirectly affect the SJKF through degradation or loss of suitable habitat during construction, operation, maintenance, and decommissioning. Construction will cause the degradation or loss of 133 acres of suitable habitat on the project site. Of this total, approximately 5 acres
adjacent to the fences will be short-term, lasting during the construction period and continuing until restoration of these areas is complete. Degradation or loss of the remaining 128 acres, which will be occupied by the roads, solar arrays, and other facilities, will be long-term, lasting until the project is decommissioned and site restoration is complete.

As described in Section 3.2.1, the project site will not be cleared or graded during construction, except for roads, inverter pads, and the BESS site. Existing vegetation under the solar arrays will not be cleared or graded, but will be disturbed by construction traffic and placement of the support poles for the arrays. These disturbed areas will be re-seeded at the end of construction for erosion control and to replace, to the extent practical, habitat for the SJKF and its prey. Disturbance of the existing vegetation on the site has the potential to introduce or spread non-native, invasive species, including noxious weeds.

Fencing of the solar arrays is likely to change movement patterns of SJKF in the plan area; however, Measure 8 will provide for continued movement through the project site. The fences will be designed to allow SJKF movement, but to exclude larger animals including potential mammalian predators, reducing the risk of increased predation on the project site.

Operation and maintenance of the project is expected to have minimal indirect effects on the SJKF. Vegetation management (mowing or similar mechanical methods) will periodically change the condition of vegetation on the project site. The areas under the solar arrays are expected to provide habitat of reduced quality for the SJKF and its prey, relative to pre-project conditions. Foraging opportunities will be reduced, requiring the SJKF to shift some of its foraging efforts to other areas outside the project site. Survival of individuals displaced by habitat degradation and loss may be reduced if prey availability is lower elsewhere in their territory or if adjacent areas are occupied by other breeding pairs or are otherwise unsuitable or unavailable for use by the displaced pair. Displacement may also increase vulnerability of SJKF to predation.

Decommissioning is expected to degrade habitat further in the short-term because of the extensive use of equipment that will be needed to remove project facilities. Once all of the facilities are removed, restoration will begin, after which habitat conditions for the SJKF and its prey are expected to return to pre-project conditions over a period of several years.

4.3 Estimated Level of Take

HCPs are required to determine the amount of incidental take that may be caused by the covered activities and that will be authorized during the term of the incidental take permit (50 Code of Federal Regulations [CFR] 17.22[b]). The following estimate of take assumes all of the avoidance and minimization measures described in Section 5 will be implemented during construction, operation, maintenance, and decommissioning, as appropriate.

The potential effects of the covered activities (Sections 4.1 and 4.2) can be divided into three potential categories of incidental take: 1) harm – incidental take that may cause injury or mortality to individual SJKF; 2) harassment – incidental take that will annoy individual SJKF and create a likelihood of injury; and 3) harm and harassment resulting from habitat loss. Table 4-1 provides a quantitative estimate of incidental take for each of these categories.

One of the objectives of the conservation strategy is to avoid injury or death of individual SJKF during construction, operation, maintenance, and decommissioning of the project (Section 5.1). With this objective in mind, any injury or death would be cause for re-examining and potentially modifying the conservation strategy using adaptive management. If any mortality or injury occurs, it will be necessary to re-analyze the effects of the project on the SJKF to determine whether or not mortality or injury can be avoided in the future, how the conservation strategy may need to be modified to achieve this objective,
and how many additional individuals may be injured or killed for the remainder of the duration of the permit. If an injury or death of SJKF is documented, the applicant will consult with the USFWS to evaluate the cause of the take and ways in which it could have been avoided. If subsequent analysis reveals the potential for additional injury or mortality over the remaining term of the permit, the HCP and permit would be modified to account for the additional take via a major amendment.

Table 4-1 Estimated Incidental Take, San Joaquin Kit Fox

<table>
<thead>
<tr>
<th>Type of Take</th>
<th>Extent of Take</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury or Mortality</td>
<td>0 individuals</td>
</tr>
<tr>
<td>Harm and Harassment Resulting from Habitat Loss</td>
<td>5 acres</td>
</tr>
<tr>
<td>Short-term temporary</td>
<td></td>
</tr>
<tr>
<td>Long-term temporary</td>
<td>128 acres</td>
</tr>
<tr>
<td>Permanent</td>
<td>0 acres</td>
</tr>
</tbody>
</table>

* All individual SJKF that use the project site over the life of the project may be harassed. No specific estimate has been developed of the total number of individual SJKF that may be harassed because of the difficulty of monitoring and quantifying harassment over the life of the project.

Another objective of the conservation strategy is to minimize harassment of individual SJKF during construction, operation, maintenance, and decommissioning of the project (Section 5.1). Ideally, harassment would be avoided entirely; however, the plan area is assumed to contain a portion of the home range of one breeding pair of SJKFs based on the survey results summarized in Section 2.3.1.2. Using this assumption, it is likely that one or more individual SJKF will be harassed at some point during the life of the project. SJKF are most likely to be harassed by the covered activities during the construction and decommissioning phases because of the extent of the activities and the number of workers that will be present. During operation and maintenance, there will be no daily activity on the project site; activities will be intermittent based on needs. When maintenance needs arise, they will be conducted by a small number of workers with limited amounts of equipment and will be preceded by surveys and other efforts (Measures 25 through 31) to avoid or minimize take. If the Designated Biologist or other biological monitor identifies the potential for incidental take other than a minimal risk of harassment during operation and maintenance (Measure 37), the activities that may cause this take would be deferred until the applicant can consult with the USFWS. If subsequent analysis reveals the potential for other than minimal incidental take through harassment, the HCP and permit will be modified to account for the additional take.

The conservation strategy contains two objectives related to habitat in the plan area (Section 5.1). No SJKF habitat will be permanently lost or degraded because the project will be decommissioned and the site restored. However, 5 acres of habitat will be lost or degraded in the short-term (during construction) and 128 acres of habitat will be lost or degraded in the long-term (during construction and operation). Harm and harassment resulting from both the short-term and long-term habitat loss or degradation are included in the estimate of take in Table 4-1.

4.4 Cumulative Effects

Construction of the project will temporarily degrade or eliminate up to 133 acres of suitable SJKF habitat and may cause injury, mortality, or harassment of individual SJKFs. The conservation strategy (Section 5.0) is designed to prevent, minimize, and mitigate these direct and indirect effects to the extent feasible; however, the project is still expected to contribute to the cumulative loss of habitat as well as cumulative
take of individuals. These effects have been identified as threats to the SJKF and were among the reasons for its listing as endangered in 1967.

The EIR for the project (Kern County 2014) provides a list (Table 3-4 in the EIR) of past, present, and reasonably foreseeable future projects that were considered in the analysis of cumulative effects. It also provides lists of approved and pending solar projects in the Valley Region of Kern County (Tables 3-5 and 3-6 in the EIR, respectively). Although the project would only cause temporary degradation or loss of 133 acres of suitable SJKF habitat, it would do so in the context of 17,800 acres of similar projects in the Valley Region of Kern County. The suitability of habitat for the SJKF on these different project areas is not known; however, it is reasonable to assume that at least some of them would, in combination with this project, contribute to the incremental loss of suitable SJKF habitat in Kern County. Similarly, some of these other projects may cause injury, mortality, or harassment of individual SJKF. Any attempt to quantify these cumulative effects would be speculative; however, while individual SJKF and their habitats may be affected, no measureable effect on the regional population is expected because of mitigation efforts and the extensive areas of suitable habitat that would not be affected.
5.0 Conservation Strategy

The conservation strategy is designed to mitigate the effects of the covered activities on the SJKF and achieve the biological goals and objectives of the HCP. The conservation strategy outlines a series of avoidance, minimization, and mitigation measures to achieve these goals and objectives. The conservation strategy also includes a monitoring and reporting program to ensure compliance and track progress towards meeting the goals and objectives. The conservation strategy is based on the following:

- The need to meet the ESA standard of minimizing and mitigating effects of the covered activities to the maximum extent practicable
- The projected level of effects to the SJKF caused by the covered activities
- The ecological requirements of the SJKF
- The conservation needs of the SJKF in the plan area and region
- Discussions with species experts, including USFWS and CDFW staff

The conservation strategy includes three types of conservation measures, each of which is described below.

- Project design features developed to avoid or minimize effects of the project in general
- Measures designed specifically to avoid or minimize effects to the SJKF
- Actions to compensate for unavoidable effects to the SJKF

5.1 Biological Goals and Objectives

Biological goals are broad, guiding principles based on the conservation needs of the species. Biological objectives are expressed as conservation targets or desired future conditions. Objectives are measurable and quantitative when possible; they clearly state a desired result and collectively achieve the biological goals.

At a regional level, the plan area and the immediately adjacent lands have been identified as both suitable for and occupied by the SJKF. The biological goals and objectives described below are designed to maintain the suitability of the plan area and adjacent lands for the SJKF, to the extent practical, while still allowing implementation of the covered activities.

**Goal 1.** Minimize adverse effects to SJKF during all covered activities: construction, operation, maintenance, and decommissioning.

**Objective 1.1.** Avoid injury or death of individual SJKF during construction, operation, maintenance, and decommissioning by implementing avoidance and minimization measures for all covered activities.

**Objective 1.2.** Retain the potential for SJKF to continue their current use of the project site by allowing their movement into, out of, and through the area. Ensure fences that surround the site are permeable to the SJKF.
Objective 1.3. Minimize harassment of SJKF by incorporating elements into the project design that reduce disturbance from noise, light, human activity, pets, and other competing species.

Objective 1.4. After construction is complete, restore all areas of short-term disturbance to pre-construction conditions in terms of habitat suitability for the SJKF.

Goal 2. Increase the quantity and quality of SJKF habitat that is under permanent protection in the western Kern County core population.

Objective 2.1. After the project is decommissioned, restore the entire project site to pre-project conditions in terms of habitat suitability for the SJKF.

Objective 2.2. Preserve 133 acres of SJKF habitat offsite through purchase of mitigation bank credits.

5.2 Adaptive Management

Uncertainty is an unavoidable component of managing natural systems. To address uncertainty, adaptive management will be an integral component of this HCP. Adaptive management is the process by which management is implemented, monitored, and then refined based on the results of monitoring. Successful adaptive management requires the following components:

- Success criteria based on specific goals and objectives
- An explicit link between monitoring and the success criteria
- A mechanism to refine or redirect management activities if success criteria are not met

The primary source of uncertainty in this HCP, relative to the biological goals and objectives, involves the likelihood that the plan area and off-site mitigation lands will provide habitat for the SJKF over time. For example, habitat quality for SJKF is dependent in part on the presence of adequate prey, such as California ground squirrels and kangaroo rats. While land management practices can enhance habitats to promote prey colonization, the factors that ultimately influence their population dynamics, such as disease, climate, predation, and inter- and intra-species competition, can be difficult to control or predict.

The effectiveness of the conservation strategy in the plan area will be measured by evaluating the monitoring results in light of the success criteria. Success criteria will be described in the Vegetation Restoration plan (Measure 23). If monitoring indicates the success criteria are not being met, management techniques will be changed so that they can achieve the success criteria to the maximum extent practicable. If, at any time during monitoring, the adaptive management process leads to substantial changes to any conservation measure or management activity, the USFWS will be consulted. Major changes to the conservation measures or management activities may require a more intensive monitoring schedule, to be determined in consultation with the USFWS, and may require an amendment of the HCP or incidental take permit. The processes for amending the HCP or incidental take permit are described in Section 8.2.3.

5.2.1 Adaptive Management of Off-Site Mitigation Lands

Adaptive management of the off-site mitigation lands is discussed in the Palo Prieto Conservation Bank Management Plan (Meade and CDFG 2006), which has been reviewed and approved by the USFWS.
Appendix A reproduces the section of the Palo Prieto Conservation Bank Management Plan that describes the adaptive management plan for the conservation bank, including Amendment 1, which was completed in 2008.

5.3 Measures to Avoid and Minimize Effects

As required by ESA, this HCP includes measures to avoid or minimize take of the SJKF. The primary focus of these measures is to avoid or minimize the potential for injury or death of individual SJKF, as well as unnecessary degradation or loss of suitable habitat. Even after the implementation of these avoidance and minimization measures, other forms of take (for example, incidental harassment of individual SJKF) may still occur.

5.3.1 Project Design Features

The following measures have been incorporated into the design of the project to avoid or minimize its overall effects, including those to the SJKF.

1. Designated Representative
   a. Before covered activities begin, the USFWS shall be notified of the name, business address, and other contact information of a Designated Representative for the project. The USFWS shall be notified if, at any time during the term of this HCP, the Designated Representative is changed.
   b. The Designated Representative shall oversee compliance with this HCP and be responsible for all communications with the USFWS.

2. Designated Biologist
   a. Before covered activities begin, the USFWS shall be notified of the name, qualifications, business address, and other contact information of one or more Designated Biologists for the project.
   b. Each Designated Biologist shall be knowledgeable and experienced in the biology and natural history of the SJKF, as well as blocking and excavation of dens and burrows used by the SJKF.
   c. Approval of each Designated Biologist shall be obtained from the USFWS before covered activities begin. Any change to the list of Designated Biologists shall be approved by the USFWS in advance of the change.
   d. The Designated Biologist shall be responsible for monitoring the covered activities to help avoid, minimize, and fully mitigate incidental take of SJKF and to minimize alteration of habitat for SJKF.

3. Authority of the Designated Biologist
   a. The Designated Biologist shall have authority to immediately stop any activity that does not comply with this HCP or to order any reasonable measure to avoid the unauthorized take of individual SJKF.
4. Education Program

   a. All personnel (employees and contractors) shall receive environmental training before beginning work in the plan area during project construction, operation, maintenance, and decommissioning. This includes, but is not limited to, construction personnel, facility operators, and maintenance personnel. The same instruction shall be provided to any new workers before they are authorized to perform work in the plan area.

   b. The program shall consist of a presentation from a Designated Biologist that includes:

      i. A description of the covered species, including photographs

      ii. A discussion of the biology and general behavior of the covered species

      iii. Information about the distribution and habitat needs of the covered species, including use of the plan area

      iv. Sensitivity of the covered species to human activities

      v. Legal status of the covered species pursuant to the ESA

      vi. Recovery efforts focused on the covered species

      vii. Penalties for violations

      viii. Project-specific protective measures described in this HCP

      ix. Procedures that will be implemented if a covered species is found on-site, including contact information for the Designated Biologist(s)

   c. Interpretation shall be provided for non-English speaking workers.

   d. A wallet-sized card, fact sheet, or similar summary containing this information shall be provided for workers to carry in the plan area.

   e. All personnel, upon completion of the training program, shall be required to sign a form stating they attended the program, understand all conservation measures, and will comply with those measures.

   f. The training shall be repeated at least once annually for long-term or permanent personnel who will be working in the plan area.

5. Delineation of Project Site

   a. The boundaries of the project site shall be clearly delineated with stake, flagging, or other means before the covered activities start. All stakes, flagging, or other means of boundary delineation shall be maintained until the completion of covered activities.

   b. All covered activities shall be restricted to within the staked, flagged, or otherwise marked project site. No covered activities shall be allowed outside of the project site in the plan area, except for the surveys required by Measure 24 and den replacement required by Measure 27.
6. Delineation of Habitat
   a. Habitat for the covered species shall be clearly delineated with signs, stakes, flags, rope, cord, or other means to minimize disturbance. Note: at present, the entire project site is considered suitable habitat for the SJKF.

7. Access
   a. Personnel shall access the project site using the existing access point from SR 46 and shall not cross habitat of covered species outside of the project site.
   b. If travel routes are needed in the plan area, but outside of the project site, the Designated Representative shall contact USFWS for written approval before carrying out such an activity. USFWS may require an amendment to this HCP if additional take of covered species may be caused by project modification.
   c. USFWS staff shall be provided with reasonable access to the plan area. The applicant shall cooperate fully with USFWS efforts to verify compliance with or effectiveness of measures set forth in this HCP.

8. Fencing
   a. Security fences installed on the project site shall be designed to enable passage of SJKF and their prey, while impeding the passage of larger predators, such as coyotes and larger domestic dogs. All fencing shall leave a minimum 4-inch opening between the fence mesh and the ground. The bottom of the fence fabric shall be knuckled (wrapped back to form a smooth edge) to protect wildlife that pass under the fence. Fences shall be monitored quarterly to ensure that any damage or vandalism is quickly repaired.

9. Staging Areas
   a. All parking, material and equipment storage, laydown, and related activities shall be restricted to the designated site laydown areas, which is limited to 1.5 acres within the project site, using, to the extent possible, previously disturbed areas.

10. Geotechnical Investigations
    a. Soil cuttings from geotechnical investigations shall be replaced, reused, dispersed on site, or removed from the plan area.
    b. Drilling fluids shall be discharged in a manner that is in compliance with all local, state and federal laws including but not limited to general permit order Construction General Permit (Order No. 2009-0009-DWQ as modified by Order No. 2010-0014-DWQ, NP DES No. CAS000002, adopted September 2, 2009, effective July 1, 2010) and the Section 401 Water Quality Certification.
    c. Test locations shall be selected to avoid potential effects to any dens or burrows capable of sheltering the SJKF in accordance with Measure 25.

11. Lighting
a. All exterior light fixtures shall be hooded, directed downward, or toward the area to be illuminated and in a manner that backscatter to the nighttime sky is minimized.

b. Light sources shall be shielded to prevent light trespass outside the plan area. Light shall not be visible from outside the footprint of the project facilities.

c. All lighting shall be of minimum necessary brightness, consistent with worker safety.

d. All illuminated areas not occupied on a continuous basis shall have motion detectors to light the area only when it is occupied. All perimeter lighting shall also only be motion activated.

e. Operational exterior lighting shall be limited to the minimum amount required by law.

12. Night Work

a. Covered activities shall only be conducted during daylight hours (30 minutes after sunrise to 30 minutes before sunset) except as described in Measures 12b through 12g.

b. Routine testing, calibration, repair, operation, and maintenance activities shall be limited to those activities that cannot be safely or effectively accomplished during daylight hours. A Designated Biologist shall be present on-site to monitor all routine nighttime activities.

c. Monitoring surveys for SJKF or other wildlife species may be conducted at night and shall only be conducted under the supervision of a Designated Biologist.

d. Security patrols may occur during nighttime hours. To the extent practical, security patrols will observe the project site from public roads, or if direct access to the site is required, from the internal roads on the project site.

e. As noted in Measure 20a, the nighttime speed limit for all covered activities shall be 10 miles per hour.

f. Emergency response and repair may occur during nighttime hours.

g. The USFWS shall be notified as soon as possible and no later than 24 hours after commencement of any nighttime emergency activities.

13. Prohibition of Firearms and Dogs

a. Firearms and domestic dogs shall be prohibited in the plan area, during covered activities, except those in the possession of authorized security personnel or local, state, or federal law enforcement officials.

14. Dust Control

a. Dust control measures shall be implemented as needed during covered activities to facilitate visibility for monitoring of the covered species by a Designated Biologist.

b. The amount of water used shall be minimized. Water shall not be allowed to form puddles.
c. Dust control agents other than water shall not be used in the plan area.

15. Erosion Control Materials
   a. The use of erosion control materials potentially harmful to covered and other species, such as monofilament netting (erosion control matting) or similar material, shall be prohibited in the plan area.

16. Trash Abatement
   a. A trash abatement program shall be developed and implemented before covered activities begin. The program shall continue for the duration of the project. All trash and food items shall be placed in closed, animal-proof containers and removed at least once a day from the plan area to avoid attracting opportunistic predators such as ravens, coyotes, or feral dogs.
   
   b. Upon completion of covered activities, all temporary fill and construction debris, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes shall be removed from the plan area and disposed of in accordance with all applicable laws and regulations.

17. Hazardous Waste
   a. In the event of a fuel or hazardous waste leak or spill, work at the leak or spill site shall immediately stop. The leak or spill shall be repaired and cleaned up by qualified individuals pursuant to applicable state and federal statutes and regulations at the time of occurrence, or as soon as it is safe to do so.
   
   b. Hazardous materials shall not be stored in the plan area, except for the amount needed for the current day’s work. Any unused or leftover hazardous products shall be properly contained and removed from the site at the end of each workday.

18. Equipment Fueling
   a. Fueling and maintenance of mobile equipment shall take place at least 100 feet from SJKF dens.
   
   b. Permanent and semi-permanent equipment fueling and maintenance areas shall be initially located at a distance of at least 100 feet from SJKF dens, and shall include permanent containment devices that will preclude fuel or other liquids from exiting the equipment fueling and maintenance area in the event of a spill or leak.
   
   c. Sufficient spill containment and cleanup equipment shall be present at all mobile, temporary, and permanent equipment fueling locations.

19. Vehicle Parking
   a. Vehicles shall not park on top of, or within 50 feet of, SJKF dens.
   
   b. Vehicle parking shall be confined to the designated parking area at the project substation.
20. Vehicle/Equipment Speed

   a. All project vehicles and equipment shall observe a maximum 15 mile per hour speed limit during daylight hours and a maximum 10 mile per hour speed limit during nighttime hours in the plan area during all covered activities, except on county roads and state and federal highways.

21. Herbicide, Pesticide and Rodenticide Use

   a. The use of pesticides and rodenticides shall be prohibited in the plan area. Herbicides shall only be used in the plan area in accordance with Vegetation Management Measure 22b and the approved Vegetation Restoration plan (Measure 23).

22. Vegetation Management

   a. Areas of the project site between the solar arrays will be left fallow and managed (by mowing or other similar mechanical methods) to allow annual grassland plants and prey species to recolonize the site.

   b. Herbicides may be used to control infestations of noxious or invasive plant species. Project personnel shall only use herbicides that are approved for use by the CDFW and the USFWS. Workers who apply herbicides shall have all appropriate state and local herbicide applicator licenses and comply with all state and local regulations regarding herbicide use. Herbicides shall be mixed and applied in conformance with the product manufacturer’s directions. The herbicide applicator shall be equipped with splash-protection clothing and gear, chemical-resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed, and herbicides shall not be applied within 50 feet of any surface water body when water is present. Herbicides shall not be applied if it is raining at the site, if rain is imminent, or if the target area has puddles or standing water. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.

   c. Grasslands in the plan area, but outside the project site, shall be left in their existing condition. Grazing is expected to continue in this area to maintain existing conditions.

23. Vegetation Restoration

   a. Within six months of completion of this HCP and prior to construction activities occurring, a Vegetation Restoration Plan shall be submitted to the USFWS for review and written approval.

   b. Upon completion of construction, all areas of temporary ground disturbance, such as staging areas, shall be restored to pre-project conditions.
c. Once decommissioning of the project has been completed, the entire 160-acre project site shall be restored to pre-project conditions.

d. The Vegetation Restoration Plan shall include detailed specifications for restoring all disturbed areas, such as seed mixes and application methods, performance success criteria, and a minimum five-year monitoring schedule, unless otherwise approved in writing by USFWS. The plan shall indicate the best time of year for seeding. Plantings undertaken between May and October shall include regular watering to ensure adequate establishment and growth.

e. The Vegetation Restoration Plan shall rely on reference sites to determine target species and cover. At a minimum, soil type, aspect, and precipitation shall be compared to an appropriate reference site to determine applicable grass, forb, and shrub species. The portion of the plan area outside of the project site may provide the most suitable reference site.

f. The plan shall include a target measurement of residual dry matter of pounds per acre in normal and above average rainfall years.

g. If, after success criteria are initially met, subsequent monitoring determines they are no longer being met, additional measures to meet the success criteria shall be developed through consultation with the USFWS and CDFW.

5.3.2 Measures Specific to the San Joaquin Kit Fox

The following measures will be implemented in conjunction with all covered activities during project construction, operation, maintenance, and decommissioning to avoid, minimize, or mitigate effects to the SJKF.

24. Pre-Activity Surveys

a. A Designated Biologist shall perform pre-activity surveys in accordance with the current USFWS-approved protocol, including den monitoring using remote cameras or tracking medium for 4 consecutive nights, for SJKF no more than 14 days prior to ground- or vegetation-disturbing activities associated with pre-construction, geotechnical or soils investigations, construction, operations, maintenance, or decommissioning.

b. Surveys shall provide 100 percent visual coverage of the project site and a 500-foot buffer for the detection of SJKF dens.

c. A report documenting the results of the pre-activity surveys shall be submitted to USFWS within 14 days after performing any such survey and no less than five days before starting covered activities.

25. SJKF Den Avoidance

a. If a potential SJKF den (any subterranean hole, three inches or larger, for which monitoring shows that it is not being used by a SJKF) is discovered or a SJKF is found in an atypical den such as a pipe or culvert, a minimum 50-foot buffer around the potential or atypical den shall be established using flagging.
b. If a known SJKF den (occupied or known to have been used by SJKF in the past) is discovered, a minimum buffer of at least 100 feet shall be established around the den using flagging.

c. If a natal den (den in which SJKF young are reared) is discovered, a buffer of at least 200 feet around the den shall be established using flagging.

d. For any natal dens with pups present, a buffer of at least 500 feet shall be established using flagging.

e. Buffer zones shall be considered environmentally sensitive areas. No covered activities shall be allowed within a buffer except in accordance with Measure 26.

f. The USFWS and CDFW's Regional Representative shall be notified within 24 hours via telephone or e-mail if any SJKF occupied dens, natal dens, or occupied atypical dens are discovered in, or within 500 feet of, the project site.

26. SJKF Den Excavation

a. For active dens that exhibit signs of SJKF use or burrows with characteristics suggestive of SJKF dens including burrows in natural substrate or in/under man-made structures (potential dens) that cannot be avoided in accordance with Measure 25, and if, after five consecutive days of monitoring with tracking media and infrared cameras, a Designated Biologist has determined that SJKF is not currently present, the den may be excavated or blocked temporarily under the supervision of a Designated Biologist, the latter situation (blocking, as opposed to destruction) being required when the den will not be directly affected by construction activities.

b. Burrows without any signs of SJKF use or characteristics suggesting they may be SJKF dens may be excavated (destroyed) under the supervision of a Designated Biologist without advance tracking or camera monitoring.

c. Natal dens shall not be excavated until the pups and adults have vacated and then only after consultation with the USFWS.

d. SJKF dens shall be carefully excavated until it is certain no individuals of SJKF are inside.

e. Dens to be destroyed shall be fully excavated, filled with dirt, and compacted to ensure that SJKF cannot reenter or use the den during covered activities.

f. Dens to be blocked (not within the footprint of a covered activity, but within the no-disturbance buffer) shall be blocked with sandbags or other USFWS-approved material that ensures that SJKF cannot reenter or use the den during the activity, but that can be easily removed at the cessation of the covered activity.

g. If an individual SJKF does not vacate a den within five days, the USFWS and CDFW shall be contacted for written guidance (e-mail will suffice) from both agencies prior to proceeding with any covered activities.

27. SJKF Den Replacement Plan
a. A minimum of 30 days prior to commencing covered activities, a Designated Biologist shall prepare a SJKF Den Replacement Plan. The SJKF Den Replacement Plan shall include, but not be limited to:

i. A discussion and map of the locations of each known, active, and natal den based on the most recent SJKF survey. Note: Pre-activity surveys (Measure 24a) may lead to discovery of new dens through the life of the project. All known, active, and natal dens shall be subject to Measure 27c, regardless of whether they are identified before or after completion of the Den Replacement Plan.

ii. A discussion and map of potential locations for artificial den replacements

iii. An identification of the hand excavation methods

iv. Identification of the replacement den dimensions (depth and width of den, width of den entrance, number of and placement of entrances to natal dens).

b. The SJKF Den Replacement Plan shall be submitted to USFWS and CDFW for approval prior to beginning covered activities. Covered activities may not proceed until the SJKF Den Replacement Plan is approved in writing by USFWS and CDFW.

c. Prior to excavating a known, active, or natal den; filling it with dirt; and compacting it (see Measure 26(e)), each den to be destroyed (excavated) shall have an artificial den constructed and available for use to compensate for the loss of important shelter used by SJKF for protection, reproduction, and escape from predators.


a. SJKF dens blocked in accordance with Measure 26(f) shall be unblocked (material at entrance removed) within 48 hours of the end of the covered activity and when a Designated Biologist determines that resumed use of the den will not harm SJKF.

29. Preventing Entrapment in Excavations

a. To prevent the inadvertent entrapment of the SJKF, a Designated Biologist shall:

i. Inspect all excavations (covered or open) for entrapped animals at the beginning, middle, and end of each day until the excavation is backfilled, including weekends and any other non-work days.

ii. Inspect all excavations (covered or open) for entrapped animals immediately before the excavation is backfilled.

iii. Ensure all trenches, holes, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and that are no more than four feet deep are covered when workers or equipment are not actively working in the excavation (including cessation of work overnight) or have an escape ramp of earth or other non-slip material with a slope of less than 1:1 (45 degrees).

iv. Ensure all trenches, holes, and other excavations with sidewalls steeper than a 1:1 (45 degree) slope and greater than four feet deep are covered when workers or
equipment are not actively working in the excavation and at the end of each work day.

v. Ensure the outer two feet of excavation covers conform to solid ground so there are no gaps between the cover and the ground. Covering such gaps with dirt or laying covers on excavated soil will not satisfy this requirement. The outer two feet of cover material shall be semi-rigid and secured to the ground to preclude animals from lifting the edge. Hardware cloth shall be used unless another material is approved by USFWS. The edges of the covers shall be secured with re-bar, minimum 10-inch soil staples, or similar means every 12 inches or a similar method approved in writing by USFWS prior to implementation to prevent animals from lifting the edges.

vi. If at any time a trapped or injured animal is discovered, a Designated Biologist shall notify USFWS within one working day of the incident.

30. Entrapment in Pipes or Other Structures

a. All materials staged on the project site shall be spaced to not provide areas suitable for SJKF to seek shelter. At no time shall materials be haphazardly piled on the project site.

b. A Designated Biologist shall thoroughly inspect, for SJKF, all pipes, culverts, or similar structures four inches in diameter or greater that are stored in the plan area for one or more overnight periods before such structure is subsequently buried, capped, or otherwise used or moved in any way. If a SJKF is discovered in any such structure, that section shall not be moved until the SJKF escapes on its own. Alternatively, a Designated Biologist may consult with the USFWS and CDFW on appropriate and acceptable means of inducing the SJKF to move.

31. SJKF Inspection

a. Workers shall inspect for SJKF under vehicles and equipment every time the vehicles or equipment are moved. If a SJKF is present, the worker shall wait for it to move on its own to a safe location. Alternatively, a Designated Biologist may be contacted to determine if the animal may be safely moved in accordance with this HCP.

32. SJKF Observations

a. At any time while engaged in covered activities, all workers shall inform a Designated Biologist if a SJKF is seen in or within 500 feet of the project site.

b. All covered activities within 500 feet of the SJKF, which could injure or kill the animal, shall cease until it moves from the project site of its own accord, or is moved by a Designated Biologist in accordance with this HCP.

33. SJKF Injury

b. Wildlife rehabilitation or veterinary facilities with the capability of treating SJKFs shall be identified and approved by the USFWS and CDFW before the start of covered activities.
c. If a SJKF is injured by project activities, a Designated Biologist shall immediately take it to an approved facility. All costs associated with the care or treatment of the injured SJKF shall be the responsibility of the applicant.

d. The USFWS and CDFW shall be notified of any injury to a SJKF immediately by telephone and e-mail followed by a written incident report as described in Measure 44. Notification shall include the name of the facility where the animal was taken.

5.4 Measures to Mitigate Unavoidable Effects

Two measures will be implemented to mitigate and compensate for unavoidable effects to SJKF habitat associated with the covered activities. First, habitats on the project site will be managed as much as possible for SJKF and their prey while the project is in operation and after the project is decommissioned. Second, additional suitable habitat will be preserved through purchase of conservation bank credits. These measures are described in more detail below.

5.4.1 Habitat Management within the Project Site

Mitigation for degradation or loss of suitable SJKF habitat on the project site will be implemented in both the short-term (during project operation) and long term (after project decommissioning). As described above (Measure 8), the fences around the site will be built to allow SJKF and other small wildlife free access on and off the project site. Human activities during project operation will be limited to the minimum required to adequately monitor and maintain the project (Section 3.2.2).

Once project construction is complete, those portions of the project site that are not occupied by the solar arrays and other facilities will be restored to pre-construction conditions in accordance with the Vegetation Restoration Plan (Measure 23). These areas total 5 acres, corresponding to portions of the project site outside, but adjacent to, the fences. Measure 22 will be implemented to maintain suitable conditions for the SJKF and its prey in these areas.

A total of 128 acres of the project site will be occupied by the solar arrays and other facilities. Measure 22 will be implemented to maintain, to the extent feasible, grassland habitats for the SJKF and its prey. Nevertheless, habitats in this area will be degraded from the current condition because of the need to limit fire risk, conduct project maintenance, and other factors, such as shading by the solar arrays.

After project decommissioning, the entire project site will be restored to pre-project conditions in accordance with the Vegetation Restoration Plan (Measure 23). Once the restored grassland has become established, the project site is expected to provide suitable habitat for the SJKF and its prey, as well as other native wildlife species.

5.4.2 Off-site Mitigation

To offset the long-term, but not permanent, degradation and loss of suitable SJKF habitat on the project site, credits totaling 133 acres will be purchased from the Palo Prieto conservation bank, located in northeast San Luis Obispo County, prior to the start of the covered activities. The Palo Prieto conservation bank is located at an important crossroads for SJKF movement between the Carrizo Plain population, the Ciervo-Panoche population, and the Salinas River Valley. Kit foxes are observed as residents and moving through the area. These lands will be managed for the benefit of the SJKF in perpetuity.
5.5 Monitoring

Monitoring will be an integral part of the conservation strategy and adaptive management plan. The monitoring program is designed to fulfill three purposes.

- Verify completion of HCP requirements (compliance monitoring)
- Assess the level of take from the covered activities (effects monitoring)
- Evaluate the effectiveness of the conservation strategy to determine if the goals and objectives are being attained and inform adaptive management (effectiveness monitoring)

The types of monitoring described here were designed to ensure that the biological goals and objectives of this HCP are achieved. Monitoring will inform the adaptive management process and will be used to change or improve management actions, if necessary, to increase their effectiveness.

34. Notification Before Commencement
   a. The Designated Representative shall notify the USFWS at least 14 calendar days before starting covered activities.
   b. The Designated Representative shall document compliance with all applicable measures before starting covered activities.

35. As Built Development Plans
   a. As-built development plans shall be submitted to the USFWS within 45 days of completing all construction activities.
   b. The as-built plan sheets shall delineate and quantify the extent of permanent project features, including roads, utilities, and all other facilities associated with the project. The as-built plans shall include an estimate of the long-term disturbance by highlighting disturbed areas on the plan sheets. The plan scale shall be one inch to 250 feet or smaller. Plans shall be derived from survey data acquired after construction and shall be verified by a Designated Biologist. The plans shall be submitted in Portable Document Format (PDF) or a similar electronic format.

36. Notification of Non-compliance
   a. The Designated Representative shall immediately notify the USFWS in writing if the applicant is not in compliance with any of the requirements of this HCP, including the project design features; measures specific to the SJKF; or the monitoring, notification, and reporting requirements.
   b. The Designated Representative shall report any non-compliance with this HCP to USFWS within 24 hours of their identification of the non-compliant condition.

37. Compliance Monitoring
a. A Designated Biologist shall be at the project site daily when surface- or vegetation-disturbing covered activities occur. If such activities are occurring in more than one location simultaneously, monitoring shall occur at all locations.

b. As needed, biological monitors may be used to assist the Designated Biologist with compliance monitoring. Biological monitors shall operate under the direct, on-site supervision of the Designated Biologist. Biological monitors will have the authority to stop construction and shall stop construction in the following instances:
   
   i. The monitor observes activities that may cause take of SJKF
   
   ii. The monitor observes a violation of any of the avoidance and minimization measures described in this HCP
   
   iii. If at any time a SJKF or other federally-listed species is in danger of take

c. If a biological monitor stops construction, he or she shall immediately contact a Designated Biologist for further instructions. Work shall not resume until the situation has been resolved to the satisfaction of a Designated Biologist.

d. The Designated Biologist shall conduct compliance inspections to:
   
   i. Minimize incidental take of the SJKF
   
   ii. Prevent unlawful take of the SJKF
   
   iii. Check for compliance with all measures of this HCP
   
   iv. Check all exclusion zones
   
   v. Ensure that signs, stakes, and fencing are intact
   
   vi. Ensure that covered activities are only occurring on the appropriate parts of the project site and plan area


e. The Designated Representative and Designated Biologist(s) shall prepare daily written observation and inspection records when daily inspections occur, summarizing oversight activities and compliance inspections, observations of SJKF and their sign, survey results, and monitoring activities required by this HCP.

f. A Designated Biologist shall conduct compliance inspections a minimum of once per week during periods of inactivity and after clearing, grubbing, and grading are completed in any portion of the project site during construction of the project.

38. Construction Monitoring Notebook

a. A Designated Biologist shall maintain a construction-monitoring notebook on-site throughout the construction period. The notebook shall include a copy of this HCP with attachments and a list of signatures of all personnel who have successfully completed the training program. A copy of the construction-monitoring notebook shall be available for review upon request by the USFWS.
39. Biological Monitoring
   a. Restoration of suitable SJKF habitat in areas of short-term and long-term disturbance on
      the project site are objectives of the conservation strategy. Restoration objectives and
      quantitative success criteria shall be specified in the Vegetation Restoration Plan
      (Measure 23), which shall also contain a monitoring program to assess achievement of
      the restoration objectives.

40. Quarterly Compliance Report (QCR)
   a. The Designated Representative or Designated Biologist(s) shall compile the observation
      and inspection records identified in Measure 37 into a QCR and submit the report to the
      USFWS. QCRs shall be required during the construction and decommissioning phases of
      the project, but not during operation and maintenance.
   b. The QCR shall include the implementation status of each mitigation measure.
   c. QCRs shall be submitted no later than the 15th day of each quarter beginning with
      completion of the HCP.
   d. USFWS may at any time increase the timing and number of compliance inspections and
      reports required under this provision depending upon the results of previous compliance
      inspections. If USFWS determines the reporting schedule needs to be changed, USFWS
      will notify the applicant in writing of the new schedule requirements.

41. Annual Status Report (ASR)
   a. USFWS shall be provided with an ASR no later than January 31 of every year beginning
      with completion of this HCP and continuing until USFWS accepts the final mitigation
      report after decommissioning described in Measure 43.
   b. Each ASR shall include, at a minimum:
      i. A summary of all QCRs for that year (during construction and decommissioning)
      ii. A general description of the status of the plan area and covered activities,
          including actual or projected completion dates, if known
      iii. A table with notes showing the current implementation status of each mitigation
          measure
      iv. An assessment of the effectiveness of each completed or partially completed
          mitigation measure in terms of avoiding, minimizing, and mitigating the effects
          of the project on the SJKF
      v. All available information about project-related incidental take of the SJKF
      vi. An accounting of the number of acres subject to both short-term and long-term
          disturbance, both for the prior calendar year, and a total since HCP completion
      vii. Information about other project effects to the SJKF
42. CNDDB Observations

   a. The Designated Biologist shall submit all observations of SJKF to CDFW's CNDDB within 60 calendar days of the observation. A Designated Biologist shall include copies of the submitted forms with the next QCR or ASR, whichever is submitted first relative to the observation.

43. Mitigation Reporting

   a. No later than 45 days after completion of all mitigation measures following construction, the USFWS shall be provided with an Interim Mitigation Report.

   b. Following decommissioning, the USFWS shall be provided with a Final Mitigation Report. Ongoing mitigation measures during operation and maintenance shall be reported in the ASRs (Measure 41).

   c. A Designated Biologist shall prepare the Interim and Final Mitigation Reports, which shall include, at a minimum

      i. A summary of all QCRs and ASRs to date

      ii. A table with notes showing when each of the mitigation measures was implemented

      iii. All available information about project-related incidental take of the SJKF

      iv. Information about other project effects to the SJKF

      v. Beginning and ending dates of covered activities

      vi. An assessment of the effectiveness of this HCP, specifically the effectiveness of the measures to avoid, minimize, and mitigate take of the SJKF

      vii. Recommendations on how mitigation measures might be changed to more effectively avoid or minimize take and mitigate the effects of future projects to the SJKF

      viii. Any other pertinent information

44. Notification of Take or Injury

   a. A Designated Biologist shall be notified immediately if a SJKF is killed or injured by a covered activity, or if a SJKF is otherwise found dead or injured in or within 500 feet of the plan area.

   b. A Designated Biologist or Designated Representative shall notify the USFWS by telephone of the mortality or injury to a SJKF. The initial notification shall include information regarding the location and number of animals killed or injured. Following initial notification, the USFWS shall be sent a written report within two calendar days. The report shall include the date and time of the finding or incident, location of the animal or carcass, and, if possible, photographs, an explanation as to cause of death or injury, and any other pertinent information.
6.0 Funding

This section describes the estimated costs of implementing this HCP, along with the funding mechanisms that will be employed to ensure that mitigation and monitoring will be successfully implemented.

6.1 Costs

Cost assumptions for plan implementation were developed using comparable cost data from similar HCPs, local mitigation programs, land management agencies, and from other sources where data from local agencies were unavailable. All totals include a 10 percent contingency that could be used for additional costs such as changes in management or monitoring needs in response to changed circumstances.

The ITP and settlement agreement (Section 1.1) required permanent protection and perpetual management of compensatory habitat to mitigate the effects of the project. Although not part of this HCP, the costs for acquiring, protecting, and managing these lands are included here (Table 6-1) to demonstrate the applicant’s commitment to conservation of the covered species, as well as to provide context for the costs associated with implementing the HCP.

Funding mechanisms for the management actions required by the ITP and settlement agreement are discussed in the ITP. These include a letter of credit for interim management of the on-site conservation lands and establishment of an endowment to fund perpetual management of the on-site conservation lands. Interim management will include fence repair, continuing trash removal, site monitoring, vegetation and invasive species management, species surveys, and potentially grazing management, depending on site conditions. Long-term funding for perpetual management, maintenance, and monitoring of the on-site conservation lands will be provided by an endowment. After the interim management period, the designated long-term land manager will manage, maintain, and monitor the on-site conservation lands to preserve their conservation values in accordance with the ITP, the conservation easement, and the final management plan.

<table>
<thead>
<tr>
<th>Management Action</th>
<th>Number of Units</th>
<th>Cost Per Unit</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land acquisition</td>
<td>441 acres</td>
<td>$5,686.90 per acre</td>
<td>$2,507,922.90</td>
</tr>
<tr>
<td>Start-up costs, including initial site protection and enhancement</td>
<td>441 acres</td>
<td>$487.87 per acre</td>
<td>$215,150.13</td>
</tr>
<tr>
<td>Interim management (five years)</td>
<td>441 acres</td>
<td>$253.76 per acre</td>
<td>$111,906.65</td>
</tr>
<tr>
<td>Long-term management (endowment fund)</td>
<td>441 acres</td>
<td>$4,755.50 per acre</td>
<td>$2,097,176.68</td>
</tr>
<tr>
<td>Transaction fees</td>
<td>n/a</td>
<td>n/a</td>
<td>$12,000.00</td>
</tr>
<tr>
<td>Restoration of North Conservation Property after decommissioning</td>
<td>160 acres</td>
<td>$800 per acre</td>
<td>$128,000.00</td>
</tr>
<tr>
<td>Purchase of SJKF conservation credits</td>
<td>230 acres</td>
<td>$3,500.00 per acre</td>
<td>$805,000.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$5,877,156.36</strong></td>
</tr>
</tbody>
</table>

Prior to the start of the covered activities, the applicant will purchase 133 acres of SJKF conservation credits in addition to the 230 acres purchased as part of the settlement agreement. At a per-acre cost of $3,500, the total cost for the 133 acres of credits will be $465,500.
Estimated costs for implementing the conservation strategy during construction are provided in Table 6-2. These costs are primarily related to implementation of the avoidance, minimization, monitoring, and reporting requirements of the conservation strategy.

**Table 6-2 Estimated Costs during Construction**

<table>
<thead>
<tr>
<th>Management Action</th>
<th>Number of Units</th>
<th>Cost Per Unit</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee and contractor training (Measure 4)</td>
<td>Four sessions</td>
<td>$500 per session</td>
<td>$2,000</td>
</tr>
<tr>
<td>Preconstruction surveys (Measure 24) and marking of dens to be avoided (Measure 25)</td>
<td>One survey before construction begins; three dens marked¹</td>
<td>$1,800 per survey</td>
<td>$1,800</td>
</tr>
<tr>
<td>Den excavation and replacement (Measures 26 to 28)</td>
<td>Three dens excavated and replaced¹</td>
<td>$3,000 per den</td>
<td>$9,000</td>
</tr>
<tr>
<td>Construction monitoring (Measure 37)</td>
<td>195 days²</td>
<td>$800 per day</td>
<td>$156,000</td>
</tr>
</tbody>
</table>

Subtotal $168,800

Contingency (10 percent) $16,880

Total $185,680

¹ Number of dens based on most recent survey results (McCormick 2016c, d)
² Assumes monitoring will occur five days per week for nine months

Limited monitoring and reporting related to this HCP will occur on an annual basis during project operation and maintenance. Annual operating costs are provided in Table 6-3.

**Table 6-3 Estimated Annual Cost during Operation**

<table>
<thead>
<tr>
<th>Management Action</th>
<th>Number of Units</th>
<th>Cost Per Unit</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee and contractor training (Measure 4)</td>
<td>Two sessions</td>
<td>$500 per session</td>
<td>$1,000</td>
</tr>
<tr>
<td>Pre-activity surveys (Measure 24) and marking of dens to be avoided (Measure 25)</td>
<td>Two events</td>
<td>$1,800 per survey</td>
<td>$3,600</td>
</tr>
<tr>
<td>Activity monitoring (Measure 37)</td>
<td>10 days¹</td>
<td>$800 per day</td>
<td>$8,000</td>
</tr>
<tr>
<td>Reporting (Measures 40 and 41)</td>
<td>Five reports</td>
<td>$1,200 per report</td>
<td>$6,000</td>
</tr>
</tbody>
</table>

Subtotal $18,600

Contingency (10 percent) $1,860

Total $20,460

¹ Assumes two events of ground-disturbing activity over the course of a year, with each event lasting five days.

As described in Section 3, the solar facility will be decommissioned at the end of the project’s life. During decommissioning, all infrastructure will be removed from the site and the site will be returned to a pre-project condition. The process of decommissioning is described in detail in Section 3. The potential for decommissioning activities to affect the SJKF is described in Section 4. The estimated total cost of decommissioning is shown in Table 6-4. This cost includes removal of all project facilities, but not restoration cost, because this is included in costs for the ITP and settlement agreement (Table 6-1). Details of the labor and equipment cost estimates for decommissioning are provided in Tables 6-5 and 6-6, respectively. The costs shown in Tables 6-4 through 6-6 are based on current year (2016) costs. These costs are likely to increase over the life of the project because of inflation. Prior to decommissioning, the applicant will provide updated costs estimates and sufficient financial assurances to meet these costs.
Table 6-4 Estimated Cost of Decommissioning

<table>
<thead>
<tr>
<th>Management Action</th>
<th>Number of Units</th>
<th>Cost Per Unit</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee and contractor training (Measure 4)</td>
<td>Two sessions</td>
<td>$500 per session</td>
<td>$1,000</td>
</tr>
<tr>
<td>Pre-activity surveys (Measure 24) and marking of dens to be avoided (Measure 25)</td>
<td>One event before decommissioning starts</td>
<td>$1,800 per survey</td>
<td>$1,800</td>
</tr>
<tr>
<td>Decommissioning labor (Table 6-5)</td>
<td>n/a</td>
<td>n/a</td>
<td>$131,000</td>
</tr>
<tr>
<td>Decommissioning equipment (Table 6-6)</td>
<td>n/a</td>
<td>n/a</td>
<td>$207,500</td>
</tr>
<tr>
<td>Activity monitoring (Measure 37)</td>
<td>45 days</td>
<td>$800 per day</td>
<td>$36,000</td>
</tr>
<tr>
<td>Restoration monitoring</td>
<td>One event per year for five years</td>
<td>$3,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Reporting (Measures 40 to 43)</td>
<td>Five reports per year for five years</td>
<td>$1,200 per report</td>
<td>$30,000</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
<td><strong>$419,500</strong></td>
</tr>
<tr>
<td>Contingency (10 percent)</td>
<td></td>
<td></td>
<td><strong>$41,950</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$461,450</strong></td>
</tr>
</tbody>
</table>

1 Assumes monitoring will occur five days per week for two months

Table 6-5 Estimated Labor Cost for Decommissioning

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
<th>Cost per Hour</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar arrays</td>
<td>2000</td>
<td>$35</td>
<td>$94,000</td>
</tr>
<tr>
<td></td>
<td>320</td>
<td>$75</td>
<td></td>
</tr>
<tr>
<td>Underground electrical and telecommunication systems</td>
<td>80</td>
<td>$75</td>
<td>$6,000</td>
</tr>
<tr>
<td>Inverters</td>
<td>40</td>
<td>$100</td>
<td>$6,000</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>$50</td>
<td></td>
</tr>
<tr>
<td>Substation</td>
<td>24</td>
<td>$75</td>
<td>$5,400</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>$100</td>
<td></td>
</tr>
<tr>
<td>BESS</td>
<td>80</td>
<td>$50</td>
<td>$9,400</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>$75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>$100</td>
<td></td>
</tr>
<tr>
<td>Gen-tie</td>
<td>16</td>
<td>$50</td>
<td>$2,200</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>$75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>$100</td>
<td></td>
</tr>
<tr>
<td>Roads</td>
<td>80</td>
<td>$75</td>
<td>$6,000</td>
</tr>
<tr>
<td>Fences and other facilities</td>
<td>40</td>
<td>$50</td>
<td>$2,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$131,000</strong></td>
</tr>
</tbody>
</table>
Table 6-6 Estimated Equipment Cost for Decommissioning

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hours</th>
<th>Cost per Hour</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobilization</td>
<td>40</td>
<td>100</td>
<td>$4,000</td>
</tr>
<tr>
<td>Solar arrays</td>
<td>2000</td>
<td>$50</td>
<td>$124,000</td>
</tr>
<tr>
<td></td>
<td>320</td>
<td>$75</td>
<td></td>
</tr>
<tr>
<td>Underground electrical and telecommunication systems</td>
<td>80</td>
<td>$75</td>
<td>$6,000</td>
</tr>
<tr>
<td>Inverters</td>
<td>40</td>
<td>$75</td>
<td>$5,000</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>$50</td>
<td></td>
</tr>
<tr>
<td>Substation</td>
<td>16</td>
<td>$75</td>
<td>$3,800</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>$100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>$125</td>
<td></td>
</tr>
<tr>
<td>BESS</td>
<td>16</td>
<td>$75</td>
<td>$3,800</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>$100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>$125</td>
<td></td>
</tr>
<tr>
<td>Gen-tie</td>
<td>8</td>
<td>$75</td>
<td>$1,400</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>$100</td>
<td></td>
</tr>
<tr>
<td>Roads</td>
<td>80</td>
<td>$100</td>
<td>$8,000</td>
</tr>
<tr>
<td>Fences and other facilities</td>
<td>20</td>
<td>$75</td>
<td>$1,500</td>
</tr>
<tr>
<td>Haul-out</td>
<td></td>
<td></td>
<td>$50,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>$207,500</strong></td>
</tr>
</tbody>
</table>

6.2 Funding

Funding for implementation of the HCP must be guaranteed to ensure that mitigation and monitoring will take place. One option is to have mitigation in place prior to take occurring or phased-in as the take occurs. Other options include posting of a bond or letter of credit, or establishment of an endowment or other trust fund.

6.2.1 Funding Assurances for Construction and Operations

CED Lost Hills Solar, LLC is committed to implementing the applicable measures of this HCP during construction and operation of the project. Prior to the start of construction, the applicant will provide a letter to the USFWS acknowledging it is CED Lost Hills Solar, LLC’s responsibility to fund implementation of this HCP and that they have sufficient funds available to meet the requirements of the HCP. This letter will also acknowledge that failure to implement the measures described in the HCP at any time during the life of the project would invalidate the incidental take permit.

6.2.2 Funding Assurances for Decommissioning Activities

Financial assurance for decommissioning will be provided to Kern County prior to the issuance of a building permit. Financial assurances will be provided in one of the forms listed below, subject to Kern County’s approval:

a. A surety bond,

b. An irrevocable letter of credit,
c. A trust fund in accordance with the approved financial assurances to guarantee that
decommissioning shall be completed in accordance with the approved Vegetation
Restoration Plan (Measure 23), or

d. Other financial assurances as reviewed and approved by Kern County.
7.0 Alternatives

The ESA requires that applicants for an incidental take permit specify what alternative actions to the take of federally listed species were considered and the reasons why those alternatives were not selected. Two alternatives commonly discussed in HCPs are: 1) any specific alternative that would reduce take below levels anticipated for the proposed project; and 2) an alternative that would avoid take and therefore not require a permit from the USFWS.

The proposed project represents the applicant’s best effort to eliminate or reduce adverse direct and indirect effects on the SJKF while allowing the project to be built and operated consistent with its business goals and considering the potential effects to other resources. In accordance with the ESA, this section discusses project alternatives that were considered but not selected, and the reasons those alternatives were not selected.

The EIR for the project (Kern County 2014) considered several alternatives. Alternate power sources, including wind and natural gas, were considered but eliminated from detailed analysis because they would have greater effects on some resources (including biological resources), and, in the case of natural gas, would fail to meet most of the objectives of the project.

The EIR also considered four alternatives in detail. These alternatives include:

- No-Project / No-Build
- No Ground-mounted Utility-scale Solar Development – Distributed Commercial and Industrial Rooftop Solar Only
- Alternative Site – Desert Area
- General Plan Buildout

Each of these alternatives is described briefly in the following sections. Each description includes a summary of the potential effects to and take of the SJKF, as well as the reasons the alternative was not selected.

7.1 No-Project / No-Build Alternative

This alternative assumes the project would not be constructed and that the plan area would remain in its current condition. Under this alternative, there would be no potential for direct or indirect effects to or take of SJKF because none of the covered activities would occur. This alternative was not selected because it would not achieve any of the project’s objectives, such as helping to meet California’s renewable energy goals.

7.2 No Ground-mounted Utility-scale Solar Development – Distributed Commercial and Industrial Rooftop Solar Only Alternative

This alternative would involve the development of geographically-distributed, small- to medium-scale solar PV systems (100 kilowatts to 1 MW) on the rooftops of commercial and industrial facilities throughout Kern County. Most of this electricity would be consumed on-site by the commercial and industrial facilities without requiring the construction of new electrical substations or transmission facilities. Under this alternative, there would be no potential for direct or indirect effects to or take of
SJKF because the project would be constructed entirely on already developed properties. The plan area would remain in its current condition. This alternative would achieve many of the project’s objectives, such as producing 20 MW of clean electricity to help achieve California’s renewable energy goals; however, this alternative was not selected because the distributed nature of this alternative would significantly increase the costs of development, operation, and maintenance, while delaying completion of the project.

7.3 Alternative Site – Desert Area Alternative

This alternative would involve the development of the project on another site within Kern County. Although a specific location has not been identified, the alternative project site would likely be in the Desert Region of the County rather than the Valley Region. Under this alternative, the project would still consist of the construction and operation of a solar project on up to 158 acres, producing 20 MW of electricity, with similar associated facilities. Location of the facility in the Desert Region would place it outside of the range of the SJKF, precluding any effects to or take of the species; however, depending on the specific site, other listed species, such as the threatened desert tortoise (*Gopherus agassizii*), may be affected. This alternative would achieve many of the project’s objectives, such as producing 20 MW of clean electricity to help achieve California’s renewable energy goals; however, this alternative was not selected because of the uncertainty surrounding an actual project site and the potential effects to resources at that site.

7.4 General Plan Buildout Alternative

This alternative would involve development of the plan area to the maximum intensity allowed under the existing land use designations, zoning, and other applicable restrictions. A solar facility would not be developed in the plan area. This alternative could allow agricultural operations on the site if a water source were made available or, with the recordation of a parcel map, construction of up to one dwelling unit per 20 acres, with reduced agricultural production. The potential for effect to and take of SJKF could be similar to the proposed solar project or effects and take could be reduced if the development leaves large portions of the plan area undisturbed. This alternative was not selected because it would not achieve any of the project’s objectives, such as helping to meet California’s renewable energy goals. It would also increase some effects (for example, air quality), while not reducing the potential for take of the SJKF.
8.0 Implementation

Under the ESA, HCP implementation begins when the Section 10(a)(1)(B) incidental take permit is issued. The applicant has also applied for and received a Section 2081(b) permit (ITP) under the CESA for three state-listed species. This section describes the implementation of the HCP, including responsibilities, changed circumstances, and any other measures required by the Director of the USFWS.

HCP implementation will be overseen by the applicant, with day-to-day tasks managed by staff and consultants. Other experts will be consulted as needed, including biologists from USFWS, CDFW, conservation organizations, consultants, or academia. All obligations and responsibilities to implement this HCP will ultimately rest with the applicant, unless otherwise stated.

8.1 Plan Implementation

This section describes the responsibilities of the various parties to this HCP, as well as reporting requirements associated with implementation of the HCP.

8.1.1 Implementation Responsibilities

CED Lost Hills Solar, LLC, its consultants and contractors, and the regulatory agencies each have specific responsibilities during the implementation of this HCP, as outlined below.

8.1.1.1 CED Lost Hills Solar, LLC

The applicant will oversee HCP implementation and will retain all program records. HCP implementation responsibilities will be assigned to various staff and consultants to form a functional unit to carry out this program. Annual meetings may take place following submittal of the ASR if any issues warrant discussion. Meetings may be requested at any point by the applicant or the USFWS. Additional meetings and conferences may be called by any of the parties at any time to address immediate concerns. The purpose of the annual meeting would be to evaluate the efficacy of monitoring methods, compare the results of monitoring to the estimated take, evaluate the success of mitigation, and develop recommendations for future monitoring and mitigation. Regular meetings also provide opportunities to consider the need for adaptive management.

The applicant will also be responsible for providing data collected in relation to the HCP within 30 days of requests by USFWS unless otherwise identified. The USFWS will provide the applicant or its consultants sufficient notice prior to conducting a visit of the plan area to enable appropriate project or HCP implementation staff to participate.

8.1.1.2 Consultants and Contractors

The applicant will retain consultants to meet all reporting, technical, and scientific needs that cannot be effectively or efficiently addressed by in-house staff. It is expected that consultants will be used more heavily during the early stages of HCP implementation. All consultants will be responsible for understanding the requirements of the HCP, including avoidance and minimization measures. Contractors used during construction, as well as those used for operations, maintenance, and decommissioning, will be trained in the application of the conservation measures as required by Measure 4.
8.1.1.3 Regulatory Agencies

The USFWS issues the federal permit for incidental take and regulates implementation of the HCP. CDFW has issued an ITP with similar conservation requirements for take of state-listed species. The successful execution of the conservation strategy—including those management actions, monitoring, and reporting that are part of the HCP—requires coordination between the applicant and the regulatory agencies.

As discussed above, annual meetings will be used to keep the regulatory agencies informed of the implementation of conservation measures, progress toward meeting biological goals and objectives, results of monitoring and adaptive management, and other relevant topics. Meeting frequency may be changed by the parties as necessary. These meetings will serve as a means for the USFWS to provide advice to the applicant before implementation of key conservation measures such as adaptive management and monitoring. The meetings will also serve as a forum to troubleshoot issues that arise before they affect permit compliance. The regulatory agencies will receive and review QCRs and ASRs (Measures 40 and 41) concerning HCP implementation.

8.1.2 Reporting

The applicant will oversee the preparation of ASRs (Measure 41) to document permit compliance and implementation of the conservation strategy over the term of the HCP. The ASRs will summarize the previous year’s activities and will be completed by January 31 following the reporting year.

ASRs will be submitted to designated representatives of the USFWS, and will be available to the public if requested. The USFWS will use the ASRs, as well as other information and any additional monitoring reports produced under the conservation strategy, to assess success of the HCP in meeting the biological goals and objectives and to formulate recommendations to the applicant for HCP implementation in subsequent years. ASRs will be required in perpetuity to document all restoration and management activities on the mitigation property.

The goals of the ASRs will include:

- Providing the information and data necessary for the applicant to demonstrate to the USFWS and the public that the HCP is being implemented properly and as anticipated
- Disclosing any problems with HCP implementation so they can be corrected
- Documenting issues with HCP implementation that may require coordination with the USFWS
- Identifying administrative or minor changes to HCP components required to increase the success of the conservation measures

At a minimum, ASRs will include:

- A description of all covered activities implemented during the reporting period
- A year-to-date and cumulative summary of effects, which reports the amount of SJKF habitat lost as well as the amount of take, if any, of the SJKF
- A description of the monitoring undertaken during the reporting period and a summary of monitoring results
- A description of any actions taken or expected regarding changed circumstances, including remedial actions
- A description of the adaptive management process used during the reporting period
- An assessment of the efficacy of habitat management methods in achieving performance objectives and recommended changes to improve the efficacy of the methods
- An assessment of the appropriateness of performance indicators and objectives based on the results of effectiveness monitoring, and recommended changes to performance indicators and objectives
- A summary of any administrative changes or amendments proposed or approved during the reporting year

8.2 Changed and Unforeseen Circumstances

This section discusses the rights and responsibilities of the applicant and USFWS with regard to changed and unforeseen circumstances that may occur over the permit term.

Changed circumstances are defined by federal regulation (50 CFR 17.3) as those circumstances affecting a species or geographic area covered by the HCP that can be reasonably anticipated by the applicant or USFWS and to which the parties can plan a response. The No Surprises Regulation requires that an applicant’s response to changed circumstances through additional conservation or mitigation be limited to those measures that are defined in the HCP.

Unforeseen circumstances are defined by federal regulation (50 CFR 17.3) as changes in circumstances affecting a species or geographic area covered by an HCP that could not reasonably have been anticipated by the applicant or USFWS at the time of the HCP’s development, and that cause a substantial and adverse change in the status of the covered species. Applicants are not required to respond to unforeseen circumstances, although they may voluntarily do so.

The No Surprises Regulation limits the scope of an applicant’s responsibility as part of an HCP to respond to changed and unforeseen circumstances and to provide additional conservation measures. As long as the HCP is properly implemented, the No Surprises Regulation prohibits the USFWS from requiring any additional commitment of land, water, or financial resources or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed upon in the HCP.

The No Surprises Regulation does not limit or constrain the USFWS or any federal, state, local, or tribal government agency, or private entity, from taking additional actions at its own expense to protect or conserve covered species. The No Surprises Regulation also does not prevent USFWS from asking the applicant to voluntarily undertake additional mitigation on behalf of the affected species. However, the remedial measures discussed in the following sections define the limit for funding obligations to respond to changed circumstances.

8.2.1 Changed Circumstances Addressed by this HCP

The changed circumstances that could arise in the plan area have been identified and are described below. If the applicant becomes aware of a changed circumstance within the plan area, the applicant will notify the USFWS to determine whether additional conservation measures, known as remedial measures, may be necessary. Where the HCP defines remedial measures for the changed circumstance, the applicant will
work with USFWS to determine the manner in which to implement these measures. Pursuant to the No Surprises Regulation, USFWS may not require remedial measures to respond to changed circumstances not specifically addressed in this HCP or any additional conservation actions not described for HCP-defined changed circumstances without the consent of the applicant, as long as the applicant is properly implementing the HCP. The changed circumstances listed below are recognized by this HCP. Remedial actions to address changed circumstances are funded by the HCP and are described in the discussion of each circumstance that follows.

- Non-Covered Species Listed
- Global Climate Change
- Invasive Species or Disease
- Wildfire

8.2.1.1 Non-Covered Species Listed

Over the course of the permit term, the USFWS may list species as threatened or endangered that are not covered by this HCP. If a new species that is not covered by the HCP but may be affected by activities covered by the HCP is listed under the ESA during the term of the Section 10(a)(1)(B) permit, the Section 10 permit will be reevaluated by USFWS and the HCP covered activities may be modified, as necessary, to ensure that the activities covered under the HCP are not likely to result in jeopardy to or take of the newly listed species or adverse modification of any newly designated critical habitat. The applicant shall implement the modifications to the HCP covered activities identified by USFWS as necessary to avoid the likelihood of jeopardy to or take of the newly listed species or adverse modification of newly designated critical habitat. The applicant shall continue to implement such modifications until such time as it has applied for and USFWS has approved an amendment of the Section 10(a)(1)(B) permit, in accordance with applicable statutory and regulatory requirements, to cover the newly listed species or until USFWS notifies the applicant in writing that the modifications to the HCP covered activities are no longer required to avoid the likelihood of jeopardy to or take of the newly listed species or adverse modification of newly designated critical habitat.

8.2.1.2 Global Climate Change

Climate change is the observed increase in mean global temperature caused by an increase in greenhouse gas emissions, primarily carbon dioxide (CO2), because of human industrialization (Intergovernmental Panel on Climate Change 2007). Climate change is predicted to include secondary effects such as altered frequency of disturbance events such as drought and fire. The effects of climate change on covered species and their habitat may include changes in distribution and abundance (Root et al. 2003), timing of phenological events, and increased risks from disease and invasive species (Dukes and Mooney 1999; Walther et al. 2002).

Current global and regional trends indicate that the climate is likely to change within the plan area in response to increasing levels of CO2 and other greenhouse gases. A primary effect of climate change is a general warming of air temperatures. Projections for warming vary depending on the model used and assumptions about future emissions. There is consensus, however, that average global warming by the end of the twenty-first century could range from as low as 2°C (3.6°F) to as high as 5°C (8.5°F) (Intergovernmental Panel on Climate Change 2012). Increasing temperatures may have secondary effects
for which projections are less precise. For example, rising atmospheric temperatures may affect the timing and magnitude of precipitation, increase the amount of precipitation falling as rain rather than snow, or increase the severity of droughts and extreme precipitation events (Intergovernmental Panel on Climate Change 2007). These precipitation changes, in turn, may affect terrestrial and aquatic habitats by altering runoff and soil moisture.

Although climate change is reasonably foreseeable over the permit term, it is not within the scope of this HCP to respond directly to temperature increases or other parameters (for example, rainfall, soil moisture, and runoff). Additionally, it will not be possible to determine within the permit term whether changes in the climate of the plan area are caused by climate change or other factors. Confounding factors such as the seasonality of rainfall or an increase in winter precipitation may be offset by increased evapotranspiration during the summer months (Intergovernmental Panel on Climate Change 2007), further complicating quantification of climate change. The conservation strategy focuses on protecting and enhancing grassland habitat in the plan area. The project has also been designed to preserve movement through the area, which is important to facilitate range shifts in response to climate change.

Because of the high level of uncertainty surrounding how natural communities and species will respond to climate change, remedial actions will be implemented using adaptive management consistent with the scope and extent of the conservation measures defined in this HCP and limited to the funding allocated for HCP implementation. Such remedial actions may include:

- Modified or enhanced monitoring to detect ecological responses to climate change, including threat monitoring
- Altered or focused management actions to facilitate shifts in species distribution
- Targeted control of invasive species that increase in response to climate change

8.2.1.3 Invasive Species or Disease

An invasive species is any non-native animal or plant whose introduction to an area is likely to cause economic or environmental harm or harm to human health. When species that evolved in one region are moved to another, some flourish, crowding out native vegetation and animals. Invasive species have lasting impacts on ecosystems. They can dominate an area, disrupting ecological functions and reducing diversity.

Invasive species currently inhabit the plan area and its surroundings. Non-native annual grassland is the only cover type in the plan area. This cover type is dominated by non-native annual grasses and forbs. Construction, grading, and other ground-disturbing activities can degrade populations of native plants and promote invasion of non-native species.

Infestations of a new or existing disease, or nonnative plant or animal over a large area often require a landscape-level, multi-agency response over many years, consuming significant financial resources beyond the scope of the applicant’s expertise and the operating budget of the HCP. For the purposes of this HCP, new infestations of invasive species, or spread of existing invasive species, in excess of 25 percent above baseline cover for any individual species will be considered an unforeseen circumstance. Infestations below 25 percent of baseline conditions will be considered a changed circumstance and will be addressed through the remedial measures described below. The threshold of 25 percent was determined somewhat arbitrarily as the line below which a strong local response by the applicant would be likely to eradicate or substantially control an infestation of a new invasive species. The monitoring
program will identify existing non-native species in the plan area so that new, non-native species can be identified quickly and removed.

The applicant will coordinate with the USFWS and use the best available science to remain informed of potential diseases or infestations that may pose a threat to covered species in the plan area. The applicant will implement remedial actions to respond to invasive species or disease through adaptive management, consistent with existing funding and permit obligations and with the approval of the USFWS. Such remedial actions may include:

- Developing methodologies for measuring and tracking the extent of an infestation or disease
- Preparing a damage assessment report within three months of identifying a significant threat (a threat with the potential to affect more than 25 percent of the project site)
- Coordinating with invasive species initiatives of the USFWS and CDFW
- Implementing actions to address the threat through containment, control, or eradication of the invasive species or disease, consistent with avoiding or minimizing effects to the SJKF

If an invasive species or disease causes, or has the potential to cause, substantial effects to the SJKF such that it cannot reasonably be addressed by remedial actions within the operating budget of the HCP, the applicant will prepare a report identifying the problem and include a cost analysis for funding a response program. This report will be submitted to the USFWS for approval. The applicant and the USFWS may seek additional outside funding to implement the program. The feasibility of the control program will depend on the success of additional fundraising.

8.2.1.4 Wildfire

Historically, fires caused by lightning or other natural ignition sources were a component of many ecosystems, including grasslands. Human activities, such as smoking, debris burning, and equipment operation, have become major causes of wildfires. In and near the plan area, fire season extends from late spring to fall and is influenced by a combination of climatic, vegetative, and physiographic conditions. The non-native grasslands in the plan area can be highly susceptible to burning, but livestock grazing has reduced fuel loads in the past. After fire, grasslands tend to recover quickly, although an increase in invasive species is a concern.

Fire management and protection measures conducted by the applicant on the project site will minimize the risk of damage to habitats and natural communities from abnormally frequent fire. Preventative measures include:

- In grassland fuel types, roads such as those planned for construction with the project generally provide adequate fuel breaks. There is no plan to add any additional fuel breaks to the project site.
- Roads will be maintained in a condition with limited vegetation to allow their use as fuel breaks.
- The applicant will work with local fire agencies to improve fire-suppression preparedness and strategies to protect habitat during fire response.
- In the event of a wildfire in the plan area, the applicant will conduct post-fire monitoring to identify any increased risk of invasive species.
8.2.2 Modifications to the HCP

The HCP and Section 10 permit can be modified in accordance with USFWS regulations. HCP modifications are not anticipated on a regular basis. Modifications can be requested by the applicant or USFWS. The categories of modification that are recognized, in order of increasing significance, are administrative changes, minor amendments, and major amendments, as described below.

8.2.2.1 Minor Amendments

Administrative Changes

Administrative changes are internal changes or corrections to the HCP. Administrative changes will be made in writing by the applicant and approved by the USFWS. The USFWS will be provided a summary of administrative changes in the ASR. All administrative changes require coordination with the USFWS and agreement that an amendment is not required. Examples of administrative changes include:

- Corrections of errors in the HCP that do not change the intended meaning or obligations
- Minor changes to survey or monitoring protocols that are not proposed in response to adaptive management
- Updates to species-occurrence data consistent with the predictions and expectations of the HCP

Amendments to the HCP that do not affect the conservation strategy and do not affect the ability of the applicant to achieve the biological goals and objectives of the HCP do not require an amendment to the permit, but do require preapproval by the USFWS before being implemented. Examples of this type of amendment include:

- Minor changes to the biological goals or objectives in response to adaptive management
-Modification of existing conservation measures or adoption of additional conservation measures that improve the likelihood of achieving HCP objectives
- Discontinuing implementation of a conservation measure that has been determined to be ineffective
- Changes to the reporting requirements of the HCP
- Other changes that will not cause adverse effects to the SJKF beyond those analyzed in the HCP, and that do not limit the ability of the applicant to achieve the biological goals and objectives of the HCP

All minor amendments must be approved by the applicant and the USFWS. To modify the HCP without amending the permit, the entity proposing the change (the applicant or USFWS) will submit to the other entity a written description of the proposed change and an explanation of why its effects are not believed to be significantly different from those described in the original HCP. The other entity will provide a response within 60 days of the proposal submission. Upon unanimous concurrence, the USFWS will provide the applicant written authorization to modify the HCP. The modification shall be considered effective on the date of the written authorization.
8.2.2.2 Major Amendments

An amendment that may change the analysis of effects or the conservation strategy requires the HCP and the incidental take permit to be amended through a formal review process. This may include evaluation under the NEPA, public notice, and ESA Section 7 consultation by USFWS.

Examples of changes that would require this type of amendment include:

- Revisions of the plan area boundary that do not qualify for a minor modification
- The addition of new covered species for reasons other than taxonomic reclassification, including changes at a level below species (e.g., a distinct population segment or subspecies)
- Increasing the allowable take limit of existing covered activities or adding new covered activities to the HCP
- Modifications of any important action or component of the conservation strategy, including funding, that may substantially affect levels of authorized take, effects of the covered activities, or the nature or scope of the conservation strategy
- A major change in performance standards if monitoring or research indicates they are not attainable because technologies to attain them are either unavailable or infeasible
- Extending the permit term beyond 45 years

8.2.2.3 Amending the Section 10(a)(1)(B) Permit

To amend the Section 10(a)(1)(B) permit, the applicant must submit an application to USFWS that includes a revised HCP, a permit application form, any required fees, and any required compliance document under NEPA. The appropriate NEPA compliance process and document will depend on the nature of the amendment being proposed. Upon submission of a completed application package, the USFWS will publish a notice of the application in the Federal Register, initiating the NEPA and HCP public review process. After public review and comment, the USFWS may approve or deny the permit amendment application.

8.3 Other Measures as Required by the Director

This HCP incorporates all identified conservation measures necessary to avoid, minimize, and mitigate for potential effects to and take of the SJKF. Any additional measures that may be identified by the USFWS as necessary for the purposes of this plan will be incorporated in the HCP as they are developed.
9.0 Literature Cited

California Department of Fish and Game. 2004. Approved Survey Methodology for the Blunt Nosed Leopard Lizard.


Figure 2
Project Detail

Legend
- 160 Acre Limit
- Existing Substation (2 acres)
- Solar Arrays
- Plan Area
- Site Laydown Area
- Parcel Boundary
- ICF Surveyed Flood Zone
- FEMA Flood Zone 'A'
- FEMA Flood Zone 'AO'
- Fence
- Proposed Road
- Existing 70 kV Line
- State Highway
- Oil Well

CALIFORNIA

LOST HILLS
SOLAR PROJECT

08.17.16
Appendix A Adaptive Management at the Palo Prieto Conservation Bank
This appendix contains a reproduction of Section IV (Management Goals and Environmental Impacts) of the Management Plan for the Palo Prieto Conservation Bank (Meade and CDFG 2006). This section is reproduced here in its entirety, unedited with the exception that several figures have been removed. These figures are not integral to an understanding of the management of the conservation bank and may no longer represent the current state of knowledge of their contents (distribution of special status species).

**IV. MANAGEMENT GOALS AND ENVIRONMENTAL IMPACTS**

**IV.A. Definitions of Terms Used in This Plan**

1. **Element:** An element refers to any biological unit, public use activity, or facility maintenance program as defined below for which goals have been prepared and presented within this plan. Biological elements in this management plan are considered in the context of their habitat, and include ecosystem function in the structure of the management plan.

2. **Biological Element:** These elements consist of species, habitats, or communities for which specific management goals have been developed within the plan.

3. **Public Use Elements:** Public use elements are any recreational, scientific, or other use activity appropriate to and compatible with the purposes for which this property was acquired.

4. **Facility Maintenance Element:** This is a general purpose element describing the maintenance and administrative program which helps maintain orderly and beneficial management of the area.

5. **Biological Goal:** A biological goal is the statement of intended long-range results of management based upon the feasibility of maintaining, enhancing or restoring species populations and/or habitat.

6. **Public Use Goal:** A public use goal is the statement of the desired type and level of public use compatible with the biological element goals previously specified within the plan.

7. **Tasks:** Tasks are the individual projects or work elements which implement the goal and are useful in planning operation and maintenance budgets.

8. **Palo Prieto CB:** The "Palo Prieto CB" means the Palo Prieto Conservation Bank consisting, initially, of approximately 876 acres in the Still Parcel out of a total of 5086 acres of Grant Family property in the Choice Valley and the surrounding hills. When and if additional phases are added, each added phase will also be managed under this Plan as part of the Palo Prieto CB.
IV.B. Management goals and environmental impact summary

IV.B.1 Palo Prieto Conservation Bank lands will be managed to conserve, enhance, or restore, as appropriate, the habitats and the species of interest on the property, and is committed to managing in consideration of the natural processes on which the species and habitats depend. The management plan identifies specific goals and tasks to meet this objective.

IV.B.2. Maintain and improve habitat in condition appropriate for use by the array of sensitive species, including San Joaquin kit fox, as based on the best scientific information available.

IV.B.3. Restrict any public uses to types and levels consistent with conserving, enhancing or restoring, as appropriate, the habitats and species for which this conservation bank was established.

IV.B.4. Monitor species populations, habitat condition and general land conditions on the Palo Prieto CB properties.

IV.B.5. Utilize data from monitoring and other appropriate sources to inform management decisions.

IV.B.2. Environmental Impact Summary

No negative environmental impacts are anticipated from Palo Prieto CB operations. Positive environmental impacts include the maintenance and improvement of grassland habitat with respect to promotion of native grasses and forbs, improvement of watercourses, and protection of rare species through monitoring and adaptive management practices. Activities associated with ongoing ranch operations could affect some species. The maintenance of roads, fences, and use of vehicles is not without potential impact, however no net adverse environment impacts are anticipated, and substantial positive impacts are expected from management recommendations set forth in this plan.
IV.C. Biological Elements: Goals and Environmental Impacts

This section names the biological elements present or possible on the lands that are eligible to be included in the Palo Prieto CB. For each biological element we provide a description, the general long-range goals, and the operations and maintenance task required to complete each goal. Management tasks have been designed to minimize the potential for negative environmental impact. We have not identified any management goals that conflict with other management goals. A list of Biological Elements is provided (Table 9) followed by discussion of each element. The CDFG guide for Land Management Plans (CDFG 2002) states, "Listed, candidate, or sensitive species, or species of special concern known or suspected to occur on or to use the property must be specified within another element or as a separate biological element." Listed species are provided first in order, followed by habitats on the Palo Prieto CB.

Responsibility for accomplishing tasks is with the Palo Prieto CB owners through the Palo Prieto CB management. The owners will conduct cattle operations. Tasks related to biological resources will be the responsibility of the Palo Prieto CB.

Table 9. Biological Elements are presented by listing level, rank, and record of observation on the Palo Prieto CB.

<table>
<thead>
<tr>
<th>Federally or State listed species</th>
<th>Status</th>
<th>CNDDDB rank</th>
<th>Observed on the Palo Prieto CB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 San Joaquin kit fox</td>
<td>FE, ST</td>
<td>G4T2T3S2S3</td>
<td>Yes</td>
</tr>
<tr>
<td>2 California tiger salamander</td>
<td>FT</td>
<td>G2G3S2S3</td>
<td>Yes</td>
</tr>
<tr>
<td>3 California red-legged frog</td>
<td>FT</td>
<td>G4T2T3S2S3</td>
<td>Yes</td>
</tr>
<tr>
<td>4 Blunt-nosed leopard lizard</td>
<td>FE, FE</td>
<td>G1S1</td>
<td>No</td>
</tr>
<tr>
<td>5 Giant kangaroo rat</td>
<td>FE, SE</td>
<td>G2S2</td>
<td>No</td>
</tr>
<tr>
<td>6 San Joaquin antelope squirrel</td>
<td>FSC, ST</td>
<td>G2S2</td>
<td>No</td>
</tr>
<tr>
<td>7 Longhorn fairy shrimp</td>
<td>FE</td>
<td>G1S1</td>
<td>possible</td>
</tr>
</tbody>
</table>

CDFG: California Species of Concern

| 8 Spadefoot toad                              | CSC    | G3?S3?      | Yes                           |
| 9 Southwestern pond turtle                   | CSC    | G3G4T3T4QS3 | No                            |
| IO Northern harrier                          | CSC    | G5S3        | Yes                           |
| 11 Short-eared owl                           | CSC    | G5S3        | Yes                           |
| 12 Burrowing owl                             | CSC    | G4S2        | Yes                           |
| 13 Loggerhead shrike                         | CSC    | G4S4        | Yes                           |
| 14 California homed lark                     | CSC    | G5T3S3      | Yes                           |
| 15 Tricolored blackbird                      | CSC    | G2S2        | Yes                           |
| 16 Hall's tarplant                           | CSC    | G1/S1.1, 1B/3-3-3 | No |
| 17 Mason’s nestraw                           | CSC    | G1/S1.1, 1B/3-3-3 | No |
| 18 Grasshopper sparrow                       | None   | G5S2        | possible                     |

Habitat types

| 16 Small mammal habitat                      |        |            | Yes                           |
| 17 Fairy shrimp habitat                      | -      |            | Yes                           |
| 18 California annual grassland              | -      |            | Yes                           |
| 19 Buckwheat scrub                           | -      |            | Yes                           |
| 20 Rock outcropping islands                  | -      |            | Yes                           |
State or Federally-listed species

IV.C.1. Biological Element: San Joaquin kit fox

The San Joaquin kit fox (Vulpes macrotis mutica) is a small canid, distinguished by its size (four to six pounds), large ears, long legs, buffy tan color, and black-tipped tail. It is the smallest fox in North America, and its distribution has been greatly reduced by agriculture and development. It is federally listed as endangered, and state listed as threatened. In 2003, San Joaquin kit fox was present on and near the Palo Prieto CB property (see Figure 3). Many unconfirmed sightings were made in August and September of 2003 by residents of the valley. Robert Grant reported observing San Joaquin kit fox on the ranch property over the past thirty years, including a pupping den located by Bitterwater Road on the Home Parcel. Eyeshine surveys were conducted during 2003, consisting of two nights of survey effort, one night on May 26th and one on July 14th. The surveys began after dark, at about 9:00 p.m., went until after midnight, and were conducted from a truck with two spotlights. On May 26th, one animal was observed on the Buckley Parcel that was most likely a kit fox, however it was at a great distance and the identity could not be positively confirmed. On July 14th, two adult kit foxes were positively identified near the Still Parcel. Five additional sightings were reported by Robert Grant during the months of August and September 2003.

In Spring 2005, twenty-six sightings of San Joaquin kit fox were recorded in the Palo Prieto Valley by Moonjian (unpublished data).

[NOTE: Figure 3 has been removed from this reproduction of Section IV of the Palo Prieto Conservation Bank Management Plan.]

General long-range goals

IV.C.1.a. Goal: Maintain and enhance habitat in condition appropriate for use by San Joaquin kit fox based on the best scientific information available.

IV.C.1.a.i. Task: Implement an adaptive management strategy to promote habitat conditions preferred by San Joaquin kit fox and other rare grassland species. Use of prescribed grazing is the primary tool which will be utilized to influence biomass and species composition of the arid grasslands of the property. Grazing operations conducted on Palo Prieto Bank lands will be as described in Cattle Operations (Appendix H), monitored as in Appendix I, and adjusted annually based on recommendations of the Palo Prieto CB final Annual Report.

Threshold: Critical Implementation. For each pasture, at least 50% of the pasture shall meet or exceed the Fall RDM goals; and no more than 25% of the pasture shall fall below the minimum; and for pastures subject to spring monitoring, at least 50% of the pasture shall meet or exceed the spring biomass guidelines (see Appendix H for details of thresholds and Remedial Activities).
**Remedial Activities:** If pastures do not meet Fall RDM goals at any time, livestock will be removed from the pasture until thresholds are met; if RDM goals are not met for two years in a row, or three years out of five, then the pasture will be deferred for the remainder of that grazing year (see Appendices H & I for details of thresholds and remedial management should thresholds not be met).

**IV. C.1.a.ii. Task:** Improve native perennial grass habitat to enhance openness of habitat for kit fox. Promote native perennial grass species with grazing. Pulse graze bunch grass areas to reduce annual Mediterranean species. Do not damage perennial species in early flowering or in late season. Reduce grazing pressure when bunch grasses are developing and dispersing seed.

**Threshold:** Implementation.

**IV.C.1.b. Goal:** Manage the Palo Prieto CB lands to reduce the impact of predators on San Joaquin kit fox.

**IV.C.1.b.i. Task:** Install buried culvert pipe as kit fox escape dens.

**Threshold:** Implementation.

**IV.C.1.b.ii. Task:** In consultation with CDFG wildlife biologists, coordinate appropriate depredation activities.

**Threshold:** Implementation.

**IV.C.1.c. Goal:** Monitor the population of San Joaquin kit fox on the Palo Prieto CB lands.

**IV.C.1.c.i. Task:** Conduct surveys of Palo Prieto CB properties to examine presence, population trends, and behavior of San Joaquin kit fox. Coordinate survey efforts with the CDFG wildlife biologists and the USFWS San Joaquin kit fox recovery team. Survey effort shall be according to the best understanding of the recognized San Joaquin kit fox experts, or according to the protocol in effect from the USFWS or the CDFG for kit fox survey. This may include quarterly eye shine and scent station surveys (see Monitoring protocols, Appendix I).

**Threshold:** Implementation.

**IV.C.1.d. Goal:** Evaluate data collected and discuss in relation to SJKF and the management of its habitat.

**IV.C.1.d.i. Task:** The Annual Report shall include information on the status of San Joaquin kit fox on Palo Prieto CB lands, including information from monitoring on the Palo Prieto CB, a current literature review, analysis of the monitoring information, conclusions and discussion, including an evaluation of current management practices, and recommendations; and the report shall be prepared according to the standards of the scientific community. The annual report will be submitted per sections IV.F.1.e.i. and IV.F.3.c.iii.

**Threshold:** Critical Implementation.
IV.C.1.d.ii. Task: Present written report and discuss management of the Palo Prieto CB with respect to kit fox at annual Palo Prieto CB management meeting per section IV.F.1.e.ii. and IV.F.3.c.ii.

Threshold: Critical Implementation.

IV.C.2. Biological Element: California tiger salamander (*Ambystoma californiense*)

California tiger salamander (*Ambystoma californiense*) is federally listed as Threatened throughout its range, and is a California Special Concern species. Grant Lake supports a large population of breeding California tiger salamanders (Paul Collins, pers. com.), numbering in the thousands (Bob Grant, pers. observation). The lake is vernal, filling only during years when rainfall is substantial. When the lake does fill, California tiger salamanders move in great numbers into the lake.

In the Carmel Valley dispersal distance of CTS post-breeding emigration has been measured at a average maximum distance of 139 meters ±89 meters (Trenham, 2001), and a maximum dispersal distance of 700 meters (Trenham, et al., 2001). The CTS recovery team has recently recommended a minimum distance of 1500 feet for open space set backs from breeding ponds (Collins, pers. com.).

Grant Lake is located at N35° 35' 45" W120° 9' 1,,. Still Lake, Twisselman Lake, and O'Brien Lake along with Grant Lake form a series sag ponds that support populations of *A. californiense*. A portion of Grant Lake is included in the Palo Prieto CB.

The CNDDB has five records for this species in the Palo Prieto CB area. One report is from Grant Lake (#92, see map below [Figure 4]), and one occurrence is from Still Lake (#48) at a location approximately 700 feet from the Still Parcel.

[NOTE: Figure 4 has been removed from this reproduction of Section IV of the Palo Prieto Conservation Bank Management Plan.]

General long-range goals

IV.C.2.a. Goal: Maintain upland grassland habitat associated with breeding ponds in appropriate condition for use by CTS as based on the best scientific information available.

IV.C.2.a.i. Task: Identify management practices that are appropriate for CTS.

Threshold: Implementation.

IV.C.2.a.ii. Task: Implement adaptive management strategy to promote habitat conditions preferred by CTS and other rare species. Grazing operations conducted on Palo Prieto Bank lands will be as described in Cattle Operations (Appendix H), and adjusted annually based on recommendations of the Palo Prieto CB final annual report. Maintain potential upland habitat areas on the Lake Parcel (See Figure 4 below) to avoid heavy thatch build up that could prevent or restrict tiger salamander movement.

Threshold: Implementation

IV.C.2.b.i. Task: Conduct annual surveys (when breeding conditions permit) of the CTS population on Palo Prieto CB lands.

Threshold: Implementation.

IV. C.2.b.ii Task: Conduct annual survey for exotic aquatic predators (bullfrogs, bass) in waters on the Palo Prieto CB lands.

Threshold: Implementation.

IV.C.2.b.iii. Task: Coordinate and implement exotic aquatic species eradication with the CDFG, and the USFWS, if exotic aquatic species are discovered.

Threshold: Implementation.

IV.C.2.c. Goal: Evaluate data collected and discuss in relation to CTS and the management of its habitat.

IV.C.2.c.i. Task: A written report shall be produced annually of the status of CTS on Palo Prieto CB lands. The report shall include information from monitoring on the Palo Prieto CB, a current literature review, analysis of the monitoring information, conclusions and discussion, including an evaluation of current management practices, and recommendations; and the report shall be prepared according to the standards of the scientific community. The annual report will be submitted per section IV.F.E.i.

Threshold: Critical Implementation.

IV.C.2.c.ii. Task: Discuss management issues related to CTS at the annual meeting of the Palo Prieto CB.

Threshold: Critical Implementation.

IV.C.3. Biological Element: California red-legged frog (Rana aurora draytonii)

California red-legged frog (CRLF) has been reported from the Palo Prieto CB lands (CNDDB occurrence # 7) in Grant Lake, and from an unnamed drainage approximately 1.5 miles north of the Home Parcel (CNDDB occurrence # 48). In addition, 3 adult CRLF were found in a perennial stream and watering pond on Palo Prieto CB (Still Parcel) in 2003 (Figure 6). The area of habitat occupied by CRLF or potentially inhabited by CRLF on the Palo Prieto CB lands is 509.7 acres (Figures A2-1, 2, and 3). Areas of potential habitation include Grant Lake, and four other perennial water sources. Habitat area for CRLF includes upland habitat to 500 feet from the edge of all aquatic frog habitat (see habitat maps Appendix B).

[NOTE: Figure 6 has been removed from this reproduction of Section IV of the Palo Prieto Conservation Bank Management Plan.]

General long-range goals

IV.C.3.a. Goal: Improve condition of springs and streams to maintain, enhance and restore habitat for CRLF. Protect wetland habitat to promote the expansion of the CRLF population on the Palo Prieto CB lands.
IV.C.3.a.i. Task: Remain consistent with the guidance provided in the California Red-legged Frog Recovery Plan for areas within range of use for CRLF.

Threshold: Implementation.

IV.C.3.b. Goal: Improve cattle watering systems associated with natural springs and streams on the Lake Parcel, the Still Parcel, and the James Parcel to enhance sensitive species habitat.

IV.C.3.b.i. Task: Construction of springboxes shall be done in such a way as to not diminish the value of the habitat associated with the spring.

Threshold: Implementation.

IV.C.3.b.ii. Task: Construct and relocate cattle watering facilities such as tanks and water troughs in such a manner as to keep cattle out of sensitive aquatic habitats.

Threshold: Implementation.

IV.C.3.b.iii. Task: Construct cattle exclusion fences around sensitive aquatic habitat.

Threshold: Implementation.


IV.C.3.b.i. Task: Conduct annual surveys of CRLF population on Palo Prieto CB lands.

Threshold: Implementation.


Threshold: Implementation.

IV.C.3.b.iii. Task: Coordinate and implement exotic aquatic species eradication with the CDFG, and the USFWS, if exotic aquatic species are discovered.

Threshold: Implementation.

IV.C.3.c. Goal: Evaluate data collected and discuss in relation to CRLF and the management of its habitat.

IV.C.3.c.i. Task: Produce annual written reports of the status of CRLF on Palo Prieto CB lands. The report shall include information from monitoring on the Palo Prieto CB, a current literature review, analysis of the monitoring information, conclusions and discussion, including an evaluation of current management practices, and recommendations; and the report shall be prepared according to the standards of the scientific community. The annual report will be submitted per section IV.F.1.e.i and IV.F.3.c.iii.

Threshold: Critical Implementation.
IV.C.3.c.ii. Task: Discuss management issues related to CRLF at the annual meeting of the Palo Prieto CB.

Threshold: Critical Implementation.

IV.C.4. Biological Element: Blunt-nosed leopard lizard (*Gambelia sila*)

Blunt-nosed leopard lizard is federally and state listed as endangered. This species has been reported (CDNNB occurrence # 88) from within 2.4 miles of the James Place Parcel of the Grant lands (see map below [Figure 7]). Anecdotal reports place the lizard on the Home Parcel of the Grant lands near Bitterwater Road.

[NOTE: Figure 7 has been removed from this reproduction of Section IV of the Palo Prieto Conservation Bank Management Plan.]

General long-range goals


IV.C.4.a.i. Task: Conduct appropriate surveys for blunt-nosed leopard lizard (see Table 10, Monitoring task schedule). Identify and map locations likely to support blunt-nosed leopard lizard and all observations of the species. Include survey results in the Palo Prieto draft annual report for analysis, recommendation, and review by CDFG.

Threshold: Implementation

IV.C.4.b. Goal: Protect, maintain, or enhance blunt-nosed leopard lizard habitat based on the best scientific information available.

IV.C.4.b.i. Task: Identify appropriate practices and techniques for managing blunt-nosed leopard lizard and its habitat, and conduct appropriate management for this species. Use survey data and information from current literature and experts to analyze, evaluate, and develop and annually adjust habitat management.

Threshold: Implementation

IV.C.4.b.ii. Task: Implement management practices and techniques to maintain appropriate amount of vegetative cover and structure in habitats identified as likely to support this species. Target habitats include sandy-bottom lands on the Home Parcel, and low lands on the James Place Parcel that are connected to Barrel Valley.

Threshold: Implementation.

IV.C.4.c. Goal: If BNLL found on Palo Prieto CB, evaluate data collected and discuss in relation to BNLL and the management of its habitat.

IV.C.4.c.i. Task: Include in the annual written report the status of BNLL on Palo Prieto CB lands. The report section shall include information from monitoring on the Palo Prieto CB, a current literature review as appropriate, analysis of the monitoring information, conclusions and discussion, including an evaluation of current management practices, and
recommendations; and the annual report section shall be prepared according to the standards of the scientific community. The annual report will be submitted per section IV.F.1.e.i and IV.F.3.c.iii.

**Threshold**: If BNLL found on Palo Prieto CB, Critical Implementation.

**IV.C.4.c.ii. Task**: Discuss management issues related to BNLL at the annual meeting of the Palo Prieto CB.

**Threshold**: If BNLL found on Palo Prieto CB, Critical Implementation.

**IV.C.5. Biological Element**: Giant kangaroo rat (*Dipodomys ingens*)

Giant kangaroo rat is a federally and state listed endangered species. It is a colonial dweller occupying open grassland and scrubland. Conversion of rangeland to cropland is thought to be the primary reason for the decline of this species. The Palo Prieto CB lands are within the historical range of giant kangaroo rat, and anecdotal reports place colonies on the James Place Parcel. Other reports place colonies west of the Palo Prieto CB lands in the San Juan River Valley.

**General long-range goals**

**IV.C.5.a. Goal**: Identify any giant kangaroo rat precincts on Palo Prieto CB lands.

**IV.C.5.a.i. Task**: Conduct surveys of Palo Prieto CB lands for giant kangaroo rat (see Table 10, Monitoring task schedule). Include survey results in the Palo Prieto draft annual report for analysis, recommendation, and review by CDFG.

**Threshold**: Implementation

**IV.C.5.b. Goal**: Protect, maintain, or enhance habitat where giant kangaroo rat precincts are found based on the best scientific information available.

**IV.C.5.b.i. Task**: If giant kangaroo rat precincts occur on the Palo Prieto CB lands, protect the precinct and their foraging range from detrimental impacts from cattle. Cross fence pastures if necessary.

**Threshold**: Implementation

**IV.C.5.b.ii Task**: Investigate management practices and techniques to promote colony success on Palo Prieto CB lands, and implement in areas of giant kangaroo rat habitat. Include survey results in the Palo Prieto draft annual report for analysis, recommendation, and review by CDFG.

**Threshold**: Implementation

**IV.C.5.c. Goal**: If GKR found on Palo Prieto CB, evaluate data collected and discuss in relation to GKR and the management of its habitat.

**IV.C.5.c.i. Task**: Include in the annual written report the status of GKR on Palo Prieto CB lands. The report section shall include information from monitoring on the Palo Prieto CB, a current literature review as appropriate, analysis of the monitoring information, conclusions
and discussion, including an evaluation of current management practices, and recommendations; and the annual report section shall be prepared according to the standards of the scientific community. The annual report will be submitted per section IV.F.1.e.i. and IV.F.3.c.iii.

**Threshold:** If GKR found on Palo Prieto CB, Critical Implementation.

**IV.C.5.c.ii. Task:** Discuss management issues related to GKR at the annual meeting of the Palo Prieto CB.

**Threshold:** If GKR found on Palo Prieto CB, Critical Implementation.

**IV.C.6. Biological Element:** San Joaquin antelope squirrel (*Ammospermophilus nelsoni*)

San Joaquin antelope squirrel is a federal species of concern and a State listed Threatened species. The range of this species was believed to extend from Los Banos to east of Bakersfield, with the southern limit at the Tehachapi Mountains and the western limit at the Coast Ranges (Nicolai 1992, Williams 1980). Preferred habitat is rolling grassland and slopes with some cover by shrubs, and they have been found in saltbush scrub (*Atriplex polycarpa*), open stands of Mormon tea (*Ephedra californica*), and in dry washes (Hawbecker 1975, Williams 1980). This species has not been found on the Palo Prieto CB. However, San Joaquin antelope squirrel has been reported approximately 6.5 miles to the northeast of the Palo Prieto CB and in the Carrizo Plain approximately 15 miles south, and has the potential to become established on Palo Prieto CB lands.

**IV.C.6.a. Goal:** Monitor Palo Prieto CB lands for the presence of San Joaquin antelope squirrel colonies, and institute appropriate management plans to protect and enhance habitat.

**IV.C.6.a.i. Task:** Conduct visual inspections of bank lands for San Joaquin antelope squirrel colonies. Inspections shall be at least once per year, and may be performed concurrent with other monitoring tasks. If San Joaquin antelope squirrel is found on the Palo Prieto CB, include this information in the annual draft report of Palo Prieto CB management with monitoring data, analysis, and recommendations for review by CDFG.

**Threshold:** Implementation.

**IV.C.6.a.ii Task:** If San Joaquin antelope squirrel is found on Palo Prieto CB lands, identify appropriate management practices and techniques, based on the best scientific information available, to protect and maintain habitat used by the species. Include survey results in the Palo Prieto draft annual report for analysis, recommendation, and review by CDFG.

**Threshold:** Implementation.

**IV.C.6.b. Goal:** If SJAS found on Palo Prieto CB, evaluate data collected and discuss relationship to management of SJAS and habitat.

**IV.C.6.b.i. Task:** Include in the annual written report the status of San Joaquin antelope squirrel on Palo Prieto CB lands. The report section shall include information from monitoring on the Palo Prieto CB, a current literature review as appropriate, analysis of the monitoring information, conclusions and discussion, including an evaluation of current management practices, and recommendations; and the annual report section shall be prepared
according to the standards of the scientific community. The annual report will be submitted per section IV.F.1.e.i. and IV.F.3.c.iii.

**Threshold:** If SJAS found on Palo Prieto CB, Critical Implementation.

**IV.C.6.b.ii. Task:** Discuss management issues related to SJAS at the annual meeting of the Palo Prieto CB.

**Threshold:** If SJAS found on Palo Prieto CB, Critical Implementation.

**IV.C.7.** Longhorn fairy shrimp (*Branchinecta longiantenna*)

Longhorn fairy shrimp is a federally listed endangered species known from the Carizzo Plain in San Luis Obispo County, and in Contra Costa, Alameda, and Merced counties. It occurs in sandstone pools and clay or grass lined pools in swales. Fairy shrimp were observed in sandstone tubs on the Palo Prieto CB in February 2004. Identification of *Branchinecta longiantenna* has not been confirmed on the Palo Prieto CB. It is not expected that the grazing management practices as defined in this management plan will result in any negative impacts to this habitat.

**IV.C.7.a. Goal:** Conduct surveys to determine if longhorn fairy shrimp occur on Palo Prieto CB lands, and protect and maintain longhorn fairy shrimp habitat where found.

**IV.C.7.a.i. Task:** Conduct protocol bi-annual surveys of Palo Prieto CB lands for fairy shrimp at the appropriate time of year.

**Threshold:** Implementation.

**IV.C.7.a.ii. Task:** If Longhorn fairy shrimp is found on the Palo Prieto CB lands, include this information in the annual draft report of Palo Prieto CB management with monitoring data, analysis, and recommendations for review by CDFG.

**Threshold:** Implementation.

**IV.C.7.a.iii. Task:** If longhorn fairy shrimp is found on the Palo Prieto CB lands, identify appropriate management practices and techniques, based on the best scientific information available, to protect and maintain the habitat used by the species. Include survey results in the Palo Prieto draft annual report for analysis, recommendation, and review by CDFG.

**Threshold:** Implementation.

**IV.C.7.b. Goal:** If LHFS found on Palo Prieto CB, evaluate data collected and discuss in relation to LHFS and the management of its habitat.

**IV.C.7.b.i. Task:** Include in the annual written report the status of LHFS on Palo Prieto C lands. The report section shall include information from monitoring on the Palo Prieto CB, a current literature review as appropriate, analysis of the monitoring information, conclusions and discussion, including an evaluation of current management practices, and recommendations; and the annual report section shall be prepared according to the standards of the scientific community. The annual report will be submitted per section IV.F.1.e.i. and IV.F.3.c.iii.
**Threshold:** If LHFS found on Palo Prieto CB, Critical Implementation.

**IV.C.7.b.ii. Task:** Discuss management issues related to LHFS at the annual meeting of the Palo Prieto CB.

**Threshold:** If LHFS found on Palo Prieto CB, Critical Implementation.

*California Species of Concern*

**IV.C.8. Biological Element:** Western spadefoot toad (*Scaphiopus hammondii*) is a DFG California Special Concern species. It is often found in breeding ponds used by California tiger salamander. Spadefoot toads live most of their life underground, either in rodent burrows or dug into soils. They emerge in winter rains to seek out breeding ponds and puddles. Spadefoot toads have rapid development, growing from eggs to metamorphs capable of leaving a drying pond within a three-week period. Their occurrence is documented from eastern San Luis Obispo County to the Camp Roberts area.

**General long-range goals**

**IV.C.8.a. Goal:** Maintain breeding ponds and upland grassland habitat associated with breeding ponds in appropriate condition for use by western spadefoot toad as based on the best scientific information available.

**IV.C.8.a.i. Task:** Survey potential western spadefoot toad habitat annually to determine the presence or absence of toads (see Table 10, Monitoring task schedule). Include survey results in the Palo Prieto draft Annual Report for analysis, recommendation, and review by CDFG.

**Threshold:** Implementation.

**IV.C.8.a.ii**. If western spadefoot toad is found on the Palo Prieto CB lands, identify appropriate management practices and techniques, based on the best scientific information available, to protect and maintain the habitat used by the species.

**Threshold:** Implementation.

**IV.C.8.a.iii. Task:** Coordinate exotic aquatic species eradication with the CDFG, and the USFWS, if exotic aquatic species are discovered.

**Threshold:** Implementation.

**IV.C.9. Biological Element:** Southwestern pond turtle (*Clemmys marmorata pallida*)

Southwestern pond turtle is a CDFG California Special Concern species that dwells in ponds and streams with standing water. It is reported from the Cholame area in 1999, and presently is numerous in Cholame Creek (Stafford, pers. com.). Currently, pond turtles do not appear to be on the Palo Prieto CB property.

**IV.C.9.a. Goal:** Maintain potential southwestern pond turtle habitats in condition appropriate for turtle recruitment based on the best scientific information available.

**IV.C.9.a.i. Task:** Survey potential turtle habitat annually to determine the presence or absence of turtles (see Table 10, Monitoring task schedule). Include survey results in the Palo Prieto draft Annual Report for analysis, recommendation, and review by CDFG.
Threshold: Implementation.


Threshold: Implementation.

IV.C.10. Biological Element: Short-eared owl (*Asio flammeus*)

Short-eared owl (*Asio flammeus*) is a CDFG California Special Concern species (with respect to nesting sites only), and a US Fish and Wildlife Service Migratory Non-game Birds Management Concern species. This species nests in swamp lands, both fresh and salt, in lowland meadows and in irrigated alfalfa fields. This species has not been observed nesting on the Palo Prieto CB.

**General long-range goals**

IV.C.10.a. Goal: Track the distribution of this species on the Palo Prieto CB lands.

IV.C.10.a.i. Task: Include information from habitat surveys and the CNDDDB regarding short-eared owl in the draft annual report for the Palo Prieto CB.

Threshold: Implementation.

IV.C.10.a.ii. Task: Implement recommendations regarding habitat management for short-eared owl in the final annual report for the Palo Prieto CB.

Threshold: Implementation.

IV.C.11. Biological element: Northern harrier (*Circus cyaneus*)

Northern harrier is a Department of Fish and Game, California Special Concern species (with respect to nesting sites only). It is found nesting in coastal salt and fresh water marshes, and in grassland wetlands. It is often seen flying low and erratically over grasslands searching for prey, which are primarily voles. Nests are built of grass and sticks on the ground in wet meadows, marshes, sloughs, and prairies. Harriers have been observed hunting in the Palo Prieto Valley, but nesting sites have not been found on the Palo Prieto CB.

**General long-range goals**

IV.C.11.a. Goal: Track the distribution of this species on the Palo Prieto CB lands.

IV.C.11.a.i. Task: Include information from habitat surveys and the CNDDDB regarding Northern harrier in the draft annual report for the Palo Prieto CB.

Threshold: Implementation.

IV.C.11.a.ii. Task: Implement recommendations regarding habitat management for Northern harrier in the final annual report for the Palo Prieto CB.

Threshold: Implementation.
**IV.C.12. Biological Element:** Burrowing owl (*Athene cunicularia*)

Burrowing owl (*Athene cunicularia*) is a Department of Fish and Game, California Special Concern species (with respect to nesting sites only), and a US Fish and Wildlife Service Migratory Non-game Birds Management Concern species. It is under consideration for listing as a threatened species. Burrowing owl is found in open, dry, annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. It is a subterranean nester, dependent on burrowing mammals.

Eleven pairs of burrowing owl were observed on the Palo Prieto CB lands in June of 2003. In 2004, the abundance of this species increased on Palo Prieto CB lands. Nest locations from 2003 are shown in Appendix B, Figure B-6.

**General long-range goals**

**IV.C.12.a. Goal:** Maintain upland grassland habitat in appropriate condition for use by burrowing owl as based on the best scientific information available.

**IV.C.12.a.i. Task:** Implement an adaptive management strategy to promote habitat conditions preferred by Burrowing Owl and other rare species. Burrowing Owls tend to prefer grassland areas with lower biomass. Use of prescribed grazing is the primary tool which will be utilized to influence biomass and species composition of the arid grasslands of the property. Grazing operations conducted on Palo Prieto Bank lands will be as described in Cattle Operations (Appendix H), and adjusted annually based on recommendations of the Palo Prieto CB final annual report.

**Threshold:** Implementation.

**IV.C.12.b. Goal:** Monitor the Burrowing Owl population on the Palo Prieto CB properties.

**IV.C.12.b.i. Task:** Conduct surveys of the Palo Prieto CB property at two year intervals to determine burrowing owl overwintering presence, roosting and nesting locations, and to estimate fledging success. Include survey results in the Palo Prieto draft annual report for analysis, recommendation, and review by CDFG.

**Threshold:** Implementation.

**IV.C.13. Biological Element:** Loggerhead Shrike (*Lanius ludovicianus*)

Loggerhead shrike is a Department of Fish and Game, California Special Concern species (with respect to nesting sites only). It occurs year-round from Virginia to California and from Washington to southern Mexico. It has been considered for de-listing in California. This bird hunts in open or brushy areas and nests in tall shrubs or trees. Prey includes insects, mice, small birds, and lizards. It stuns prey with its beak and then impales them on sharp twigs, thorns, or barbed wire. This species is seen in the Palo Prieto Valley, and could nest on the Palo Prieto CB, although nesting shrikes have not been observed.

**IV.C.13.a. Goal:** Track the distribution of this species on the Palo Prieto CB lands.

**IV.C.13.a.i. Task:** Include information from habitat surveys and the CNDDB regarding Loggerhead Shrike in the draft annual report for the Palo Prieto CB.

**Threshold:** Implementation.
IV.C.13.a.ii. Task: Implement recommendations regarding habitat management for Loggerhead Shrike in the final annual report for the Palo Prieto CB.

Threshold: Implementation.

IV.C.14. Biological Element: California Horned Lark (*Eremophila alpestris actia*) is a California Special Concern species. It occurs in open country with sparse vegetation, nesting in short grass or agricultural fields (Lehman 1994). It is commonly nesting on the Palo Prieto CB property in annual grassland habitat. Counts of over 1000 California Horned Lark individuals were obtained on the Palo Prieto CB property during nesting season.

General long-range goals


IV.C.14.a.i. Task: Implement an adaptive management strategy to maintain California Horned Lark habitat based on the grazing strategy described in Cattle Operations (Appendix H) and the annual Final Report of Palo Prieto CB management practices.

Threshold: Implementation.

IV.C.14.a.ii. Task: Conduct surveys to document location and number of nesting homed larks (see Table 10, Monitoring task schedule).

Threshold: Implementation.

IV.C.15. Biological Element: Tricolored Blackbird (*Agelaius tricolor*)

Tricolored blackbird is a CDFG California Special Concern species. It is a highly colonial species, most numerous in the central valley and vicinity. It is largely endemic to California and requires open water, protected nesting substrate, and a foraging area with insect prey within a few kilometers of the colony. This species has been observed on the property during the nesting season in low numbers. There Tri-colored blackbirds could occur on the Lake Parcel or on the James Place Parcel. Nesting is not likely to occur due to the lack of open water.

General long-range goals

IV.C.15.a. Goal: Adaptively manage cattail and bulrush wetland habitat to provide nesting sites for tri-color blackbird and other emergent habitat nesters.

IV.C.15.a.i. Task: Maintain adequate emergent vegetation in streams and ponds. Use controlled pulse grazing as necessary to manage wetlands. Remain consistent with grazing management as described in Appendix H, and as amended in the Palo Prieto CB annual report.

Threshold: Implementation

IV.C.15.a.ii. Task: Fence springs and construct springboxes and cattle troughs away from wetland areas.
Threshold: Implementation.

IV.C.15.a.iii. Task: Conduct annual surveys of potential tri-colored blackbird habitat for presence of nesting birds. Include survey results in the Palo Prieto draft annual report for analysis, recommendation, and review by CDFG.

Threshold: Implementation.

IV.C.15.a.iv. Task: Implement recommendations regarding habitat management for Tricolored Blackbird in the final annual report for the Palo Prieto CB.

Threshold: Implementation.

IV.C.16-17. Biological Element: Rare plants

Two sensitive plant species have been reported (CNDDB 2003) from the vicinity of the Palo Prieto CB. These species have not yet been located on the Palo Prieto CB lands; however survey effort has not been thorough. Mason’s neststraw, occurs in Chenopod scrub, and pinyon-juniper woodland. Hall's tarplant occurs in Valley and foothill grasslands. Other rare plant species may be discovered on the Palo Prieto CB lands.

IV.C.16-17.a. Goal: Determine the distribution and abundance of rare plants on the Palo Prieto CB.

IV.C.16-17.a.i. Task: Conduct botanical surveys for rare plant species (see Table 10, Monitoring task schedule). Include survey results in the Palo Prieto draft annual report for analysis, recommendation, and review by CDFG.

Threshold: Implementation.

IV.C.16-17.a.ii. Task: Implement recommendations regarding rare plant species provided by the annual Final Report of Palo Prieto CB management practices.

Threshold: Implementation.

IV.C.18. Biological Element: Grasshopper Sparrow (*Ammodramus savannarum*)

Grasshopper sparrow has no Federal or State of California status.

Grasshopper Sparrows are widespread occupants of grassland habitats across North America. They are found in a variety of tall and mixed-grass habitats including native prairies, hayfields, pastures, and grassy fallow fields. In California it is found along the coast and transverse ranges to the desert and Central Valley, and throughout most of the northern half of the State. Grasshopper Sparrow numbers have declined across most of their breeding range. It builds open cup nests on the ground at the base of grass tuffs.

IV.C.18.a. Goal: Track the distribution of this species on the Palo Prieto CB lands.

IV.C.18.a.i. Task: Include information from habitat surveys and the CNDDB regarding Grasshopper Sparrow in the draft annual report for the Palo Prieto CB.
Threshold: Implementation.

IV.C.18.a.ii. Task: Implement recommendations regarding habitat management for Grasshopper Sparrow in the final annual report for the Palo Prieto CB.

Threshold: Implementation.

Habitat types


Habitats that support populations of kangaroo rat (Dipodomys sp.), pocket mouse (Perognathus sp.), deer mouse (Peromyscus sp.), harvest mouse (Reithrodontomys sp.), occur on the Palo Prieto CB.


IV.C.19.a.i. Task: Conduct small mammal trapping every five years on representative sampling areas of the habitat types on Palo Prieto CB lands. Include survey results in the Palo Prieto draft annual report for analysis, recommendation, and review by CDFG.

Threshold: Implementation.


Threshold: Implementation.

IV.C.20. Biological Element: Fairy shrimp habitat

Fairy shrimp occur on the James Place Parcel of the Palo Prieto CB in stone tubs and bowls. Preliminarily identified as Branchinecta sp., identification to species is expected by spring 2004. Other potential fairy shrimp habitat consisting of grass swales, pools and puddles is found on all parcels. Thorough surveys have not been undertaken to document the populations. The closest record shown by Eriksen and Belk (1999) is eighteen miles distant in the Carrizo Plain. According to Eriksen and Belk (1999) seven species occur near the Palo Prieto CB: Branchinecta longiantenna, Branchinecta lynchi, Branchinecta lindahli, Branchinecta mackini, Branchinecta campestris, and Artemia franciscana. Linderiella occidentalis has been found in San Luis Obispo County approximately 25 miles from the Palo Prieto CB (Meade, personal observation). Twenty-five species are known from California. Surveys for fairy shrimp will be undertaken as part of the Palo Prieto CB management.


IV.C.20.a.i. Task: Coordinate field work and identification with experts.


Threshold: Implementation.
IV.C.20.ii. **Task:** Implement recommendations regarding fairy shrimp habitat provided by the annual Final Report of Palo Prieto CB management practices.

**Threshold:** Implementation.

[NOTE: Figure 8 has been removed from this reproduction of Section IV of the Palo Prieto Conservation Bank Management Plan.]

### IV.C.21. Biological Element: California annual grassland

Annual grassland habitat is the most common habitat type on the Palo Prieto CB properties (Table 5), occupying approximately 4570 acres of the 5086 acres eligible to be included in the Palo Prieto CB. Maintaining the annual grassland in a condition optimal for use by San Joaquin kit fox is a primary goal of the Palo Prieto CB. Management goals for this habitat type are structured in three categories: rangeland cover, rangeland species composition, and rare species management. Rangeland cover and species composition management will be informed by range condition studies (section IV.F.2.b.i.) and floristic studies of the Palo Prieto CB, and will be incorporated into the adaptive grazing strategy prescribed by this management plan. Rare species management issues of this habitat type relate to the presence of thirteen listed plant species that may occur on the Palo Prieto CB lands. These species (Table 8) are all herbaceous plants that occur in grassland habitats. The Palo Prieto CB management will be responsible for conducting botanical surveys to find rare plant populations. As populations of rare plants are discovered, specific management needs of each species will be examined and incorporated into the adaptive grazing strategy.

**General long-range goals**

**IV.C.21.a. Goal:** Maintain grassland habitat in condition appropriate for use by San Joaquin kit fox and other arid grassland species, as based on the best scientific information available.

**IV.C.21.a.i. Task:** Implement an adaptive management strategy to promote habitat conditions preferred by San Joaquin kit fox and other arid grassland species. Use of prescribed grazing is the primary tool which will be utilized to influence biomass and species composition of the arid grasslands of the property. Grazing operations conducted on Palo Prieto Bank lands will be as described in Cattle Operations (Appendix H), and adjusted annually based on recommendations of the Palo Prieto CB final annual report (same task as C.1.a., see that section for summary of Thresholds and Remedial Activities; see Appendix H for details).

**Threshold:** Critical Implementation.

**IV.C.21.a.ii. Task:** Conduct a floristic survey on an average of every five years, timing the surveys to take advantage of those years when rainfall amount and duration promote highest diversity of identifiable plant species.

**Threshold:** Implementation.

**IV.C.21.a.iii. Task:** Based on sampling conducted at approximately five-year intervals, analyze the grassland species composition on the Palo Prieto CB to determine the ratio of native to non-native species, and the ratio of grass to forbs. Use the stratified random sampling methodology as described by Elzinga, et al. (1998). Data collected for each quadrat sample will be percent cover of native and non-native plant species, and percent cover of
grass and forb species. Sampling and analysis will be conducted by a qualified botanist with appropriate sampling and statistical skills. Report results in the annual draft report of the Palo Prieto CB.

**Threshold:** Implementation.

**IV.C.21.b. Goal:** Protect rare plant populations.

**IV.C.21.b.i. Task:** Install protective fencing, and/or adjust grazing regime recommendations regarding management of California annual grassland habitat provided by the annual Final Report of Palo Prieto CB management practices.

**Threshold:** Implementation.

**IV.C.22. Biological Element:** Buckwheat scrub

A buckwheat scrub habitat is located on the northeast portion of Palo Prieto CB on the James Place Parcel (see Appendix A, FigureA-6). This scrub should be maintained in its native condition.

**General long-range goals**

**IV.C.22.a. Goal:** Maintain a buckwheat scrub in locations where it is naturally occurring.

**IV.C.22.a.i. Task:** Implement an adaptive management strategy to maintain buckwheat scrub habitat. Use of prescribed grazing is the primary tool which will be utilized to influence biomass and species composition of the arid grasslands of the property. Management of buckwheat scrub is based on the grazing strategy described in Cattle Operations (Appendix H) and the annual Final Report of Palo Prieto CB management practices.

**Threshold:** Implementation.

**IVC.22.a.ii. Task:** Monitor the distribution of dominant stands of buckwheat scrub on the James Place Parcel at five year intervals beginning if and when the Parcel becomes part of the Palo Prieto CB. Revise habitat map of buckwheat scrub (Appendix A, Figure A-6) if distribution changes. Include results in draft annual report for analysis, recommendation, and review by CDFG.

**Threshold:** Implementation.

**IV.C.23. Biological Element:** Rock outcropping islands

Several unique rock outcroppings occur on the Palo Prieto CB property, which contain dense stands of *Eriogonum inflatum* ssp. *inflatum*. These habitats have persisted under the past uses on the property including dry land farming and grazing. It is not expected that the grazing management practices as defined in this management plan will result in any negative impacts to this habitat.

**General long-range goals**

**IV.C.23.a. Goal:** Maintain plant and animal community associated with rock outcroppings.
**IV.C.23.a.i. Task:** Implement an adaptive management strategy to maintain rock outcrop islands. Use of prescribed grazing is the primary tool which will be utilized to influence biomass and species composition of the arid grasslands of the property. Management of rock outcrop islands is based on the grazing strategy described in Cattle Operations (Appendix H) and the annual Final Report of Palo Prieto CB management practices.

**Threshold:** Implementation.

**IV.C.23.a.ii. Task:** Monitor the condition of vegetation and animal habitat associated with rock outcroppings on the Still Parcel at five year intervals beginning if and when the Parcel becomes part of the Palo Prieto CB. Visually inspect the habitat type to determine whether key plant species (*Eriogonum inflatum*) is abundant. Record dominant species. Include results in draft annual report for analysis, recommendation, and review by CDFG.

**Threshold:** Implementation.

**IV.C.24. Biological Element:** Native California perennial grassland (*Nassella pulchra* dominant)

Purple needlegrass dominated grassland is a native grassland type considered rare and worthy of consideration by the California Natural Diversity Data Base. When the Grant family first entered the Temblor range in the 1880's the native perennial bunch grass was "above their stirrups" (Robert Grant, Sr. pers. com., 2003). Since that time the combination of ranching and agricultural use of the land, has promoted the dominance of non-native annual grass species. Still, some patches characterized by purple needlegrass remain. These locations can serve as source populations to promote an increase in the distribution and abundance of this native grass community type.

**General long-range goals**

**IV.C.24.a. Goal:** Increase the distribution and abundance of perennial native bunch grass.

**IV.C.24.a.i. Task:** Conduct management to promote native bunchgrass. Use pulsed grazing practices that consider the timing of flower and seed production of bunch grasses to avoid damage to the adult plants, maximize reproductive output, and facilitate germination and establishment of new plants. Use of prescribed grazing is the primary tool which will be utilized to influence biomass and species composition of the arid grasslands of the property. Grazing strategy is described in Cattle Operations (Appendix H).

**Threshold:** Implementation.

**IV.C.24.a.ii. Task:** Construct cross fencing in areas where perennial native bunch grass is extant to allow control of grazing.

**Threshold:** Implementation.

**IV.C.24.a.iii. Task:** Monitor the distribution of dominant stands of native bunch grass species at five year intervals by mapping stands of native bunch grass on USGS topo for comparison with habitat maps (Appendix A). Include result in draft annual report for analysis, recommendation, and review by CDFG.

**Threshold:** Implementation.

**Threshold**: Implementation.

**IV.C.25. Biological Element**: Sag ponds and lakes

Sag ponds and lakes are formed in this region by activity of the San Andreas Rift Zone, which causes depressions and ridges to form. The sag ponds provide essential habitat for rare species. During the last 100 years, sediment carried by runoff from agricultural fields may have significantly altered the duration, quality, frequency, and extent of pond formation. A goal of the Palo Prieto CB is to enhance sag pond and lake habitats for native amphibians, transient and resident wildlife, and rare plants.

**General long-range goals**

**IV.C.25.a. Goal**: Protect and enhance sag pond habitats for use by rare species and wildlife.

**IV.C.25.a.i. Task**: Restrict cattle impacts on sag ponds during winter and spring breeding seasons for aquatic organisms. Implement an adaptive grazing strategy to graze during period of no water, based on the practices described in Appendix H (Cattle Operations), and the recommendations of the Palo Prieto CB annual report.

**Threshold**: Implementation.

**IV.C.25.a.ii. Task**: Coordinate exotic aquatic species eradication with the CDFG, and the USFWS, if exotic aquatic species are discovered.

**Threshold**: Implementation.

**IV.C.25.a.iii. Task**: Protect aquatic habitats by avoiding the use of pesticides on the Palo Prieto CB lands. If pesticides must be used, all uses shall conform to protective measures recommended by the Department of Pesticide Regulation and the State Water Quality Resources Control Board with respect to surface and ground water protection.

**Threshold**: Implementation.

**IV.C.26. Biological Element**: Seeps and perennial streams

The streams on the properties support wetland plant species and provide habitat for amphibians, insects, and water for large mammals. A goal of the Palo Prieto CB program is to improve cattle watering facilities to exclude cattle from streams except for pulse grazing events as needed to maintain watercourse function.

**General long-range goals**

**IV.C.26.a. Goal**: Improve water quality and vegetative cover of seeps and perennial streams.

**IV.C.26.a.i. Task**: Construct fences to control cattle access to seeps and perennial streams located on the Lake Parcel, the Still Parcel and the James Place Parcel. Fences to be constructed after cattle watering facilities are installed to replace natural watering holes. Fences to be installed within three years of parcel inclusion within the Palo Prieto CB.
Threshold: Implementation.

**IV.C.26.a.ii. Task:** Improve cattle watering facilities to lessen impacts to natural water sources. Improvements include construction of tanks and troughs off-stream, new wells, and fencing off springs and springboxes.

**Threshold:** Implementation.

**IV.C.26.a.iii. Task:** Reduce feral pig population by hunting if impacting quality of seep and stream habitat.

**Threshold:** Implementation.

**IV.C.26.a.iv. Task:** Protect aquatic habitats by avoiding the use of pesticides on the Palo Prieto CB lands. If pesticides must be used, all uses shall conform to protective measures recommended by the Department of Pesticide Regulation and the State Water Quality Resources Control Board with respect to surface and ground water protection.

**Threshold:** Implementation.

**IV.C.26.a.v. Task:** Implement recommendations regarding seeps and perennial streams from the Palo Prieto CB final annual report.

**Threshold:** Implementation.
IV.D. Public Use Elements: Goals and Environmental Impacts

Public use elements consist of recreational, scientific, or other use activities appropriate to and compatible with the purpose for which the Palo Prieto CB was established. Allowed public use is not anticipated to have an impact to Palo Prieto CB elements (species and habitats).


General long-range goals

IV.D.1.a. Goal: Provide interpretative information regarding the Palo Prieto CB and its purpose, on an identifying sign that is adjacent to Bitterwater Road. Provide information regarding rare species to increase public awareness regarding the need to protect the habitat and to avoid wildlife fatalities on and off the roadway.

IV.D.1.a.i. Task: Prepare, install and maintain an identifying sign and an interpretative sign for installation in a location agreed upon by the Palo Prieto CB owner(s).

Threshold: Implementation.

No other public uses are anticipated for the Palo Prieto CB lands. The purchase of credits in the Palo Prieto CB does not authorize any member of the public to trespass upon, use or utilize all or any portion of the property in any manner.
IV.E. Facility Maintenance Elements:

Facility maintenance includes elements that support cattle grazing operations. Cattle operations are an essential component of the management plan with respect to maintenance of appropriate habitat for rare species. These tasks are divided between the ongoing cattle ranching operation and the Palo Prieto CB management. The Palo Prieto CB will support tasks required to enhance habitat or manage rare species. Tasks for normal cattle ranching operations will be the responsibility of the owners.

General long-range goals

IV.E.1. Facility Maintenance Element: Cattle watering facilities.

Improving the distribution of watering sites on the Palo Prieto CB lands will reduce localized impacts from cattle grazing, and maintain and improve habitat for rare species.

IV.E.1.a. Goal: Maintain cattle watering facilities by regular inspections of equipment, pipes, and troughs, and repair as needed.

IV.E.1.a.i. Task: The Palo Prieto CB owners will conduct regular well repair, pipe repair, and windmill repair as part of the cattle operation.

Threshold: Implementation.

IV.E.1.b. Goal: Improve cattle watering system by adding water sources.

IV.E.1.b.i. Task: To enhance rare species habitat and reduce concentration of cattle impacts, drill new wells and install watering facilities. Add new facilities to areas currently furthest from existing water sources. Replace old wells as needed.

Threshold: Implementation.

IV.E.1.c. Goal: Improve cattle watering systems associated with natural springs and streams to enhance sensitive species habitat.

IV.E.1.c.i. Task: Construction of springboxes shall be done in such a way as to not diminish the value of the habitat associated with the spring.

Threshold: Implementation

IV.E.1.c.ii. Task: Construct and relocate cattle watering facilities such as tanks and water troughs in such a manner as to keep cattle out of sensitive aquatic habitats.

Threshold: Implementation.

IV.E.1.c.iii. Task: Construct cattle exclusion fences around sensitive aquatic habitat.

Threshold: Implementation.

IV.E.2 Facility Maintenance Element: Roadways
The ranch roads on the Palo Prieto CB property allow access for environmental monitoring, rare species management, and cattle operations. The ranch roads within the Palo Prieto CB lands require yearly maintenance to repair storm damage. The intensity of work necessary varies greatly from year to year depending on the severity of storms. Heavy rainfall amounts in short time periods typically cause the most damage to roads. The Palo Prieto CB may need to maintain access on some roads to allow Palo Prieto CB managers, owner and biologists to document and monitor rare species habitat.

General long-range goals

IV.E.2.a. Goal: Maintain roads as necessary for Palo Prieto CB management access.

IV.E.2.a.i. Task: Hire road grader work on roads if necessary.

Threshold: Discretionary.

IV.E.2.b. Goal: Protect rare species from disturbance or take due to grading operations.

IV.E.2.b.i. Task: A qualified biologist familiar with all of the rare species in the Palo Prieto CB area shall survey the roadway work area immediately prior to grading operations to verify that no rare species will be affected by the work.

Threshold: Implementation.

IV.E.2.b.ii. Task: If rare species are found in or near the work area, or are suspected to have the potential to enter the work area and be at risk, work will be postponed or suspended until such time as the work will have no potential to affect the rare species.

Threshold: Effectively avoiding impact to species of concern.

Remedial Activity: Should species of concern be impacted, after pre-construction surveys by the biologist have cleared an area, the impacts will be discussed in the annual report, and at the annual meeting. Potential remedial activities could include identification of other, potentially more intensive, survey methodology; identification of other road grading methods which would minimize impacts; and/or remediation of impacts of grading activities through restoration or other revised management activities.

IV.E.3. Facility Maintenance Element: Fences

Fence maintenance and installation related to the cattle operation is the responsibility of the owners. The Palo Prieto CB will provide funding for fence maintenance, for fencing to protect sensitive habitats, and to upgrade fencing to protect large native mammals from entanglement in barbed wire.

General long-range goals

IV.E.3.a. Goal: Provide for perimeter fencing of all Palo Prieto CB parcels, including maintenance, up-grade and/or new construction.

IV.E.3.a.i. Task: Survey all perimeter fencing to determine status of existing fencing, and any fencing needs (maintenance, up-grade and/or new construction). Inspect annually to determine repair, up-grading and/or maintenance needs.
IV.E.3.a.ii. Task: Maintain fencing around perimeter of all parcels of Palo Prieto CB.

Threshold: Critical Implementation.

IV.E.3.b. Goal: Provide for the construction of approximately one mile of fencing per year on average, if necessary. This includes projected fence replacement, and fencing of sensitive habitats.

IV.E.3.b.i. Task: Construct fencing to protect sensitive habitats.

Threshold: Critical implementation.

IV.E.3.b.ii. Task: Repair or replace fencing as needed.

Threshold: Critical Implementation.

IV.E.3.c. Goal: Protect large native mammals from fence injury.

IV.E.3.c.i. Task: Use spreader bars between posts on new or replacement fence installations to prevent entanglement and trapping of large mammals (e.g. antelope, deer). Utilize currently accepted wildlife friendly fencing practices.

Threshold: Critical Implementation.
IV.F. Palo Prieto CB Management Elements


Administration of the Palo Prieto CB will be conducted by the Palo Prieto CB owner. The Bank Owner is responsible for the performance of all management activities prescribed in this plan. The management duties and activities described in this plan may be delegated to a bank manager, but performance remains the responsibility of the owner.

General long-range goals

IV.F.1.a. Goal: Maintain accurate business records of expenditures, staff, maintenance, and other administrative duties.

IV.F.1.a.i. Task: The owner shall employ sufficient personnel to maintain accurate business records of expenditures, staff, maintenance, and other administrative duties to the satisfaction of the CDFG.

Threshold: Implementation.

IV.F.1.a.ii. Task: The owner will maintain the Palo Prieto CB records of expenditures and income.

Threshold: Critical Implementation.

IV.F.1.a.iii. Task: An annual report shall be submitted to the CDFG documenting administrative activities.

Threshold: Critical Implementation.

IV.F.1.b. Goal: Maintain careful, accurate, and complete records of credits sold, including calculations of Palo Prieto CB credits used for rare species other than San Joaquin kit fox.

IV.F.1.b.i. Task: The Palo Prieto CB owner shall maintain records of credits sold, land areas committed by credits, and totals available. Coordination with the Palo Prieto CB owner, easement holder and the Department of Fish and Game shall include a monthly accounting statement of Palo Prieto CB credit status until such time as all credits for all phases are sold.

Threshold: Critical Implementation.

IV.F.1.c. Goal: Maintain regular office hours in order to respond to public requests for information in a timely manner and otherwise conduct the Palo Prieto CB's business in a normal manner.

IV.F.1.c.i Task: The Palo Prieto CB owner will maintain regular office hours. The Palo Prieto CB owner will relay information to the CDFG, the USFWS, the County of San Luis Obispo, and other interested parties as needed.

Threshold: Implementation
**IV.F.1.d. Goal:** Maintain all equipment, vehicles, facilities, residences, office structures, shop and associated buildings, fuel tanks, and any related items in optimum working condition to maximize efficient use of operating expenses allocated to this area.

**IV.F.1.d.i. Task:** Regular inspection and servicing of all equipment and vehicles.

**Threshold:** Discretionary.

**IV.F.1.d.ii. Task:** Regular inspection and repair of all buildings, residences and structures used for Palo Prieto CB operations. This may include items such as plumbing, electrical, painting, fixtures, and any other features necessary to protect health and safety of staff and visitors to the property.

**Threshold:** Discretionary.

**IV.F.1.d.iii. Task:** Management facilities for the Palo Prieto CB will be part of existing ranch infrastructure, and at off-site office facilities. Storage space for equipment and vehicles will be located at the Grant family ranch headquarters on Bitterwater Road, and off-site as needed. If onsite offices become desirable, the facility will be established in existing structures on the Palo Prieto CB property.

**Threshold:** Discretionary.

**IV.F.1.e. Goal:** Report to the CDFG the status of Palo Prieto CB operations and biological resources.

**IV.F.1.e.i. Task:** Produce annual report of the Palo Prieto CB, submitted as a draft annual report for review by the CDFG, and as a final annual report incorporating information from analysis, review, and recommendations by the manager, owner, and CDFG. Draft annual report is to be submitted to CDFG by December 1st and made available for review by the USFWS, and other experts, and will inform participants for the annual meeting. A final annual report will be submitted following inclusion of any changes in management strategies recommended and accepted during the report review period (December 1st to February 15th). Final report is to be submitted by February 15th. The Palo Prieto CB Owner will be responsible for producing this report.

The annual report will include information produced from required tasks listed in Biological elements (IV.C.1 through IV.C.26), Public use element IV.D.1, Facility Maintenance elements (IV.E.1 through IV.E.3), and Management elements IV.F.1.a. and b, and IV.F.2. Additional information deemed by the owner of the Palo Prieto CB or the CDFG to be of interest may be included in the annual report.

**Threshold:** Critical Implementation

**IV.F.1.e.ii. Task:** Conduct an annual meeting for the Palo Prieto CB owners, manager, CDFG, and other experts and agency personnel with an interest in the Palo Prieto CB management practices. The meeting will be scheduled in December to be held not later than January 15th as participant schedules permit. The purpose of the meeting is to discuss the annual draft report of the Palo Prieto CB and make management recommendations to be incorporated in the final annual report.
**Threshold:** Critical Implementation.

**IV.F.2. Palo Prieto CB Management Element:** Monitoring

During implementation of the Palo Prieto Conservation Bank Management Plan, several types of monitoring will be used:

1. Implementation monitoring to track whether commitments in Management Plan have been completed for that year, and/or progress made toward completion of multi-year tasks.

2. Biological monitoring to evaluate the status of the specific species which are found on the Palo Prieto Conservation Bank and which are management targets.

3. Grazing management compliance monitoring, to determine whether Residual Dry Matter goals are being met.

The monitoring program is summarized below, and more details are provided in Appendix I. The intent of monitoring is to determine if specific thresholds are being met, i.e. whether specific required tasks have been completed, determine status of the resources of interest on Palo Prieto CB, and whether management objectives are being met. Thresholds are intended to identify progress toward achieving stated goals, and failure to meet specific thresholds would trigger the adaptive management process of considering whether to institute changes in monitoring and/or management. Specific thresholds are identified in Section IV.C, after specific tasks.

**IV.F.2.a. Monitoring:** Implementation Monitoring

Tasks which are subject to implementation monitoring are identified in Sections IV.C., D, E., and F. For each of those tasks, the Bank Owner is responsible for reporting on whether that task, if required for the particular year which is the subject of the annual report, has been implemented.

**IV.F.2.a. Goal:** Develop a checklist and utilize annually to determine if required tasks have been completed.

**IV.F.2.a.i. Task:** A checklist of tasks which are to be completed in a particular year will be prepared from that year's Annual Work Plan (see Sections IV.F.3.c.iii . and IV.F.3.c.v.). Each task which is identified in the annual work plan and for which the threshold identified in Section IV.C, D., E. & F. is "Implementation" or "Critical Implementation" will be listed on the checklist, and the completed checklist will be submitted with the draft annual report.

**Threshold:** Critical Implementation.

**IV.F.2.b. Monitoring:** Biological Monitoring

Monitoring shall be conducted according to the protocols and procedures identified in Appendix I. These monitoring protocols have been developed to identify if the management goals have been met, and the efficacy of management in maintaining and enhancing species and habitats of the bank.

Management goals, tasks, specific thresholds for determining the efficacy of management, and remedial activities which may be implemented should thresholds not be met, are identified in Section IV.C.1-26. In addition, general thresholds which are intended to indicate progress toward general goals detailed in Section IV.B., and remedial actions which are required if thresholds are not met, are detailed in Section
IV.F.3.b., below. Biological monitoring is intended to inform whether both general and specific thresholds are being met

Monitoring will be done according to the recommended schedule in Table 10; however, the frequency and type of monitoring may be modified pursuant to recommendations discussed at the annual meeting, without amending the Management Plan; and would then be reflected in the Annual Work Plan.

Monitoring of habitat and target species known to occur on the Palo Prieto CB will be conducted as part of the management of the Palo Prieto CB by a qualified monitoring entity or entities identified by the Bank Owner and approved by CDFG; monitoring is the responsibility of the Bank Owner. The purpose of monitoring is to document the status of target species and habitats, and to inform decisions regarding management practices. Monitoring information will be reviewed and analyzed by a qualified biologist who will provide recommendations to the Palo Prieto CB owners and the CDFG regarding management practices. Survey information and recommendations will be included in the draft Annual Report of the Palo Prieto CB.

Table 10. Monitoring task schedule.

<table>
<thead>
<tr>
<th>Monitoring Target</th>
<th>Season</th>
<th>Days</th>
<th>By</th>
<th>Recommended Type</th>
<th>Responsibility of performance</th>
<th>Recommended Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Joaquin kit fox</td>
<td>Summer Fall</td>
<td>4 each season</td>
<td>Qualified biologist</td>
<td>Spotlight</td>
<td>PPCB Owner</td>
<td>Annual</td>
</tr>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>California tiger salamander, spadefoot toad</td>
<td>Winter Spring</td>
<td>one</td>
<td>Qualified biologist with permits</td>
<td>Aquatic netting</td>
<td>PPCB Owner</td>
<td>Annual</td>
</tr>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California red-legged frog</td>
<td>May 1 to Nov. 1</td>
<td>two</td>
<td>Qualified biologist</td>
<td>USFWS protocol</td>
<td>PPCB Owner</td>
<td>Annual</td>
</tr>
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<td></td>
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<tr>
<td>Bird survey</td>
<td>May - June, and winter (Nov. or Dec.)</td>
<td>As needed</td>
<td>Qualified biologist</td>
<td>Nesting burrow count (owls), transect counts (larks), nest counts (tri-color blackbirds), and overwintering special status species</td>
<td>PPCB Owner</td>
<td>Once in two years</td>
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<td></td>
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<tr>
<td>Herps (CTS, CRLF, BNLL, etc.)</td>
<td>Early summer</td>
<td>As needed</td>
<td>Qualified biologist</td>
<td>Habitat inspections, cover boards, see protocols in Appendix I</td>
<td>PPCB Owner</td>
<td>Annual</td>
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<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Small mammals</td>
<td>Early summer</td>
<td>As needed</td>
<td>Qualified biologist</td>
<td>trapping</td>
<td>PPCB Owner</td>
<td>Once every five years</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Fairy shrimp</td>
<td>early winter, winter</td>
<td>As needed</td>
<td>Qualified biologist</td>
<td>USFWS protocol</td>
<td>PPCB Owner</td>
<td>Once in two years</td>
</tr>
</tbody>
</table>
### General long-range goals

**IV.F.2.b. Goal:** Monitor listed animal species

**IV.F.2.b.i. Task:** Monitor San Joaquin kit fox population

Surveys for San Joaquin kit fox will be performed twice annually, once in July and once in September. Surveys will consist of night-time eyeshine survey conducted from moving vehicles. Transect routes that include each parcel on the Palo Prieto CB will be established and traversed nightly for four nights during each survey bout (for a yearly total of eight transect passes). Sightings of San Joaquin kit fox will be recorded with number of animals, location and distance from observer noted.

**Threshold:** Implementation.

**IV.F.2.b.ii. Task:** Monitor California tiger salamander population. Conduct a quantitative sampling of aquatic habitats during periods of CTS breeding on the Palo Prieto CB. A qualified biologist with appropriate collection and handling permits will perform the survey.

**Threshold:** Implementation.

**IV.F.2.b.iii. Task:** Monitor California red-legged frog populations. Conduct a protocol level survey for CRLF of potential habitats on the Palo Prieto CB. Surveys should be conducted between May 1st and November 1st.

**Threshold:** Implementation.

**IV.F.2.b.iv. Task:** Monitor listed nesting birds: Northern Harrier, Short-eared owl, Burrowing Owl, Loggerhead Shrike, California Homed Lark, Tri-color Blackbird populations. Conduct a survey of Palo Prieto CB lands to determine the number and locations of nesting burrowing owls. Conduct transect counts of California horned lark nests in grassland nesting areas. If present, count nesting pairs of tri-colored blackbirds to obtain estimate of total nesting pairs on the Palo Prieto CB.

**Threshold:** Implementation.
**IV.F.2.b.iv. Task**: Monitor overwintering bird species: short-eared owl, ferruginous hawk, and any other listed species. Conduct a bird survey of Palo Prieto CB lands in November or December to document the presence of overwintering bird species.

**Threshold**: Implementation.

**IV.F.2.c. Goal**: Monitor habitat types on the Palo Prieto CB.

**IV.F.2.c.ii. Task**: Update habitat maps annually for the Palo Prieto CB to reflect changes in habitat type observed.

**Threshold**: Implementation.

**IV.F.2.c.iii. Task**: Create and maintain a GIS database of species occurrence on the Palo Prieto CB. Data to be provided by monitoring activities on the Palo Prieto CB, reports to the CNDDB, and other reliable sources. Data shall include species identity, location, date of observation, and abundance estimate.

**Threshold**: Implementation.

**IV.F.2.c.iv. Task**: Conduct biological resources surveys of Palo Prieto CB lands to continue building species database for the Palo Prieto CB.

**Threshold**: Implementation.

**IV.F.2.d. Monitoring**: RDM/Biomass Monitoring

**IV.F.2.d. Goal**: Monitor Residual Dry Matter and spring biomass to determine if grazing management goals are being met.

**IV.F.2.d.i. Task**: Monitor status of fall RDM in annual grassland. Use the Residue Pattern Mapping method, conducted at the end of the forage season (typically November 1). If required, monitor spring biomass (this task is the same as IV.C.1.a.i.; see Appendix I for details of monitoring methodology).

**Threshold**: Critical Implementation. For each pasture, at least 50% of the pasture shall meet or exceed the Fall RDM goals; and no more than 25% of the pasture shall fall below the minimum; and for pastures subject to spring monitoring, at least 50% of the pasture shall meet or exceed the spring biomass guidelines (see Appendix H for details of thresholds and Remedial Activities).

**Remedial Activities**: If pastures do not meet RDM goals at any time, livestock will be removed from the pasture until thresholds are met; if RDM goals are not met for two years in a row, or three years out of five, then the pasture will be deferred for the remainder of that grazing year. (see Appendices H & I for details of thresholds and remedial management should thresholds not be met).

Although fall RDM is proposed to be measured on or around November 1, should visual estimation of RDM at any time indicate that RDM levels are approaching the fall RDM thresholds, the Bank Owner may be directed to informally or formally monitor the status of
biomass/RDM in the subject pasture and be subject to fall RDM thresholds and remedial activities.

**IV.F.3. Palo Prieto CB Management Element**: Adaptive Management

**IV.F.3.a. The adaptive management program**

**IV.F.3.a.i. The purpose and elements of an adaptive management program.** The purpose of an adaptive management program is to integrate management and monitoring to facilitate progress toward the biological goals and objectives of the Palo Prieto Conservation Bank, as stated in Section IV.B.

During implementation of the Palo Prieto Conservation Bank Management Plan, several types of monitoring will be used:

1. Implementation monitoring to track whether commitments in Management Plan have been completed for that year, and/or progress made toward completion of multi-year tasks.

2. Biological monitoring to evaluate the status of the specific species which are found on the Palo Prieto Conservation Bank and which are management targets.

3. Grazing management compliance monitoring, to determine whether Residual Dry Matter goals are being met.

Information gathered via the monitoring program is intended to be compared to thresholds which have been established to document incremental progress toward specified goals (see Sections IV.C, D. & E. for specific thresholds). In addition, general thresholds, which are intended to mark progress toward the general goals identified in Section IV.B., are specified below. If thresholds are not met, then a process of considering whether to institute changes in monitoring and/or management will be triggered. Changes of monitoring and/or management practices may occur because of information regarding the status of species and habitats on the bank; because thresholds for remedial management have not been met; in the event of the discovery of new species on the Palo Prieto CB; or as a result of new listing of species. This section describes the elements of an adaptive management program, and details of the process.

**IV.F.3.a.ii. Proactive management.** The Palo Prieto Conservation Bank will be managed under the terms of the Management Plan developed for the property. It identifies management actions which will be undertaken to manage inner coast range grasslands in such a way as to promote the array of species that are associated with this habitat type, with emphasis on the species which are identified as of interest on the property (see Section IV. B., C., D., E., & F.). Each year, an Annual Work Plan will be prepared which will identify tasks to be implemented in the following year, as specified in the Management Plan. Each year, the Annual Work Plan will be modified to include those items which are required by the Management Plan but which may not be required annually (monitoring which is done bi-annually or every five years, for example) or to address items identified in the Annual Report and at the annual meeting, and which require changes in management or monitoring.

The primary goal in management is to enhance and maintain habitat which is utilized for San Joaquin kit fox and the other species associated with the inner coast range grasslands found on the property, utilizing grazing by livestock as the primary management tool. It is anticipated that proactive management will maintain or increase the distribution and abundance of the target species, as well as enhance knowledge of their ecologies. In the event that the conservation objectives are not attained, a system of remedial management will be used to achieve management objectives.
**IV.F.3.a.iii** Remedial Management. Due to a variety of circumstances, including fire (wildfire or management burn), prolonged drought, or the invasion and spread of noxious plants or animals, changes in management may be desired. Monitoring or other research may reveal that one or more of the biological or management objectives are not being met. In these circumstances, a program will be initiated to evaluate the causes for the observed declines and develop appropriate management steps to remedy the situation. The effects of the remedial management will be evaluated to determine whether the target conditions have been achieved and, if not, inform future strategies and techniques in the ongoing adaptive management cycle. Such changes may be made to the Annual Work Plan, or may be of such a nature that an amendment to the Management Plan may be necessitated.

In addition, there may be scheduled tasks, which are identified in the Management Plan and the Annual Work Plan for implementation, which for a variety of reasons did not get implemented during the year covered by the Annual Work Plan. Typically these will be addressed in the annual work planning process; those items will need to be reevaluated, and a decision made regarding whether to include in the coming year's work plan, or deferred to another year. If tasks specified in the Management Plan are continually deferred, a reevaluation of whether to amend the Management Plan to modify or eliminate those tasks may be warranted.

**IV.F.3.a.iv** Monitoring. For each task identified in the Management plan, Sections IV. C., D. & E., monitoring has been identified to determine the efficacy of the identified management in meeting the plan goals, as stated in Section IV.B. Monitoring is summarized in Section IV. E. with details provided in Appendix I. The results of monitoring will be compared with identified thresholds which would, if the thresholds are not met, trigger a reevaluation of management prescriptions. Thresholds are intended to identify incremental progress toward stated goals, and are tied to specific tasks (see Section IV.C., D. & E.) or general management goals (Section IV.B.).

**IV.F.3.b. General Thresholds and General Remedial Actions**

Section IV. C. details the biological goals for the resources of interest on Palo Prieto CB, and thresholds have been identified which, if met, would indicate progress toward each biological goal. Section IV.C. also identifies specific remedial activities in some cases which would be required if thresholds are not met. Below are some general thresholds which are intended to identify progress toward the overall management goals identified in Section IV.B. There are three classes of general thresholds as well as remedial actions which would be required if triggered by failure to meet the thresholds. Implementation of remedial activities and remedial actions may be addressed in the Annual Work Plan and/or may require an amendment to the Management Plan.

**IV.F.3.b.i. General Threshold:** Implementation of required actions identified in the Management Plan Sections IV. C., D., E. & F. with thresholds of "Implementation" or "Critical Implementation", and/or as modified in an Annual Report and Annual Work Plan.

**IV.F.3.b.i. Remedial Actions:** Tasks which have the threshold of "Implementation" as identified in Section IV.C., D., E. & F. under each task will be designated as either completed or not completed on the task checklist (Section IV.F.2.a.i.) Should a task not be completed, then that task will be addressed in the annual report and at the annual meeting; it will be considered for rescheduling, and prioritized for the following year. Prioritized items will be funded in the order of priority, and funded items will be identified in the annual work plan. Failure to implement actions which have been identified and prioritized high enough to be funded two years in a row, the Bank Owner will be considered to be out of compliance with the Management Plan.
Tasks which have the designation of «Critical Implementation" are essential to the smooth operation of the Bank, and will be designated as either completed or not completed on the task checklist (Section IV.F.2.a.i.) Critical Implementation Tasks, if not completed, the Bank Owner will be considered out of compliance with the Management Plan.

**IV.F.3.b.ii. General Threshold:** Meeting biological goals as stated in Section IV. b, and maintenance of stable or increasing populations of target species and biological resources, as identified in Sections IV. C.

**IV.F.3.b.ii. Remedial Actions:** Remedial actions would be triggered if a population of target species was documented as declining through monitoring. Remedial actions would include evaluation of the monitoring information in the context of regional trends; initiating modified monitoring to identify causes/correlates of decline; and/or adjustments in management and/or thresholds for management activities. Such actions may require changes to the annual work plan and/or the Management Plan.

**IV.F.3.b.iii. General Threshold:** Meeting fall RDM goals as identified in Appendix H. Thresholds for Fall RDM and spring biomass are summarized in Section C. l.a. and detailed in Appendix H

**IV.F.3.b.iii. Remedial Actions:** Should thresholds not be met for two consecutive years (or two non-consecutive years for pastures in the CRP), or not met 3 out of 5 years, then the pasture shall be deferred for the remainder of the grazing year and the Bank Owner will be considered to be out of compliance. In the event that specific remedial activities are not implemented within the required timeframes, the Bank Owner will be out of compliance.

Please note that specific remedial activities detailed in Appendix H, to be implemented in the event that fall RDM threshold are not met, include (1) animals taken off the pasture and not turned out until at least 75% of the pasture exceeds the fall RDM value, including green up; (2) pasture which does not meet fall RDM goals shall be subject to discussion during the annual meeting; and (3) spring biomass monitoring will performed in the following year. In the event that a pasture does not meet the spring biomass guidelines, then specific remedial activities require the pasture be monitored again in two months; and if the pasture still does not meet spring biomass guidelines for that month, livestock will be removed from the pasture and not turned out again until 90% of the pasture exceeds the spring biomass guidelines (see Appendices H & I).

Failure to meet thresholds, the implementation of required remedial activities or remedial actions, or consideration of other information pertaining to the target species and habitats of the bank, may also require that changes be made to the Management Plan (see Section IV. F. 3. e. ii.).

**IV.F.3.c. The adaptive management process**

**IV.F.3.c.i. Responsibilities.** Bank Owner will be responsible for implementation of management activities, and for hiring or contracting for qualified personnel to conduct monitoring, and for preparation of the Annual Report.

**IV.F.3.c.ii. Annual Schedule.** Bank owner or representative shall provide a draft report to CDFG by December 1 of each year, and shall schedule an annual meeting for January to discuss information and recommendations in the annual plan. CDFG shall prepare comments in writing, to be returned to the Bank owner and/or representative by 5 working days prior to the scheduled meeting. The meeting shall include the Bank owner or representative, the bank manager, monitor(s), and CDFG.
Other invited experts could include local researchers, land managers, USFWS and/or other experts, if deemed necessary by any of the parties to provide scientific input on the preceding year's or proposed changes in monitoring and/or management. Changes identified in the annual report, or CDFG's review of the annual report, shall be discussed at the annual meeting. Changes in monitoring and/or management which CDFG deems necessary to be implemented in the upcoming year shall be determined either at the annual meeting, or communicated in writing to the Bank owner and/or representative within 5 calendar days after the annual meeting. The Bank owner shall submit the final report to CDFG, including any required changes to monitoring and/or management, and the annual work plan, by February 15 of each year, unless both CDFG and the Bank owner/representative mutually agree to extend the due date of the final report.

**IV.F.3.c.iii. Annual Report and Annual Work Plan.** Requirements of the Annual Report are described in Section IV.F.1.e.i. To adequately inform the adaptive management process, the draft annual report shall include information on (1) implementation activities completed, and those scheduled but not completed; (2) results of biological monitoring; and (3) results of RDM monitoring. In addition, there will be a section which describes data collection methodology, data analysis methodology, comparison with identified thresholds, results and conclusions, including recommendations for the coming year.

The final Annual Report shall include, in addition to the draft Annual Report, a discussion of thresholds which were not met; a discussion of remedial activities which are recommended for implementation; any changes in monitoring and/or management which has been determined to be necessary for the upcoming year, and/or why changes were not accepted for implementation; and the supporting rationale. In addition, a complete Annual Work Plan, which reflects necessary changes in monitoring and/or management, shall be a required addendum to the final Annual Report.

**IV.F.3.c.iv. Changes in Management or Monitoring.** The Bank Owner and/or CDFG may wish to change either the monitoring requirements and/or management of the bank lands. Request for proposed changes may be based upon the results of annual monitoring, or by way of other sources of information regarding inner coast range grasslands and the suite of target species of the bank. Requested changes would fall in to two general categories, those which can be altered without modification to the Management Plan, by incorporation in the annual workplan; and those which require an amendment to the Management Plan.

**IV.F.3.c.v. Annual Meeting and Annual Work Plan.** The purpose of the Annual Report and annual meetings is to evaluate and discuss the efficacy of past management, and identify if changes are needed to monitoring and/or management for the following year. Typically the nature of changes which would be discussed at the annual meeting would not require changes to the Management Plan; if any recommended and adopted changes would require an amendment to the Management Plan, the procedure in the following section would apply. Any changes in monitoring and/or management which are identified either in the Annual Report, or by the Bank Owner/representative, or CDFG, shall be discussed at the annual meeting. Any changes must be designed with the input of both the Bank Owner and CDFG. Tasks or remedial activities which are recommended to be changed or added to the Annual Work Plan shall be evaluated in the context of the ongoing requirements of management and monitoring, and all tasks shall be prioritized so that required management and monitoring for the upcoming year (both new and ongoing) shall not exceed the funds provided by the endowment, unless specifically authorized by DFG and the Bank Owner. All changes must be approved by CDFG in writing, and included in the Annual Work Plan for the following year. Changes to the grazing program which would reduce the herd size below that necessary to provide for a continuous grazing management program, in the view of either CDFG or the Bank Owner, must be approved by both CDFG and the Bank Owner. If and when approved by CDFG, changes to monitoring and/or management shall be implemented by the Bank Owner.
IV.F.3.c.vi. Changes to the Management Plan. The Management Plan prepared for the Bank shall provide the basis for the implementation of the specific management measures and tasks and identify the priority of the various measures and tasks. The Bank Owner and CDFG may meet and confer from time to time, upon the request of either of them, to revise the Management Plan to better meet management goals and preserve the habitat and conservation values of the Bank Property. Any proposed changes to the Management Plan shall be discussed by CDFG and the Bank Owner and will be designed with input of both Parties. No amendment shall be implemented without prior written approval by CDFG; provided, if the CDFG determines in accordance with CESA, in writing, that continued implementation of a management practice under the Plan would jeopardize the continued existence of a State listed species, any written amendment to this Plan determined by the CDFG in accordance with CESA as necessary to avoid jeopardy shall be a required management component and shall be implemented by the Bank Owner. Changes to the grazing program which would reduce the herd size below that necessary to provide for a continuous grazing management program, in the view of either CDFG or the Bank Owner, must be approved by both CDFG and the Bank Owner. Amendments to the Management Plan approved in accordance with the foregoing shall be required management components and shall be implemented by the Bank Owner. Any amendments to the Management Plan shall be implemented without any additional cost to the Bank Owner, unless the Bank Owner agrees in writing to implement management at additional costs above the expected costs provided for by the Endowment Fund. Any amendments to the Management Plan which cost more than the anticipated costs estimated for the endowment will only be carried out when there is sufficient funding available in the endowment or if the Bank Owner agrees to implement the management at their own expense.

IV.F.3.c.vii. Funding Changes to the Management Plan. Any amendments to the Management Plan shall be implemented without any additional cost to the Bank Owner, unless the Bank Owner agrees in writing to implement management at additional costs above the expected costs provided for by the Endowment Fund. Any amendments to the Management Plan which cost more than the anticipated costs estimated for the endowment will only be carried out when there is sufficient funding available in the endowment, or when required management and/or monitoring tasks are prioritized such that management and monitoring costs will not exceed funding available from the Endowment Fund, or if the Bank Owner agrees to implement the management at their own expense.

If the interest earnings on the Endowment Fund are not sufficient to meet projections after the Endowment Fund is fully funded, the Bank Owner shall continue to implement management based on prioritized management goals. Bank Owner shall consult with CDFG to identify the most effective means to implement the management measures and tasks with the resources available, either on an annual basis, or longer term by amending the Management Plan.

IV.F.3.c.viii. Use of Cattle Operation Endowment. A Cattle Operation Endowment (COE) has been established per Appendix H, Section I., with contributions to the COE provided as part of the endowment funding. The COE is intended to assure that there will be a continuous livestock operation at the Palo Prieto Conservation Bank. The amount of the COE was determined based on the 90-year average negative return per head per year, adjusted for the expected frequency of negative loss based on the last 90 years. As calculated, the average "unprofitable event" of a long-term livestock operation is estimated to be $8108.80, with the expected frequency of an "unprofitable event" calculated as 15%, which can be amortized to $1,216.32 per year. When fully funded, the COE of $55,287 is intended to provide for a contingency fund of $1,216.32 per year, which will accumulate in the endowment until allocated.

The COE is intended to be available to the Bank Owner, if the Bank is in compliance with all the terms and conditions of the Bank Agreement and Management Plan; or to CDFG, if the Bank/Bank Owner is out of compliance with terms/conditions of the Bank Agreement or Management Plan, and/or CDFG...
needs to remedy non-compliance, and/or Bank Owner is in default.

Changes to the grazing program which would reduce the herd size below that necessary to provide for a continuous grazing management program, in the view of either CDFG or the Bank Owner, must be approved by both CDFG and the Bank Owner. Should the Bank Owner want to reduce herd numbers, due to factors such as drought, disease, fire or other catastrophic event beyond Owner's control and CDFG concurs with such reduction; or should CDFG request a reduction in herd size in excess of that necessary to meet the required spring biomass or RDM standards (per remedial actions identified in Section IV.F.3.b.iii. above, as summarized in Section C.1.a. above, and detailed in Appendix H); the COE shall be available as follows:

(a). Bank Owner shall demonstrate that the need for a herd reduction was either due to CDFG's request, in excess of those necessary to meet spring biomass and/or RDM thresholds; or due to events beyond the Bank Owner's control; and

(b). Bank Owner shall demonstrate that the required herd reduction resulted in a net loss of income; and

(c). Bank Owner shall provide records sufficient to demonstrate to CDFG's satisfaction the need for COE funds. Such records may include profit-and-loss statements for the preceding year, receipts for sale of livestock, receipts for purchase of livestock, and/or any other records or documents to necessary to determine the amount of funds to be allocated to Bank Owner; and

(d). Funds available to the Bank Owner in any year shall not exceed the accrued income generated by the COE; as a non-wasting endowment, the principal of the COE shall not be expended.

Request by Bank Owner for COE funds shall not be unreasonable denied if (a), (b), (c) and (d) have been met and Bank is in compliance with all the terms and conditions of the Bank Agreement and Management Plan.

Should CDFG have to remedy non-compliance and/or if Bank Owner is in default, the COE will be available for use by CDFG and such use shall be at CDFG's sole discretion.

IV.F.4. Grazing operations

Grazing operations shall be utilized as a management tool to meet desired habitat conditions, and shall be conducted according to the conditions set forth in this management plan. The purpose of grazing is to maintain, enhance and restore, as appropriate, the grassland habitat in suitable condition for the San Joaquin kit fox and other special status species that occur on the Palo Prieto CB lands. Use of prescribed grazing is the primary tool which will be utilized to influence biomass and species composition of the arid grasslands of the property. Grazing practices and cattle operations shall remain consistent with the procedures prescribed in Appendix H, and as described in Section IV.C. for biological elements, and as recommended in the final annual reports for the Palo Prieto CB.

IV.F.5. Palo Prieto CB Management Element: Fire Management

Grass fires occur in the Bitterwater Valley, and have resulted in the loss of range, grain fields, and structures within the last ten years. Plowed ground helps to control the movement of fire through grassland and cropland areas, and is a normal firefighting and prevention strategy on farms in the area. Plowing for fire breaks has not been regularly performed on the Grant properties. If fire breaks are deemed necessary, surveys for rare species shall be conducted prior to discing on Palo Prieto Bank lands.
Potential impacts of plowing include the loss of animals by entombment as heavy equipment passes overhead, or injury or death from the plowing implement and tractor. Typically a disc plow that penetrates the ground surface to approximately 8 inches is used. Plowing for firebreaks occurs in the early summer after annual plants have died. Impacts to grasslands from plowing include the removal of living perennial plants, and the likely increase of weed species.

Plowing ground for fire control is usually conducted before an emergency arises, and creates fire breaks useful for stopping advancing flames. Palo Prieto CB lands have not utilized plowed firebreaks, and do not anticipate using them. If plowing does become necessary, pre-disturbance surveys for kit fox dens and other rare species must be conducted immediately prior to plowing. Grazing the Palo Prieto CB rangeland to reduce fuel load will help reduce the likelihood of out of control grass fires. As additional lands are included in the Palo Prieto CB, decisions regarding fire control methodology should be carefully examined to avoid any impact to rare species. Policy regarding the suppression of fires on the Palo Prieto CB land should be established in consultation with CDFG biologists and range experts.

General long-range goals

**IV.F.5.a. Goal**: Use grazing to manage fuels and reduce fire hazard potential.

**IV.F.5.a.i. Task**: Implement an adaptive management strategy to promote habitat conditions preferred by San Joaquin kit fox and other arid grassland species, and to reduce fuel load (RDM). Use of prescribed grazing is the primary tool which will be utilized to influence biomass and species composition of the arid grasslands of the property. Grazing conducted on Palo Prieto Bank lands will be as described in Cattle Operations (Appendix H), and adjusted annually based on recommendations of the Palo Prieto CB final annual report.

Threshold: Implementation.

**IV.F.5.b. Goal**: Establish fire suppression policy.

**IV.F.5.b.i. Task**: Coordinate with the CDFG, the USFWS, and rangeland experts to initiate discussions regarding fire suppression policy. Fire suppression policy discussions will consider the effect on rare species on Palo Prieto CB lands.

Threshold: Implementation

**IV.F.6. Palo Prieto CB Management Element**: Feral animal control

Hunting will be allowed on the Palo Prieto CB as deemed appropriate by the current regulations and the landowner. If removal of feral animals becomes necessary to protect rare species or sensitive natural communities, the Palo Prieto CB owner in cooperation with the CDFG may conduct a feral animal removal program.

General long-range goals

**IV.F.6.a. Goal**: Limit hunting to activities deemed compatible with the management goals of the CB, consistent with regulations and acceptable to landowners.

**IV.F.6.a.i. Task**: Post the parcel boundaries with appropriate no hunting or no trespassing signage.
**Threshold:** Implementation

**IV.F.6.b. Goal:** Maintain feral animal populations below levels damaging to rare species or sensitive natural communities.

**IV.F.6.b.i. Task:** Consult with CDFG biologists and coordinate feral animal removals.

**Threshold:** Implementation.