Project Information

2005 Proposal Number: 0073

Proposal Title: **SANDHILL CRANE USE OF AGRICULTURAL LANDS IN THE SACRAMENTO–SAN JOAQUIN DELTA REGION**

Applicant Organization Name: **US Geological Survey**

Total Amount Requested: $**493,033**

ERP Regions: Delta Region, San Joaquin Region

Short Description

This project proposes to evaluate past Program investments in relation to their objectives to meet the needs of MSCS species such as the greater sandhill crane in order to develop recommendations to assist private farmers in contributing towards their recovery.

Executive Summary

This project is an applied research study to evaluate how (1) CALFED's investments in land acquisitions, easements and habitat enhancements in the San JoaquinSacramento Delta region (hereafter called the Delta) can contribute to the conservation and recovery of threatened Greater Sandhill Cranes (Grus canadensis tabida); (2) understand how cranes use agricultural landscapes to meet their life history needs in winter; and (3) develop recommendations for crane friendly agricultural practices for private farmers. Detailed information on crane habitat requirements and movement patterns is needed to understand the critical links between land use practices and habitat needs for cranes and between properties purchased by CALFED and surrounding privately owned lands. In addition, we need to consider crane use at a larger spatial scale, asking questions about connectivity among sites and the relative importance of CALFED properties in meeting the needs of all cranes wintering in the Delta Region. Specific objectives proposed for this project include: (1) characterize crane foraging habitat use in the agricultural

landscape of the Delta region; (2) characterize the physical properties of crane roost sites and correlate crane population size at a roost with physical characteristics of a roost (e.g., size); (3) estimate Sandhill Crane abundance and characterize distribution in the study area during fall and winter; (4) document timing of arrival, abundance, and subspecies composition at key roost sites in the study area; and (5) characterize the daily movement of Lesser and Greater Sandhill Cranes between roosts and foraging fields and seasonal movements between use areas to define winter home range sizes and landscapes used by cranes. The proposed study area for field work will include the Delta, northern San Joaquin Valley and east side tributaries regions. CALFED has invested over 46 million dollars to acquire and enhance properties that influence the value of the Delta, northern San Joaquin Valley, and eastern tributaries regions for wintering Sandhill Cranes. Purchases of import include 10,130ac associated with the Cosumnes Preserve, 537ac Sun River Ranch that will become a unit of Stone Lakes NWR, and 9,100 ac Staten Island. In the San Joaquin Valley, 10 million dollars were invested in the expansion of San Joaquin River NWR to restore 777 acres of floodplain habitat. These habitat acquisitions may benefit most species of aquatic and terrestrial wildlife, but were intended to specifically contribute to the recovery of atrisk native species identified in the MultiSpecies Conservation Strategy (MSCS), the number one goal of CALFED's Ecosystem Restoration Project (ERP; CALFED 2000). The Greater Sandhill Crane is listed as Threatened under the California Endangered Species Act and is classified as an atrisk native species by CALFED's MSCS. CALFED has invested in several years of monitoring work (Ivey and Herziger 2003, Ducks Unlimited unpublished data) on Staten Island. These monitoring efforts have been valuable, but they are sight or project specific. Our project dovetails with these earlier efforts by extending basic monitoring in some areas, and expanding beyond project monitoring to address questions about species ecology and land use practices that are needed to develop a comprehensive plan to design a conservation strategy for cranes in the Delta. We will submit quarterly and annual reports for each part of the proposed work that will include financial status, activities during the

period, tasks completed, products produced, problems encountered, and any modifications to the proposed work. A final technical report describing the results of the studies with specific conservation and management recommendations will be submitted by the end of the project.

Sandhill Crane use of Agricultural Lands in the Sacramento-San Joaquin Delta Region

A. Project Description.

1. Problem

This proposal describes the need and methods for an applied research study to evaluate how (1) CALFED's investments in land acquisitions, easements and habitat enhancements in the San Joaquin/Sacramento Delta region (hereafter called the Delta) can contribute to the conservation and recovery of threatened Greater Sandhill Cranes (*Grus canadensis tabida*); (2) understand how cranes use agricultural landscapes to meet their life history needs in winter; and (3) develop recommendations to assist private farmers and wildlife managers in contributing towards their recovery. CALFED has invested over 46 million dollars to acquire and enhance properties that influence the value of the Delta, northern San Joaquin Valley, and eastern tributaries regions for wintering Sandhill Cranes (Figure1). Three purchases of import include 10,130 ac associated with the Cosumnes Preserve, 537acre Sun River Ranch that will become a unit of Stone Lakes NWR, and 9,100 ac Staten Island. In the San Joaquin Valley, 10 million dollars were invested in the expansion of San Joaquin River NWR to restore 777 acres of floodplain habitat. After the initial purchase of Staten Island, CALFED subsequently provided an additional grant to construct interior levees and build a pumping station to improve water management capabilities over parts of the island. An important goal associated with these acquisitions is to improve habitat quality for wetland wildlife. In some cases, habitats were restored to native habitats like seasonal wetlands; in the case of Staten Island, the objective was to foster development and implementation of wildlife friendly farming practices.

These habitat acquisitions may benefit most species of aquatic and terrestrial wildlife, but were intended to specifically contribute to the recovery of at-risk native species identified in the Multi-Species Conservation Strategy (MSCS), the number one goal of CALFED's Ecosystem Restoration Project (ERP; CALFED 2000). The Greater Sandhill Crane is listed as Threatened under the California Endangered Species Act and is classified as an at-risk native species by CALFED's MSCS. CALFED's species goal for Greater Sandhill Cranes is: "Consistent with CALFED's mission, achieve recovery objectives identified in the Pacific Flyway Management Plan for the Central Valley population of Greater Sandhill Cranes [Pacific Flyway Council 1997] and in Assembly Bill 1280 legislation that apply to the CALFED Problem Area, the Butte Sink, and other areas used by these species." (CALFED 2000). A second subspecies, the Lesser Sandhill Crane (*G. c. canadensis*) also winters in significant numbers in the Delta Region and is classified as a "Bird Species of Conservation Concern" by the state (PRBO Conservation Science 2003). The acquisitions at Cosumnes, Staten Island, Stone Lakes NWR and San Joaquin River NWR all include lands known to contain crane winter roost and foraging sites.

Although cranes are known to use these sites, it is not clear how they are using them, nor do we understand the relative importance of these properties to maintaining crane populations in the Delta Region. Detailed information on crane habitat requirements and movement patterns is needed to understand the critical links between properties purchased by CALFED and surrounding privately owned lands. For example, many major roost sites are protected on public

lands, but most foraging occurs on private land (Littlefield 2002, Ivey and Herziger 2003) and these lands are subject to loss from urbanization and conversion to incompatible crops. Long-term conservation planning will require a program that fundamentally links and understands the relative importance of public and private lands to meeting the daily and seasonal needs of cranes. Some specific questions that need to be answered include what are crane-compatible (wildlife friendly) crops and management practices on agricultural fields? Which crops do cranes prefer? How far will cranes travel from roosts to foraging fields? How much food is available in key crane foraging habitats? What percent of the needs of the birds roosting on CALFED purchased lands can be met on sites already purchased and managed for cranes? Finally, do the two subspecies of Sandhill Crane that winter in the Delta have significantly different habitat needs or behaviors that need to be considered when developing a conservation plan? Lesser Sandhills are smaller-bodied, long distant migrants whereas Greaters are large bodied short distant migrants (Tacha et al. 1994, Petrula and Rothe *in press*, Pacific Flyway Council 1983, 1997). This could translate to significant differences in winter site fidelity, daily movement patterns during winter, habitat use and winter home range size. Data collected during the winter of 2002-2003 suggest habitat use and movement patterns may differ considerably between Greater and Lesser Sandhill Cranes (Ivey and Herziger 2003) indicating further study is needed.

In addition to research focused on understanding habitat needs and crane friendly agricultural practices around a single roost site, we need to consider crane land use at a larger spatial scale by asking questions about connectivity among sites and the role of CALFED properties in meeting the needs of all cranes wintering in the Delta Region. Relevant questions include, what percentage of cranes that winter in the Delta Region relies on habitats acquired by CALFED? How many sites do cranes typically use each winter? How far will a bird move during the course of a single season? If individual cranes rely on relatively few sites each winter and show strong fidelity to individual roosts, it might be reasonable to manage each site in isolation from the others. Conversely, if individual cranes commonly move among sites, failure to consider this in conservation planning may result in failure to meet the seasonal needs of cranes regardless of site-specific management.

Despite the importance of the Delta Region to wintering Sandhill Cranes, their listing as at-risk, and the large number of dollars spent to acquire habitats relevant to cranes, we still lack basic information on species habitat needs and movement patterns that will allow conservation planners to develop a meaningful conservation plan and make recommendations to farmers about how their agricultural operations may contribute to crane conservation. This proposal requests funding to continue monitoring at key sites and expand our understanding by conducting research that focuses on developing a more complete understanding of crane use on private and publicly owned lands in the Delta.

2. Goals and Objectives

The goal of this project is to study crane habitat use at a local and regional scale and use that knowledge to develop a biologically sound conservation strategy that contributes to Greater Sandhill Crane recovery and allows them to persist in the rapidly changing Delta region (Figure 2). Locally, we will collect information on habitat use by feeding and roosting cranes that will provide the basis for developing recommendations to farmers about the suitability of specific

crops or agricultural practices for Greater Sandhill Cranes. Data on movements at the landscape level will help develop a regional understanding of how cranes use the Delta and the relative importance of public vs. privately owned lands in meeting the winter habitat requirements of cranes. Our results will and help predict how future landscape changes (e.g., expansion of development, changing agricultural practices, proposals to develop water storage reservoirs as part of the Delta Wetlands Project (California Bay-Delta Authority 2003), the North Delta Flood Control and Ecosystem Restoration Project (California Department of Water Resources 2003) could impact the ability of the Delta to support viable populations of wintering Sandhill Cranes Based on the specific information needs and questions raised above, we propose the following objectives:

1. Characterize crane foraging habitat use in the agricultural landscape of the Delta region.

2. Characterize the physical properties of crane roost sites and correlate crane population size at a roost with physical characteristics of a roost (e.g., size).

3. Estimate Sandhill Crane abundance and characterize distribution in the study area during fall and winter.

4. Document timing of arrival, abundance, and subspecies composition at key roost sites in the study area.

5. Characterize the daily movement of Lesser and Greater Sandhill Cranes between roosts and foraging fields and seasonal movements between use areas to define winter home range sizes and landscapes used by cranes.

Objectives 1 and 2 will help define field-level best management practices for cranes on agricultural lands and lead to development of guidelines for farmers interested in contributing to the recovery of Greater Sandhill Cranes by identifying a suite of crane-friendly agricultural practices.

Objective 3 will help determine crane needs for roost sites, another important factor which could be provided by farmers and wildlife managers. This objective will also help evaluate the current distribution of roosts and identify areas within the "crane landscape" where provision of additional roost sites might be warranted to allow cranes access to additional foraging areas. This objective will also identify the time period that roost water should be provided. Along with Objective 4, it will provide the basis for comparison of crane numbers at various sites which will help evaluate the value of CALFED purchased areas to cranes.

Objective 5 will help determine ecological differences between the two subspecies of crane that commonly winter in the Delta. Identifying differences or similarities in diet and movement patterns will help us understand the extent these subspecies compete for food and roost sites and how Lesser Sandhill Cranes should be treated (e.g., as competitors?) when developing conservation plans for Greater Sandhill Cranes.

All objectives contribute to understanding how private farmers can assist in the recovery of Greater Sandhill cranes, and how state and federal agricultural programs could be used to benefit cranes (e.g. Wetland Reserve Program) and contribute to the development of a final recovery plan for Greater Sandhill Cranes.

3. Conceptual model

Our research objectives flow from the conceptual model we developed to explain how cranes use a landscape during winter. Cranes require 2 key habitat components on wintering areas, suitable night roosting habitat and suitable foraging habitat (Tacha et al. 1994). Spatially, daily habitat use can be viewed as one or more round trip flights from a centrally located roost site to one or more foraging fields. To define the population of fields that a crane will potentially use during a single day, you can draw a circle around the roost site with a radius equal to the maximum distance a crane will travel on a daily foraging flight (this value is unknown for Sandhill Cranes in the Central Valley and may differ between the 2 subspecies; this is one focus of Objective 5). Within this population of fields, an individual crane selects a specific field to use based on a number of variables ranging from cover type, abundance of food, disturbance, predation risk, and social factors (Figure 3). This combination of suitable roost site surrounded by adequate foraging habitat is the basic "ecosystem unit" for understanding conservation and management of wintering cranes (Figure 4).

A primary assumption in our conceptual models is that providing sandhill cranes with better foraging habitat conditions will lead to their increased storage of endogenous fat reserves on the wintering grounds which will lead to increased fitness for survival and reproduction, and ultimately contribute to their recovery (see Krapu et al. 1985).

The geometrically clean conceptual model of crane habitat use described above is inconsistent with the irregular boundaries of property ownership in the Delta. Thus, habitat acquisition targeting a key habitat component (e.g., a known crane roost), likely will not include the entire foraging area potentially used by the roost population. Habitat changes that occur on privately owned fields within the daily flight radius may change crane abundance at a roost, regardless of management actions at the roost site itself. The loss of agricultural habitats around known crane roost sites to urbanization and conversions of row-crops to incompatible orchards and vineyards indicates this scenario is possible (Littlefield and Ivey 1999). Alternately, use of potential foraging habitat on publicly owned land may be limited by the distribution of suitable roost sites. The latter may be the case at Staten Island, where crane use of the north and south ends of the island is relatively low (Ivey pers. obs.).

More fundamentally, it is not clear what currently limits the carrying capacity of cranes wintering in the Delta (or if current habitats are limiting). At a single, well established roost, we hypothesize that capacity is determined by the amount and types of suitable agricultural crops available to cranes. However, we still lack complete information on the types of agricultural habitats that cranes will use (focus of objective 1). Previous (Ivey and Herziger 2003) and ongoing surveys (Ducks Unlimited, unpublished data) have documented habitat use on Staten Island; however, farming activities on Staten Island include only a small subset of potential crop types that cranes encounter in the Delta region. An alternate hypothesis is that suitable roost

sites are lacking (focus of objectives 2, 4, and 5). At a larger spatial scale (the entire Delta Region), the distribution of wintering Sandhill Cranes may be determined by the distribution of suitable roost site-foraging habitat "ecosystem units" (a pattern we will identify in objective 3). The location of these ecosystem units in conjunction with an understanding of crane movement patterns (the focus of objective 5) provides the basis for understanding connectivity among units. We hypothesize roosts separated by a distance of less than a crane's daily foraging radius will be used as part of a "habitat complex". If true, we predict that individual birds will move freely among roosts within a complex. Because cranes typically show high fidelity to roosts, we further hypothesize that cranes will remain within a habitat complex as long as both roosting and foraging habitat are available. Additionally, we hypothesize that Lesser Sandhill Cranes will move among ecosystem units more frequently and will move longer distances than Greaters. Using data collected for objective 3 and 5, we can map all potential roost sites and bound each by two circles with radii equal to the daily flight distance for both subspecies. Portions of the Delta not included one of these circles will be considered "unavailable" to cranes. This approach provides a basis for determining what percentage of all lands in the Delta are available to cranes and will help determine the relative importance of CALFED purchased lands to the conservation of wintering cranes and indicate privately owned areas that can potentially be used by cranes.

We suggest the conceptual model described above is a useful frame work for identifying factors that potentially limit crane abundance in the Delta, for assessing the value of CALFED purchased lands to wintering cranes, and for guiding conservation planning for cranes. Our research project is focused on gathering key data needed to parameterize these conceptual models. Additionally, identifying key foraging habitats will help define best management practices for cranes on public and private lands and provide guidance for how agricultural practices could be used to benefit cranes and contribute to their recovery.

4. Approach and Scope of Work

Task 1:

Project Management will be overseen by USGS personnel from the Western Ecological Research Center.

Task 2:

Field studies will be conducted by USGS and Oregon State University personnel and centered around Stone Lakes NWR region, the Cosumnes Floodplain and at San Joaquin River NWR, where both species are prominent (Figure 4). Results of our study will be applicable to other crane wintering regions.

Objectives 1 and 2: Cranes will be counted weekly in each crop type and management condition (agricultural practice) and densities of cranes per crop and practice will be calculated. These densities will be used to determine crop and management practice importance and preference (see Ivey and Herziger 2003). Agricultural practices to be evaluated in terms of their relative value to cranes include: crop types, crop residue management (e.g., leaving portions of crops unharvested, chopping crop residues, winter crop flooding, delaying fall tillage, and burning),

provision of seasonal wetlands, wetland/cropland rotations, post-harvest crop flooding, irrigation management, pasture irrigation and management, providing food plots, fallow field management, weed management, levee vegetation, harvest timing in relation to fall flooding, an flood-up timing in relation to crane roosting needs. Also, we will conduct an evaluation of human disturbance effects on crane use, from farming activities as well as recreational activities.

Objectives 3 and 4: We will conduct bi-weekly surveys at known traditional roost sites in the study area, including roosts on Staten Island, Cosumnes Preserve, Isenberg Crane Reserve, San Joaquin River NWR, and Stone Lakes NWR to document timing of arrival in fall and departure in spring, chronology of use, and peak population size. These are the first roosts typically available to cranes in fall (Ivey pers. obs.) thus are useful for documenting chronology of crane movement into the Delta. Counts will be conducted from the ground following techniques described in Ivey and Herziger (2003). Lesser and Greater Sandhill Cranes differ enough morphologically, that subspecies can be identified visually using a spotting scope (Ivey and Herziger 2003). In addition to ground surveys of major roosts, we will survey the entire study area once every 2 weeks from a plane to estimate the total crane population size, locate all key roost sites in the study area and identify other sites that seem suitable as crane roosts, but are not being used. Dense ground fog in the Delta during winter can confound aerial survey efforts (Ivey and Dugger pers. obs.); fortunately the information we desire is not dependent on adhering to a strict flight schedule. From the population of known and potential roosts, we will randomly select a sample to visit and record size (ha), maximum water depth (cm), and habitat type (e.g., flooded corn, flooded rice, seasonal wetland).

We will also record qualitative information that might influence site use (e.g., surrounding habitat use, location relative to hunting club). We will use logistic regression to identify characteristics related to use of roost sites by cranes and a mixed linear model to identify variables that influence population size at roosts that are used by cranes. Additionally, we will plot all known and potential roost sites on a digitized map of the study area and measure the linear distance between a roost and other roosts in the region. This data in conjunction with movement data collected for objective 5 will provide a measure of connectivity between adjacent roost sites.

Objective 5: We will use radio telemetry to study habitat use and movements of Greater and Lesser Sandhill Cranes. Radio-telemetry has been used successfully to study Sandhill Cranes elsewhere in their range (Bishop 1992, Duan et al. 1997, Bennet 1989).

Beginning in September, we will trap 30 Greater Sandhill Cranes and 40 Lesser Sandhill Cranes using rocket nets and noose traps (Hereford et al. 2000). We have planned to radio more Lessers because previous data (Ivey and Herziger 2003) indicate this subspecies may be more likely make large movements that would take some birds outside our study area. Trapping will focus on birds using two CALFED purchased properties (Staten Island and Cosumnes River Preserve), but other sites will be included if needed to achieve desired sample sizes. Each crane captured will be measured (subspecies can be identified by morphology) and banded with a unique color combination of bands. On one band we will attach a 30 g VHF transmitter. Although transmitters are commonly attached to neck bands (Babineau et al. 2004), as backpacks (Dwyer 1972) or surgically implanted (Korschgen et al. 1996) for other species of birds, leg band attachment is

the most common method for cranes (e.g. Krapu and Brandt 2001). We will use truck mounted antennae to locate individual birds during both diurnal and nocturnal time periods at least five times each week. Each time a bird is located, we will record its location on a map of the study area as well as habitat type and flock size (during the day).

Once every 2 weeks we will fly to locate birds that have moved away from the primary study areas. We will attempt to locate each bird twice daily both on its roost and in foraging habitat. We will record habitat type, flock size, and subspecies composition of foraging flocks containing radioed birds. We will use a combination of minimum convex polygon and kernel estimation procedures GIS to estimate home range size for each subspecies (Worton 1989, 1995; Tufto et al. 1996).

Task 3:

Public access website will be developed and maintained to keep partners and the general public up to date with project accomplishments. This website will contain maps of current crane locations. The website will also provide information as to the effectiveness of the restoration actions undertaken by CALFED in providing critical habitat for Sandhill Cranes. The website will be hosted through the Western Ecological Research Center. We will also present our work in newsletter articles, presentations to local, state, and national organizations, workshops, presentations at scientific meetings, scientific publications, habitat models, a GIS data base, and press releases.

Task 4:

We will submit quarterly and annual reports for each part of the proposed work that will include financial status, activities during the period, tasks completed, products produced, problems encountered, and any modifications to the proposed work. A final technical report describing the results of the studies with specific conservation and management recommendations will be submitted by the end of the project. Our final report will include a habitat model for Sandhill Cranes in the Delta region. Data collected during the field studies portion (Task 2) of this project will be incorporated into a predictive model of habitat use by cranes in the Delta region. The model will provide input into Wildlife Friendly Agriculture programs for private lands that may benefit cranes as well as help guide management of fee title lands purchased through CALFED.

5. Performance Evaluation —

Performance measures primarily reflect the final products produced by our research (Table 1).

Table 1. Project performance measures for study of Sandhill Crane use of Agricultural Lands in the Sacramento-San Joaquin Delta Region.

Project Activities	**Metrics**
Satisfactory progress on field research	capture, marking a sample of cranes summarized in annual reports.
Project Outputs	**Metrics**
Map of major roost sites in study area	1 roost site map
Roost site characteristics	Size, water depth, habitat defined
Habitat model	Collection of bird movement and habitat data
Final report	1 Final report submitted to CALFED
Crane-friendly agriculture report	1 Farmer-oriented glossy publication
Public information and education	1 Web site to deliver public information
Scientific Articles	2 peer-reviewed scientific articles

6. Feasibility

The principal investigators each have extensive field experience directly applicable to performing their sections of work described in this proposal. We have a current MOU with California Department of Fish and Game which allows trapping and handling of cranes. We will need to apply for a state scientific collecting permit. We have a federal banding permit including the auxiliary marking permit that allows us to do the proposed work on cranes. We will obtain the owners' permission to access any lands we identify as desirable for this study but our ability to successfully complete the objectives of this study is not dependent on access to private lands.

7. Data Handling, Storage, and Dissemination

All data collected during this project will be entered into electronic databases and will be stored on PCs and archived at Oregon State University. Data analysis will be done using ARC/GIS and with SAS and Program Mark and other related software. We will create a web site for this project and make the finalized data available through this site. We will also ship data other files to appropriate agencies as requested via email and conventional mail.

8. Information Value

Our project will provide detailed information about the relative value of crop types and various agricultural practices to wintering Sandhill Cranes that will assist farmers and wildlife managers in contributing to their recovery. It will identify important ecosystem units for focus of crane conservation activities as well as identifying gaps in the potential crane landscape within the study area. Our findings will be applicable to other crane use areas in the Central Valley as well as other crane wintering sites in North America. Our conceptual model of crane ecosystem units could be applied to species which have similar wintering ecology such as geese, in particular, and generally to some other waterfowl species. We will share our new information with appropriate state and federal wildlife and agricultural agencies through presentations, peer-reviewed publications, a crane habitat model and a conservation strategy.

9. Public Involvement and Outreach

Our research will be shared with farmer organizations in the Central Valley such as local Farm Bureaus as well as state and federal agricultural agencies. We will develop a presentation of our results, targeted for farmers which can be presented at meetings such as the Delta Protection Commission and Farm Bureau meetings. We will provide tours for local farmers to discuss and demonstrate crane-friendly management practices. We will also provide information to interpretive centers at associated Nature Preserves and zoos (e.g. Cosumnes Preserve, Micke Grove Zoo), National Wildlife Refuges, and Wildlife Areas in the Valley for presentations on crane ecology to the visiting public. We would collaborate with the Lodi Crane Festival, where we would give talks at the festival to explain the ecology and needs of wintering Sandhill Cranes and specific role of our research will play in making progress on biological planning for the species. We will also give similar presentations at other regional bird festivals (e.g., the Othello, WA crane festival, Modoc NWR's Migratory Bird Festival, etc.). On a professional level, we would present the results of our research at various professional meetings such as The Wildlife Society's, National and Section meetings, the Waterbird Society's Annual meeting, and the North American Crane Working Group workshops. The final results of the studies would be presented for publication in a peer-reviewed wildlife journal.

B. Applicability to CALFED Bay-Delta Program and ERP Goals, and priorities for this solicitation.

1. ERP Priorities —

This project will benefit Greater Sandhill Cranes, an MSCS species. It will help meet CALFED's goal to assist farmers and wildlife managers in contributing to their recovery and will address two CALFED priority areas (Cosumnes River and North Delta). The recovery of at-risk native species is the number one goal of CALFED's Ecosystem Restoration Project (California Bay-Delta Authority 2003). CALFED's species goal for Greater Sandhill Cranes is: "Consistent with CALFED's mission, achieve recovery objectives identified in the Pacific Flyway Management Plan for the Central Valley population of Greater Sandhill Cranes and in Assembly Bill 1280 legislation that applies to the CALFED Problem Area, the Butte Sink, and other areas used by these species" (CALFED 2000).

2. Relationship to Other Ecosystem Restoration Actions or Program investments—

As noted above, previous CALFED grants have acquired and protected new habitats that are thought to be important for Sandhill Cranes. This research would continue with and expand upon efforts to assess the impact of these habitat acquisitions on Sandhill Cranes. There are a number CALFED programs which have the potential to impact wintering cranes. A total of 10,595 acres of Sandhill Crane habitat would be lost from implementing the In-Delta Storage Project (California Bay-Delta Authority 2003). Additionally, our research would provide the information needed to conduct ecological risk assessments for the consequences of levee failures on cranes (e.g., the Jones tract breach in 2004). Also, the planned reduction of rice agriculture due to CALFED's Environmental Water Account Program (CALFED 2003) will likely impact crane habitat. Although land use differs between the Delta and the Sacramento Valley (where EWA is being implemented), our study will characterize movements and habitat parameters that would help interpret EWA's impact on cranes and possibly guide recommendations to identify crane-compatible substitution crops and crane-friendly management practices.

Information derived from this study would help guide decisions about fallowing of rice fields in the Sacramento Valley to allow purchase of water for EWA with minimal impacts to cranes and to identify viable mitigation options for cranes for habitat lost due to CALFED projects. Also, it would be useful for future Sandhill Crane conservation planning such as the recovery plan for the Greater Sandhill Crane as well as management and conservation plans for State Wildlife Areas, National Wildlife Refuges and natural areas such as the Cosumnes River Preserve. This study would also help guide wetland and cropland management, restoration, acquisition and easements programs for the U. S. Fish and Wildlife Service, Bureau of Land Management, California Department of Fish and Game, California Department of Water Resources, the Central Valley Habitat Joint Venture, Ducks Unlimited, California Waterfowl Association, The Nature Conservancy, and the Audubon Society. Finally, this study could also identify wildlife-friendly farming practices for cranes using private lands and assist the Natural Resource Conservation Service with design of wildlife enhancement projects on private lands.

Our project will coordinate with and complement Ducks Unlimited's monitoring program on Staten Island (Ducks Unlimited 2003). Their project is focused specifically on assessing the outcome of an infrastructure improvement project on Staten Island that seeks to flood more agricultural lands for waterbirds and this is the last year of monitoring. One year of monitoring is inadequate for evaluating a project's success or failure. Because our project will include Staten Island, we can continue to provide data relevant for evaluation (i.e., extend the evaluation for several additional years). In addition, because we are focused more broadly (both geographically and conceptually) on crane conservation in the Delta region, our study will add to our current understanding of crane ecology beyond all studies previously conducted.

3. Additional Information for Proposals Containing Land Acquisition.

This section is not applicable to the proposed work.

C. Qualifications and Organization.

USGS and Oregon State personnel involved in our project are well-qualified to conduct this research, as detailed in the Personnel form. The USGS will provide project management,

infrastructure, equipment, supplies, vehicles, and field expertise in conjunction with a Ph.D. candidate and major Professor from Oregon State University who will provide species expertise, data collection, evaluation and synthesis. Gary Ivey, the Ph.D. candidate has conducted several studies on Sandhill Cranes in the Pacific Flyway, including a pilot Sandhill Crane monitoring project on Staten Island.

We will work closely with TNC and their efforts towards promoting wildlife-friendly farming in the Cosumnes River Floodplain and North Delta and help with their mitigation project designs which include cranes for expansion of urban boundaries of the cities of Elk Grove and Galt. We will also work closely with U.S. Fish and Wildlife and CA Fish and Game, and other agency wildlife managers to assist them in design of management strategies for cranes. We will also actively seek private farmer partners to participate in our study and implement better crane management practices.

D. Cost

1. Budget

All four tasks are interdependent and are necessary to provide a useful and pertinent evaluation of CALFED acquisitions for Sandhill Cranes.

2. Cost share and matching funds

We will seek funding and in-kind support from National Wildlife Refuges, Bureau of Land Management, Department of Water Resources, and California Fish and Game. USGS-Western Ecological Research Center is contributing about $95,000 worth of capture, marking, and radio-tracking equipment including rocket nets, rockets, wire, detonators, scopes, binoculars, ATVs, boats, bird holding cages, electronic calipers, scales, banding equipment, electronic scanning receivers, headsets, compasses, truck and aircraft telemetry antennae, antennae mounting systems, computer programs, laptop computers and miscellaneous cables and other equipment.

3. Long-term Funding Strategy

Our investigation of Sandhill Cranes use of agricultural areas in the Delta will establish a baseline for monitoring and effective management strategies. We do not anticipate a follow up study unless our results suggest new questions that need to be answered.

E. Compliance with Standard Terms and Conditions.

We agree with standard terms and conditions.

F. Literature Cited.

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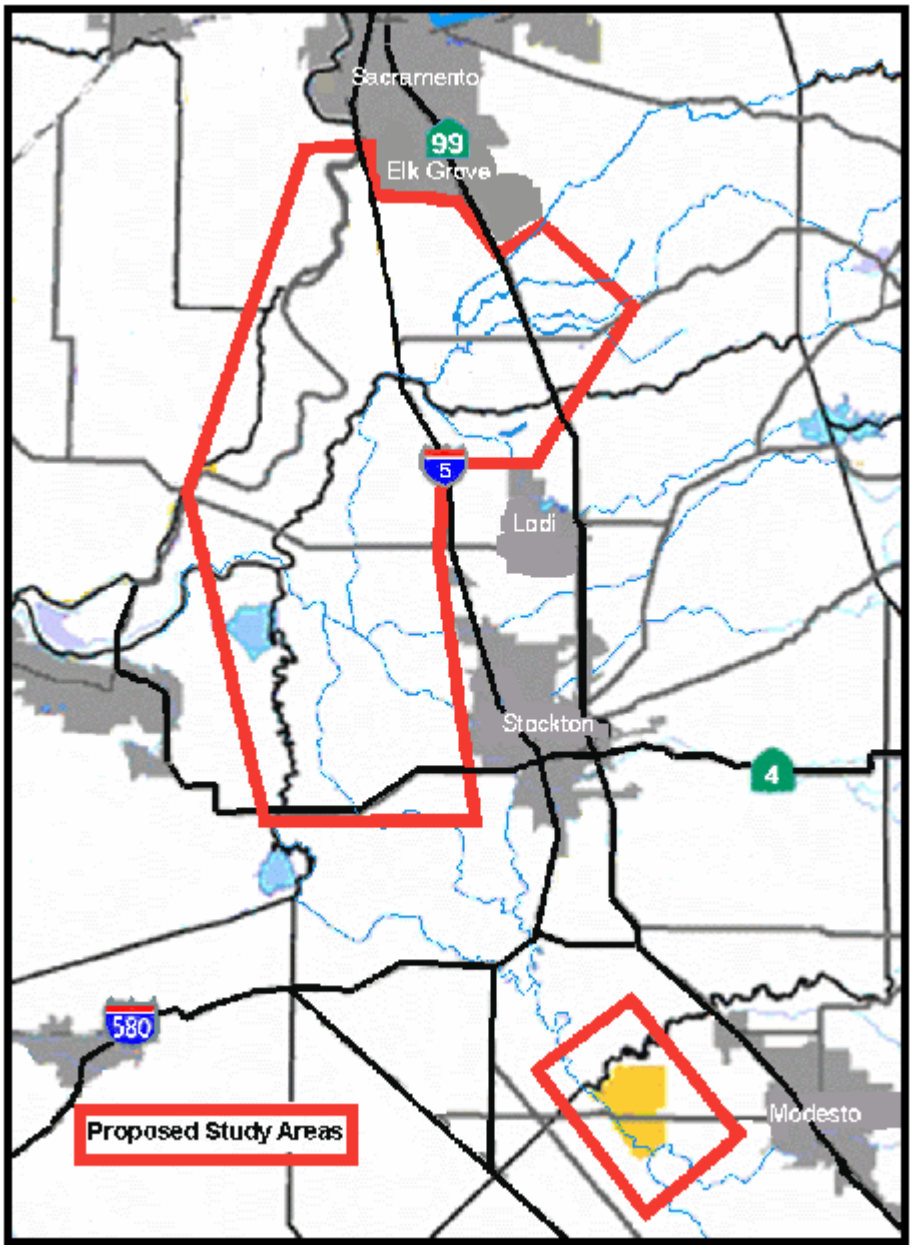

Figure 1. Proposed study area boundaries for Sandhill Crane research in the Delta Region, California.

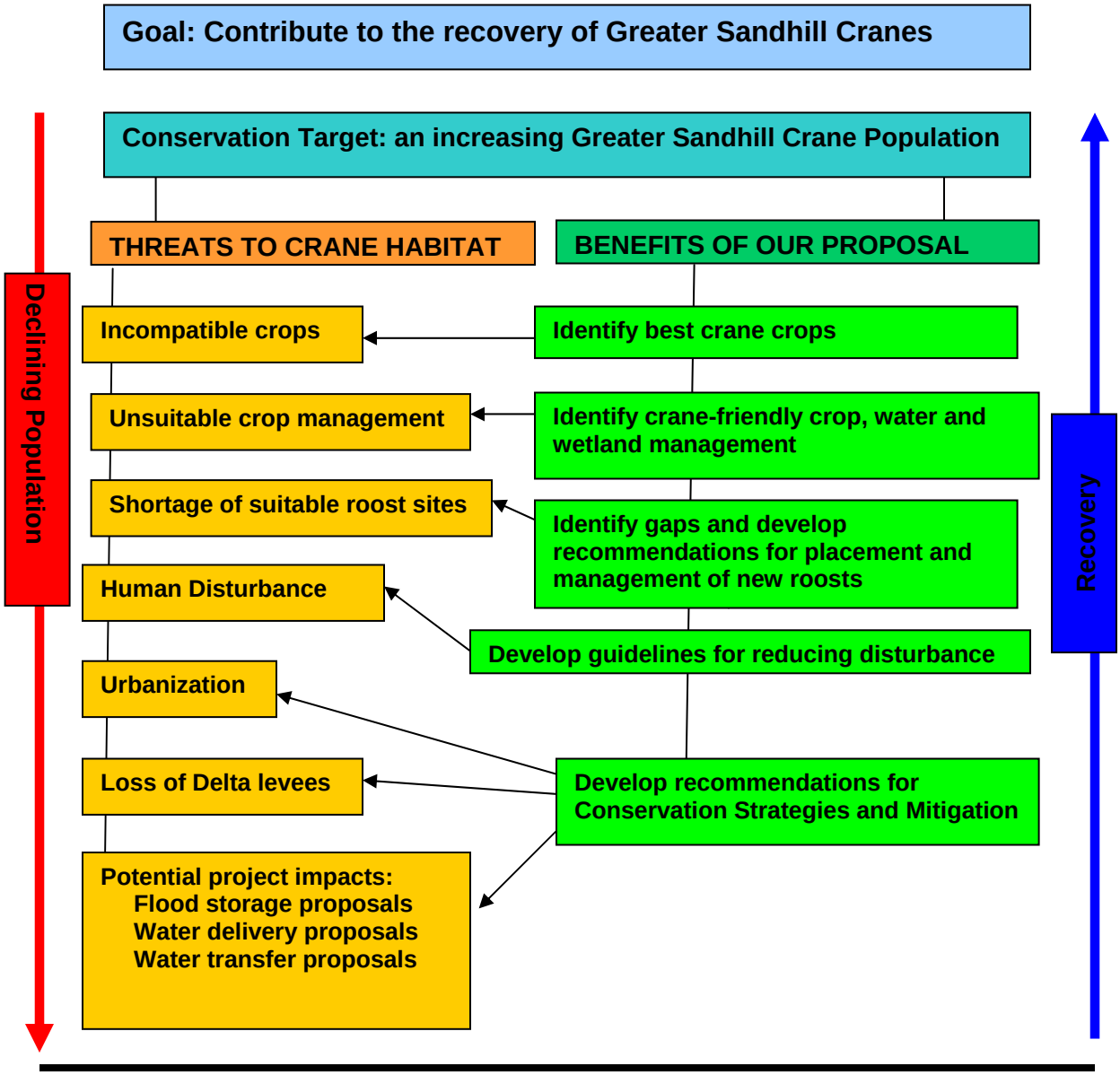

Figure 2. Diagram of threats to Sandhill Cranes and potential benefits of our proposed study to meet the goal of contributing to the recovery of Greater Sandhill Cranes in California's Central Valley agricultural landscape.

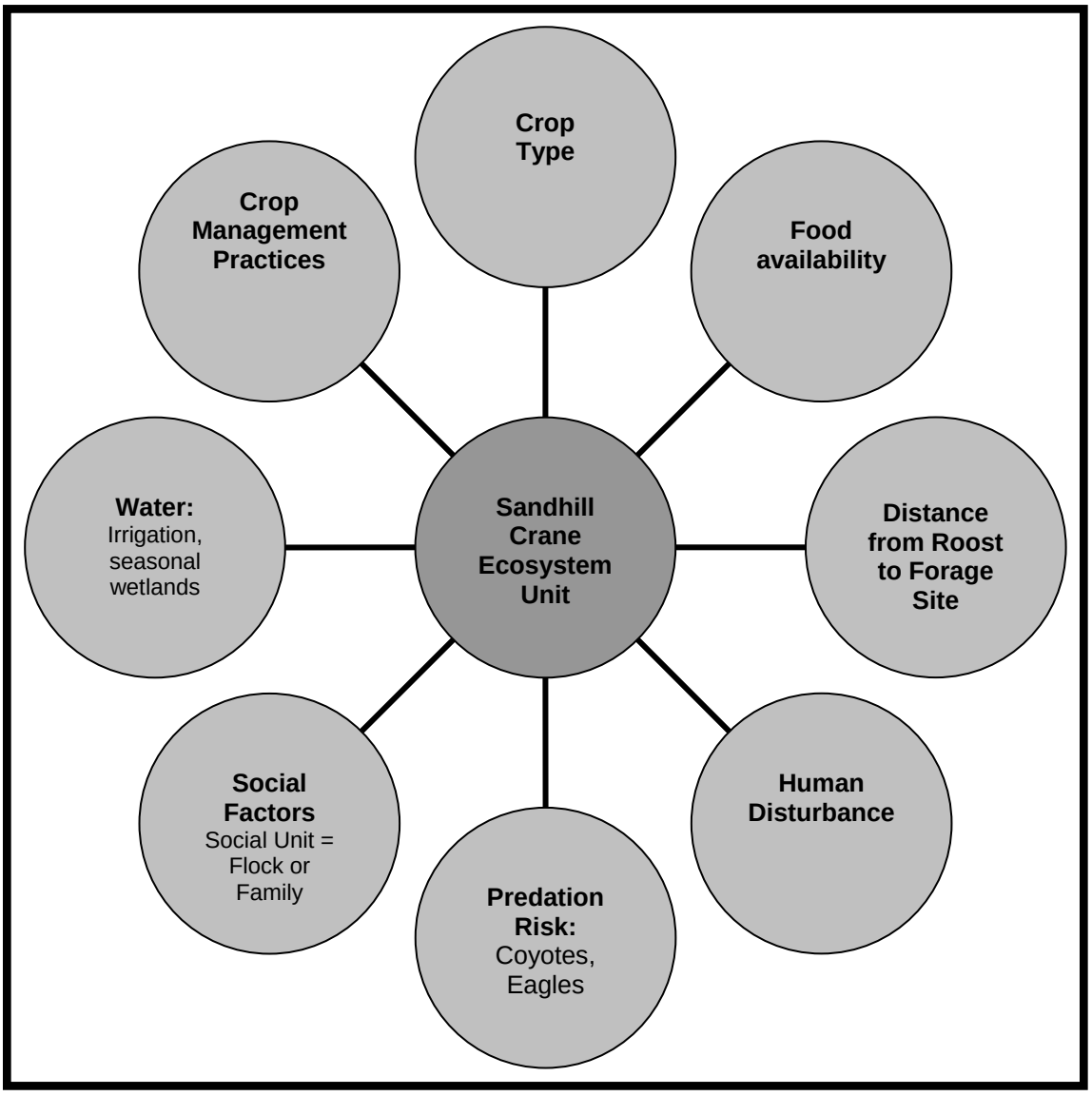

Figure 3. Diagram showing factors that influence the value of foraging sites within Ecosystem Units for conservation of Greater and Lesser Sandhill Cranes in an agricultural landscape.

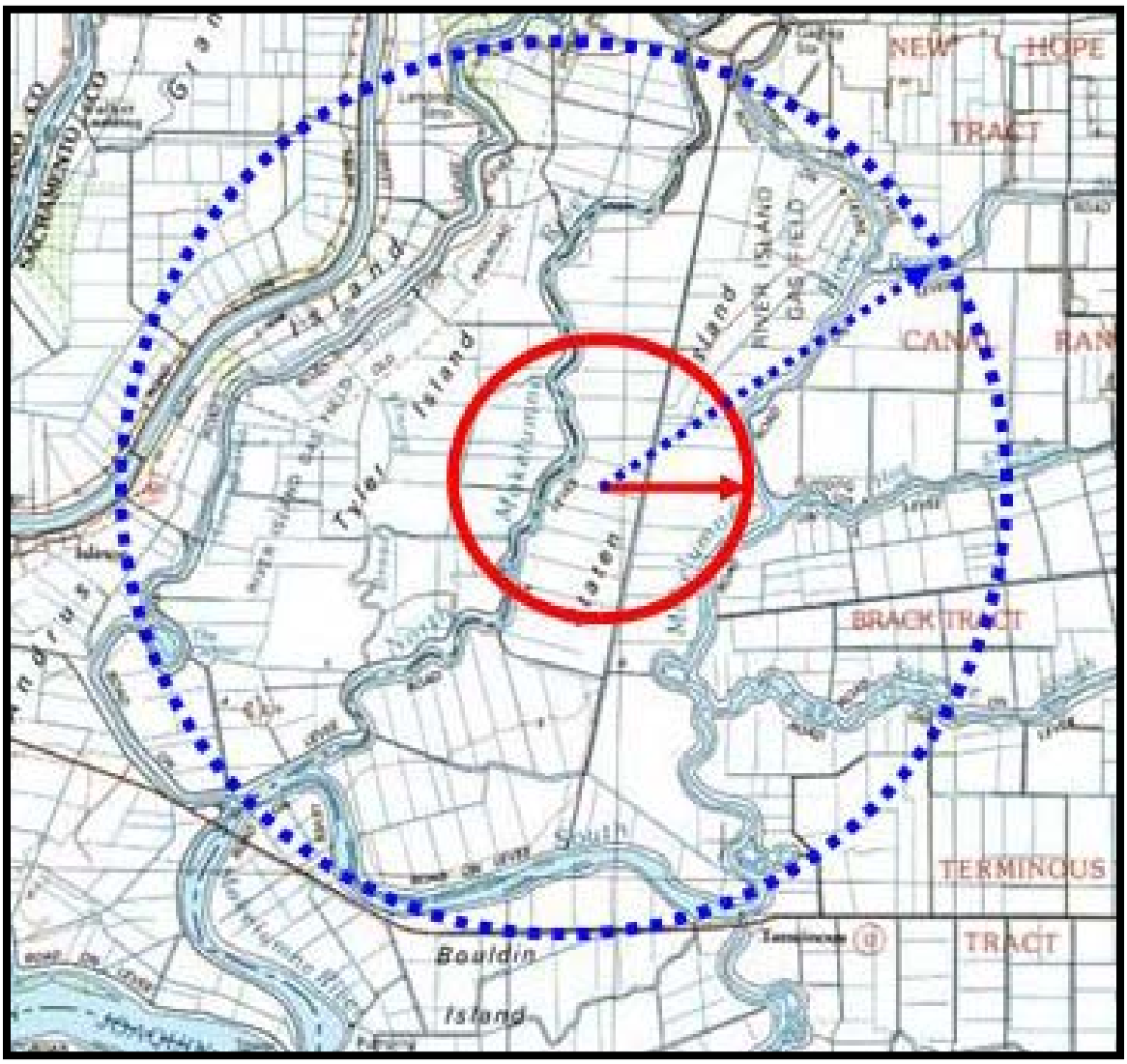

Figure 4. Conceptual illustration of an 'ecosystem unit' for Greater and Lesser Sandhill Cranes wintering in the San Joaquin-Sacramento Delta region. Birds spend the night at a roost site (center of circles). Potential foraging fields occur within the boundaries of each circle. The circumference of the circle is determined by how far birds will fly from a roost site to feed.

Tasks And Deliverables

Task ID	Task Name	Start Month	End Month	Personnel Involved	Deliverables
1	Project Management	1	36	Casazza, Michael Fleskes, Joseph Overton, Cory Dugger, Bruce	Semiannual and final reports. Periodic invoices.
2	Field Work	1	24	Casazza, Michael Fleskes, Joseph Overton, Cory Dugger, Bruce Ivey, Gary	Database, Progress Reports, GIS database and metadata available for uploading into BIOS database.
3	Website	6	36	Overton, Cory	Website with description of project activities.
4	Habitat Model	25	36	Overton, Cory	Habitat Use and Distribution Model during Fall and Winter in the Delta.

Total Project Budget Summary by Task and by Fiscal Year

Note: This budget summary **automatically links** to the costs and totals on the **"Budget Detail"** worksheet.
DO NOT CHANGE FORMULAS OR ENTER NUMBERS INTO ANY CELLS EXCEPT THE SHADED CELLS for "Cost Share" and "Other Matching Funds"

BUDGET SUMMARY	Total Amount for Year 1	Total Amount for Year 2	Total Amount for Year 3	Total Amount for All Years
Total Costs for Task One	$ 22,683.78	$ 23,678.30	$ 24,301.38	$ 70,663.46
Total Costs for Task Two	$ 159,732.83	$ 168,012.39	$ 67,973.65	$ 395,718.87
Total Costs for Task Three	$ 5,420.01	$ 5,634.64	$ 5,859.84	$ 16,914.49
Total Costs for Task Four	$ -	$ -	$ 9,735.88	$ 9,735.88
Total Costs for Task Five	$ -	$ -	$ -	$ -
Total Costs for Task Six	$ -	$ -	$ -	$ -
Total Costs for Task Seven	$ -	$ -	$ -	$ -
Total Costs for Task Eight	$ -	$ -	$ -	$ -
Total Costs for Task Nine	$ -	$ -	$ -	$ -
Total Costs for Task Ten	$ -	$ -	$ -	$ -
Total Costs for Task Eleven	$ -	$ -	$ -	$ -
Total Costs for Task Twelve	$ -	$ -	$ -	$ -
Total Costs for Task Thirteen	$ -	$ -	$ -	$ -
Total Costs for Task Fourteen	$ -	$ -	$ -	$ -
Total Costs for Task Fifteen	$ -	$ -	$ -	$ -
Total Costs for Project Tasks	$ 187,836.63	$ 197,325.33	$ 107,870.74	$ 493,032.70
1/Cost Share	$ -	$ -	$ -	$ -
2/ Other Matching Funds	$ -	$ -	$ -	$ -

1/ *Cost share funds* are specifically dedicated to your project and can include private and other State and Federal grants. Any funds listed in this line must be further described in the text of your proposal (see Chapter 3, Section D, of the PSP document)

2/ *Other matching funds* include other funds invested consistent with your project in your project area for which the ERP grant applicant is not eligible. Any funds listed in this line must be further described in the text of your proposal (see Chapter 3, Section D, of the PSP document)

Proposal Number
Proposal Name

Detailed Budget Breakdown by Task and by Fiscal Year

Applicant Name

BUDGET FOR TASK ONE (Administrative)	**TOTAL AMOUNT TASK 1 All Years**	**Year 1**			**Year 2**			**Year 3**		
		Amount per hour	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										
Research Wildlife Biologist GS-13- Feskes	$ 11,373.60	$ 45.10	80	$ 3,608.00	$ 47.35	80	$ 3,788.00	$ 49.72	80	$ 3,977.60
Senior Wildlife Biologist GS-12 - Casazza	$ 18,289.60	$ 36.26	160	$ 5,801.60	$ 38.07	160	$ 6,091.20	$ 39.98	160	$ 6,396.80
Wildlife Biologist GS-11 - Overton	$ 3,576.40	$ 28.36	40	$ 1,134.40	$ 29.78	40	$ 1,191.20	$ 31.27	40	$ 1,250.80
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ 33,239.60**			**$ 10,544.00**			**$ 11,070.40**			**$ 11,625.20**
										-
[1/] Benefits as percent of salary	33%			$3,514.32			$3,689.76			$3,874.68
Personnel Total (salary + benefits)	**$44,318.36**			**$14,058.32**			**$14,760.16**			**$15,499.88**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (office supplies, space rental,)	$ 1,950.00			$ 650.00			$ 650.00			$ 650.00
2/ Travel and Per Diem	$ 3,000.00			$ 1,000.00			$ 1,000.00			$ 1,000.00
3/ Equipment	$ 600.00			$ 300.00			$ 300.00			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ 5,550.00**			**$ 1,950.00**			**$ 1,950.00**			**$ 1,650.00**
[5/]Overhead Percentage (Applied to Personnel & Other Costs)	42%			$ 6,675.47			$ 6,968.14			$ 7,151.50
Total Costs for Task One	**$ 70,663.46**			**$ 22,683.78**			**$ 23,678.30**			**$ 24,301.38**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

Proposal Number
Proposal Name

Detailed Budget Breakdown by Task and by Fiscal Year

Applicant Name

BUDGET FOR TASK TWO	TOTAL AMOUNT TASK 2 All Years	Year 1 Amount per hour	Year 1 Number of Hours	Year 1 Total Amount for Year 1	Year 2 Amount per hour	Year 2 Number of Hours	Year 2 Total Amount for Year 2	Year 3 Amount per hour	Year 3 Number of Hours	Year 3 Total Amount for Year 3
Personnel										
Research Wildlife Biologist GS-13 - Fleskes	$ 7,396.00	$ 45.10	80	$ 3,608.00	$ 47.35	80	$ 3,788.00	$		$ -
Wildlife Biologist GS-11 - Overton	$ 9,302.40	$ 28.36	160	$ 4,537.60	$ 29.78	160	$ 4,764.80	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ 16,698.40**			**$ 8,145.60**			**$ 8,552.80**			**$ - -**
										-
[1/] Benefits as percent of salary	33%			$2,714.93			$2,850.65			$0.00
Personnel Total (salary + benefits)	**$22,263.98**			**$10,860.53**			**$11,403.45**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (space rental)	$ 900.00			$ 300.00			$ 300.00			$ 300.00
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor Oregon State University	$ 351,925.00			$ 140,245.00			$ 147,550.00			$ 64,130.00
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ 352,825.00**			**$ 140,545.00**			**$ 147,850.00**			**$ 64,430.00**
[5/]Overhead Percentage (Applied to Personnel & Other Costs)	6%			$ 8,327.30			$ 8,758.94			$ 3,543.65
Total Costs for Task Two	**$ 395,718.87**			**$ 159,732.83**			**$ 168,012.39**			**$ 67,973.65**

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BUDGET FOR TASK THREE	TOTAL AMOUNT TASK 3 All Years	Year 1 Amount per hour	Year 1 Number of Hours	Year 1 Total Amount for Year 1	Year 2 Amount per hour	Year 2 Number of Hours	Year 2 Total Amount for Year 2	Year 3 Amount per hour	Year 3 Number of Hours	Year 3 Total Amount for Year 3
Personnel										
Wildlife Biologist GS-11 - Overton	$ 7,152.80	$ 28.36	80	$ 2,268.80	$ 29.78	80	$ 2,382.40	$ 31.27	80	$ 2,501.60
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$

- -

	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ 7,152.80**			**$ 2,268.80**			**$ 2,382.40**			**$ 2,501.60** -
1/ Benefits as percent of salary	33%			$756.19			$794.05			$833.78
Personnel Total (salary + benefits)	**$9,536.83**			**$3,024.99**			**$3,176.45**			**$3,335.38**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (office supplies, space rental)	$ 2,400.00			$ 800.00			$ 800.00			$ 800.00
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ 2,400.00**			**$ 800.00**			**$ 800.00**			**$ 800.00**
5/ Overhead Percentage (Applied to Personnel & Other Costs)	42%			$ 1,595.02			$ 1,658.18			$ 1,724.45
Total Costs for Task Three	**$ 16,914.49**			**$ 5,420.01**			**$ 5,634.64**			**$ 5,859.84**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

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4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

		Year 1			Year 2			Year 3		
BUDGET FOR TASK FOUR	**TOTAL AMOUNT TASK 4 All Years**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										
Wildlife Biologist GS-11 - Overton	$ 5,003.20	$ -		$ -	$ -		$ -	$ 31.27	160	$ 5,003.20
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
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Personnel Subtotal	**$ 5,003.20**			**$ -**			**$ -**			**$ 5,003.20**
										-
1/ Benefits as percent of salary	33%			$0.00			$0.00			$1,667.57
Personnel Total (salary + benefits)	**$6,670.77**			**$0.00**			**$0.00**			**$6,670.77**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (space rental)	$ 200.00			$ -			$ -			$ 200.00
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ 200.00**			**$ -**			**$ -**			**$ 200.00**
5/Overhead Percentage (Applied to Personnel & Other Costs)	42%			$ -			$ -			$ 2,865.11
Total Costs for Task Four	**$ 9,735.88**			**$ -**			**$ -**			**$ 9,735.88**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

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3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK FIVE	**TOTAL AMOUNT TASK 5 All Years**	**Year 1** Amount per hour	**Year 1** Number of Hours	**Year 1** Total Amount for Year 1	**Year 2** Amount per hour	**Year 2** Number of Hours	**Year 2** Total Amount for Year 2	**Year 3** Amount per hour	**Year 3** Number of Hours	**Year 3** Total Amount for Year 3
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
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	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$ - -**
										-
1/ Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**

Other Costs	Total All Years			Total Year 1			Total Year 2			Total Year 3
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
5/ Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Five	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

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4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

		Year 1			Year 2			Year 3		
BUDGET FOR TASK SIX	**TOTAL AMOUNT TASK 6 All Years**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$** - **-**
										-
1/ Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -

Proposal Number
Proposal Name

Detailed Budget Breakdown by Task and by Fiscal Year

Applicant Name

4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
5/ Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Six	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes.
No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK SEVEN	**TOTAL AMOUNT TASK 7 All Years**	**Year 1** Amount per hour	**Year 1** Number of Hours	**Year 1** Total Amount for Year 1	**Year 2** Amount per hour	**Year 2** Number of Hours	**Year 2** Total Amount for Year 2	**Year 3** Amount per hour	**Year 3** Number of Hours	**Year 3** Total Amount for Year 3
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$** - **-**
										-
1/ Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**

[5/]Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Seven	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

		Year 1			**Year 2**			**Year 3**		
BUDGET FOR TASK EIGHT	**TOTAL AMOUNT TASK 8 All Years**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**	$		**$ -**			**$ - -**
										-
[1/] Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
[5/]Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Eight	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet
4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")
5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

		Year 1			Year 2			Year 3		
BUDGET FOR TASK NINE	**TOTAL AMOUNT TASK 9 All Years**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$ - -**
										-
[1/] Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
[5/]Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Nine	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes.
No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet
4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")
5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

		Year 1			Year 2			Year 3		
BUDGET FOR TASK TEN	**TOTAL AMOUNT TASK 10 All Years**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										

	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$ - -**
										-
[1/] Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
[5/]Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Ten	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

		Year 1			Year 2			Year 3		
BUDGET FOR TASK ELEVEN	**TOTAL AMOUNT TASK 11 All Years**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -

-
-

	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$ -** -
										-
[1/] Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
[5/]Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Eleven	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

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3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

		Year 1			**Year 2**			**Year 3**		
BUDGET FOR TASK TWELVE	**TOTAL AMOUNT TASK 12 All Years**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$ -** -
										-
[1/] Benefits as percent of salary				$0.00			$0.00			$0.00

Proposal Number
Proposal Name

Detailed Budget Breakdown by Task and by Fiscal Year

Applicant Name

Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
5/ Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Twelve	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

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4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

		Year 1			Year 2			Year 3		
BUDGET FOR TASK THIRTEEN	**TOTAL AMOUNT TASK 13 All Years**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$** - **-**
										-
1/ Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -

2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
5/ Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Thirteen	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

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4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET FOR TASK FOURTEEN	**TOTAL AMOUNT TASK 14 All Years**	**Year 1** Amount per hour	**Year 1** Number of Hours	**Year 1** Total Amount for Year 1	**Year 2** Amount per hour	**Year 2** Number of Hours	**Year 2** Total Amount for Year 2	**Year 3** Amount per hour	**Year 3** Number of Hours	**Year 3** Total Amount for Year 3
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
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	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
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	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$** - **-**
										-
1/ Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -

Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
5/ Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Fourteen	**$ -**			**$ -**			**$ -**			**$ -**

1/ Indicate your rate, and change formula in column immediately to the right of this cell

2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.

3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet

4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")

5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

		Year 1			Year 2			Year 3		
BUDGET FOR TASK FIFTEEN	**TOTAL AMOUNT TASK 15 All Years**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 1**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 2**	**Amount per hour**	**Number of Hours**	**Total Amount for Year 3**
Personnel										
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
	$ -	$ -		$ -	$ -		$ -	$ -		$ -
Personnel Subtotal	**$ -**			**$ -**			**$ -**			**$ - -**
										-
1/ Benefits as percent of salary				$0.00			$0.00			$0.00
Personnel Total (salary + benefits)	**$0.00**			**$0.00**			**$0.00**			**$0.00**
Other Costs	**Total All Years**			**Total Year 1**			**Total Year 2**			**Total Year 3**
Operating Expenses: (ex: seed, plant materials, irrigation supplies, software, office supplies, etc)	$ -			$ -			$ -			$ -
2/ Travel and Per Diem	$ -			$ -			$ -			$ -
3/ Equipment	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
4/ Sub-Contractor	$ -			$ -			$ -			$ -
Other Costs Subtotal	**$ -**			**$ -**			**$ -**			**$ -**
5/ Overhead Percentage (Applied to Personnel & Other Costs)				$ -			$ -			$ -
Total Costs for Task Fifteen	**$ -**			**$ -**			**$ -**			**$ -**

Detailed Budget Breakdown by Task and by Fiscal Year

1/ Indicate your rate, and change formula in column immediately to the right of this cell
2/ Travel expenses and per diem must be at rates specified by the Department of Personnel Administration. The contractor is required to maintain travel receipts and records for auditing purposes. No travel out of the state of California shall be reimbursed unless prior written authorization is obtained from the State.
3/ Please provide a list and cost of major equipment ($5,000 or more) to be purchased, and complete "Equipment Detail" Worksheet
4/ Please list each subcontractor and amounts (if subcontractor not selected yet, use function like "ditch construction subcontractor")
5/ Indicate rate in column immediately to the right of this cell; and provide a description of what expenses are covered by overhead. If overhead is > 15% must provide justification

BUDGET OVERHEAD RATE JUSTIFICATION:

USGS-WERC is committed to providing quality science to address complex biological changes at the landscape level. Our strengths are excellence in science, a public service and conservation ethic, leadership in information delivery, a "can do" attitude and a willingness to take a partnership approach. Traditionally we have leveraged our base funds to support partnerships in obtaining reimbursable funds to accomplish the needed science for other public entities and agencies and we will continue to do so. As USGS has moved to a full cost accounting business model however some costs traditionally taken out of science dollars have more appropriately been assigned to indirect costs.

In fiscal year 2003 the U.S. Geological Survey instituted a full project-cost accounting policy. This policy requires all project expenses including direct costs (project related salaries and benefits, travel equipment, etc.) and indirect costs to be budgeted and charged to that project. For reimbursable projects these costs are recovered from customers for whom we perform reimbursable work. At the Western Ecological Research Center the net rate for these indirect costs is 41.67%. Applied to the gross funding for a project, the percentage of costs which are "indirect" is 29.4%. Indirect costs are as much a cost of doing business for USGS as are the direct costs. Indirect costs are those shared costs that are not unique to a particular project and these include USGS Bureau administration costs, common services costs at the headquarters level and facilities costs. USGS or bureau costs include distributed costs for, our contracts, personnel office, budget and finance services and bureau administration and program administration costs among others. Common services costs include the functioning of WERC headquarters administration and management. These costs include a variety of science support and management functions including training, facilities, workers compensation claims, safety, outreach, proposal and product review, publications and information delivery, statistical support, GIS assistance, information technology and security support, purchasing, and agreement processing and billing among many others. USGS is commited to continuing to provide the quality science needed for other agencies and matching science costs where we can for public entities but, given the president's management agenda and the need to pass agency financial audits, USGS must now do so within an appropriate business model. Indirect costs can be reduced on some high priority projects but only by providing congressionally appropriated base funds. As we are in an era of declining appropriations these opportunities are expected to continue to be limited.

USGS-WERC applies a greatly reduced overhead rate (3%) to funds that are passed-through to subcontractors. For this project, this 3% rate applies to those TASK 2 funds that are passed through to Oregon State University (Oregon State University subcontractor funds includes 15% overhead they charge). Because the CALFED budget form only permits listing of a single overhead rate, an overhead rate for TASK 2 was calculated at5.5%, which provides 3% overhead for pass-through funds and 41.67% for funds retained by USGS.

Environmental Compliance

CEQA Compliance

Which type of CEQA documentation do you anticipate?
X none *Skip the remaining questions in this section.*
− negative declaration or mitigated negative declaration
− EIR
− categorical exemption *A categorical exemption may not be used for a project which may which may cause a substantial adverse change in the significance of a historical resource or result in damage to scenic resources within an officially designated state scenic highway.*

If you are using a categorical exemption, choose all of the applicable classes below.

− Class 1. Operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. The types of "existing facilities" itemized above are not intended to be all−inclusive of the types of projects which might fall within Class 1. The key consideration is whether the project involves negligible or no expansion of an existing use.

− Class 2. Replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced.

− Class 3. Construction and location of limited numbers of new, small facilities or structures; installation of small new equipment and facilities in small structures; and the conversion of existing small structures from one use to another where only minor modifications are made in the exterior of the structure. The numbers of structures described in this section are the maximum allowable on any legal parcel, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

− Class 4. Minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry or agricultural purposes, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

− Class 6. Basic data collection, research, experimental management, and resource evaluation activities which do not result in a serious or major disturbance to an environmental resource, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies. These may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded.

− Class 11. Construction, or placement of minor structures accessory to (appurtenant to) existing commercial, industrial, or institutional facilities, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

Identify the lead agency.

Please write out all words in the agency title other than United States (Use the abbreviation "US".) and California (Use the abbreviation "CA".).

Is the CEQA environmental impact assessment complete?

If the CEQA environmental impact assessment process is complete, provide the following information about the resulting document.

Document Name
State Clearinghouse Number

If the CEQA environmental impact assessment process is not complete, describe the plan for completing draft and/or final CEQA documents.

NEPA Compliance

Which type of NEPA documentation do you anticipate?
X none *Skip the remaining questions in this section.*
− environmental assessment/FONSI
− EIS
− categorical exclusion

Identify the lead agency or agencies.

Please write out all words in the agency title other than United States (Use the abbreviation

"US".) and California (Use the abbreviation "CA".).

If the NEPA environmental impact assessment process is complete, provide the name of the resulting document.

If the NEPA environmental impact assessment process is not complete, describe the plan for completing draft and/or final NEPA documents.

Successful applicants must tier their project's permitting from the CALFED Record of Decision and attachments providing programmatic guidance on complying with the state and federal endangered species acts, the Coastal Zone Management Act, and sections 404 and 401 of the Clean Water Act.

Please indicate what permits or other approvals may be required for the activities contained in your proposal and also which have already been obtained. Please check all that apply. If a permit is *not* required, leave both Required? and Obtained? check boxes blank.

Local Permits And Approvals	Required?	Obtained?	Permit Number (If Applicable)
conditional Use Permit	–	–	
variance	–	–	
Subdivision Map Act	–	–	
grading Permit	–	–	
general Plan Amendment	–	–	
specific Plan Approval	–	–	
rezone	–	–	
Williamson Act Contract Cancellation	–	–	
other	–	–	

State Permits And Approvals	Required?	Obtained?	Permit Number (If Applicable)
scientific Collecting Permit	–	–	
CESA Compliance: 2081	–	–	

CESA Complance: NCCP	**–**	**–**	
Lake Or Streambed Alteration Agreement	**–**	**–**	
CWA 401 Certification	**–**	**–**	
Bay Conservation And Development Commission Permit	**–**	**–**	
reclamation Board Approval	**–**	**–**	
Delta Protection Commission Notification	**–**	**–**	
state Lands Commission Lease Or Permit	**–**	**–**	
action Specific Implementation Plan	**–**	**–**	
SWRCB Water Transfer Approval	**–**	**–**	
other	**–**	**–**	

Federal Permits And Approvals	**Required?**	**Obtained?**	**Permit Number (If Applicable)**
ESA Compliance Section 7 Consultation	**–**	**–**	
ESA Compliance Section 10 Permit	**–**	**–**	
Rivers And Harbors Act	**–**	**–**	
CWA 404	**–**	**–**	
other	**–**	**–**	

Permission To Access Property	**Required?**	**Obtained?**	**Permit Number (If Applicable)**
permission To Access City, County Or Other Local Agency Land Agency Name	**–**	**–**	
permission To Access State Land Agency Name	**–**	**–**	
permission To Access Federal Land Agency Name	**–**	**–**	
permission To Access Private Land Landowner Name	**–**	**–**	

If you have comments about any of these questions, enter them here.

Land Use

Does the project involve land acquisition, either in fee or through easements?
X No. *Skip to the next set of questions.*
– Yes. *Answer the following questions.*

How many acres will be acquired by fee?

How many acres will be acquired by easement?

Describe the entity or organization that will manage the property and project activities, including operation and maintenance.

Is there an existing plan describing how the land and water will be managed?
– No.
– Yes. *Cite the title and author or describe briefly.*

Will the applicant require access across to or through public or private property that the applicant does not own to accomplish the activities in the proposal?
– No. *Skip to the next set of questions.*
X Yes. *Answer the following question.*

Describe briefly the provisions made to secure this access.

Trapping of cranes will likely take place on public and private lands when permission is granted. We will contact potential landowners/managers prior to the capture period and secure permission to access required areas.

Do the actions in the proposal involve physical changes in the current land use?
X No. *Skip to the next set of questions.*
– Yes. *Answer the following questions.*

Describe the current zoning, including the zoning designation and the principal permitted uses permitted in the zone.

Describe the general plan land use element designation, including the purpose and uses allowed in the designation.

Describe relevant provisions in other general plan elements affecting the site, if any.

Is the land mapped as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance under the California Department of Conservation's Farmland Mapping and Monitoring Program?
X No. *Skip to the next set of questions.*
– Yes. *Answer the following questions.*

Land Designation	Acres	Currently In Production?
Prime Farmland		**–**
Farmland Of Statewide Importance		**–**
Unique Farmland		**–**
Farmland Of Local Importance		**–**

Is the land affected by the project currently in an agricultural preserve established under the Williamson Act?
X No. *Skip to the next set of questions.*
– Yes. *Answer the following question.*

Is the land affected by the project currently under a Williamson Act contract?
X No. *Skip to the next set of questions.*
– Yes. *Answer the following question.*

Why is the land use proposed consistent with the contract's terms?

Describe any additional comments you have about the projects land use.

Sandhill Cranes will be monitored via radio-telemetry on numerous lands under varying land uses. Land use data will be recorded for each crane location.